

mediennrat.be

Public market consultation 21th of December 2012 – 20th of February 2013

Mobistar's comments to the consultations concerning the Cable Operators' Reference offers for the Broadcast Market

NON CONFIDENTIAL RELEASE

Contact:

Mobistar SA/NV
Jean-François Waignier
Regulatory Affairs Manager
jean-francois.waignier@mail.mobistar.be
+32 485 779 202

Signature, Date

Mobistar's comments to the consultation concerning the Cable Operator's Reference offers for the Broadcast Market.

Preliminary remarks:

We thank the VRM, CSA, Medienrat and the BIPT for the consultation on the Reference Offers¹ of the different cable operators in application of the transparency obligation following the Market analysis of the broadcast market decisions of the CRC, hereafter referred to as the Broadcast Market Analysis.

While we fully understand and support the need for the regulatory authorities to have issued separate decisions, we have preferred to develop a single, common answer in English for the full set of 4 decisions. Taking resource and timing constraints into account this was considered as being the most pragmatic and practical approach to answer to the consultation. We consider it self-explanatory when certain parts of our answer do not apply to a given market analysis, but of course we are available to address any questions or concerns that this approach, or other elements in our answer, would generate.

The document is structured in the following way:

1. Introduction & General Requirements
2. Analysis of the different reference offers organized by cable operator
3. Comments on the regulators' different draft decisions
4. Proposals for simplifications

¹ BIPT:

- TELENET – <http://www.ibpt.be/ShowDoc.aspx?levelID=71&objectID=3888&lang=en>
- BRUTELE – <http://www.ibpt.be/ShowDoc.aspx?levelID=71&objectID=3890&lang=EN>
- CODITEL - <http://www.bipt.be/ShowDoc.aspx?levelID=71&objectID=3903&lang=en>

CSA: <http://csa.be/consultations/19>

MEDIENRAT: <http://www.medienrat.be/de/regulierung/marktanalysen>

VRM :

- CODITEL - [http://www.vlaamseregulatormedia.be/nl/nieuwsarchief/2013/raadpleging-over-ontwerp-van-beslissing-over-het-wholesale-referentieaanbod-van-coditel-\(numericable\).aspx](http://www.vlaamseregulatormedia.be/nl/nieuwsarchief/2013/raadpleging-over-ontwerp-van-beslissing-over-het-wholesale-referentieaanbod-van-coditel-(numericable).aspx)
- TELENET : <http://www.vlaamseregulatormedia.be/media/20554/ontwerp%20van%20beslissing%20ra%20telenet.pdf>
- TECTEO : <http://www.vlaamseregulatormedia.be/media/20551/ontwerp%20van%20beslissing%20ra%20tecteo.pdf>

Table of Contents

- 1 Introduction & General Requirements 7
 - 1.1 General Comments 7
 - 1.2 General Requirements 8
 - 1.3 National coverage = 3 operators = three times more complexity 9
 - 1.4 Lessons from past experience with Belgacom ADSL 10
- 2 Analysis of the reference offers 12
 - 2.1 Brutele/Tecteo 12
 - 2.1.1 General comments 12
 - 2.1.2 Content 16
 - 2.1.3 TV products & services 21
 - 2.1.4 Broadband products & services 24
 - 2.1.5 Billing 28
 - 2.1.6 Customer journey 28
 - 2.1.7 Operations 34
 - 2.2 Telenet 39
 - 2.2.1 General comments 40
 - 2.2.2 Content 46
 - 2.2.3 TV products & services 51
 - 2.2.4 Broadband products & services 53
 - 2.2.5 Billing 59
 - 2.2.6 Customer journey 60
 - 2.2.7 Operations 64
 - 2.3 Coditel / Numericable 68
 - 2.3.1 General comments 68
 - 2.3.2 Content 73
 - 2.3.3 TV products & services 78
 - 2.3.4 Broadband products & services 82
 - 2.3.5 Billing 85
 - 2.3.6 Customer journey 86
 - 2.3.7 Operations 89
- 3 Comments on the regulators' draft decisions 93
 - 3.1 General comments 93
 - 3.2 Analogue & digital TV services 94
 - 3.3 Interactive services 95
 - 3.3.1 Broadband market 98
 - 3.3.2 Operational aspects 98



- 3.3.3 Implementation planning.....106
- 3.3.4 Other elements.....106
- 4 Proposals for simplifications107
 - 4.1 General comments.....107
 - 4.2 Content.....107
 - 4.2.1 Linear TV.....107
 - 4.2.2 Catch-up TV108
 - 4.3 Broadcast – Conditional Access System.....109
 - 4.3.1 DVB-Simulcrypt.....112
 - 4.3.2 DOCSIS Set-Top Gateway119
 - 4.4 Broadband – DOCSIS architecture122
 - 4.4.2 Speed Profile management.....129
 - 4.4.3 Traffic routing130
 - 4.5 Video On Demand services.....132
 - 4.6 Operational aspects.....134
 - 4.6.1 Installation processes134
 - 4.6.2 Forecasting.....137
 - 4.6.3 Eligibility tool.....138
 - 4.6.4 IT Interface & provisioning flows139
 - 4.6.5 Change management.....143
 - 4.6.6 KPIs , SLAs & Penalties.....144
 - 4.7 Alternative approach.....144
- 5 Annex A: Overview of the necessary elements for a reference offer.146
- 6 Annex B: Abuses of the forecast mechanism.....152



Table of Figures

Figure 1: responsibility split (Mobistar view)8

Figure 2: General architecture9

Figure 3: Cableco model vs. Mobistar simplication model.....9

Figure 4: Implementation complexity is multiplied by 310

Figure 5: Tecteo/Brutele CAS.....18

Figure 6: importance of multiplay packs27

Figure 7: Voo installation time36

Figure 8: Voo technical support opening hours.....38

Figure 9: Telenet CAS proposal48

Figure 10: Telenet network evolution.....55

Figure 11: importance of multiplay packs.....58

Figure 12: Telenet installation time66

Figure 13: importance of multiplay packs.....84

Figure 14: Coditel installation time.....91

Figure 15: Current Catch-up TV model and proposed evolution109

Figure 16: CAS simplification with bottom-up approach.....110

Figure 17: 3 different CAS = more complex, more expensive + less flexible111

Figure 18: Full Simulcrypt simplifies implementation for all parties111

Figure 19: simulcrypt principle112

Figure 20: DVB-Simulcrypt standard model.....113

Figure 21: Simulcrypt in Cable environnement114

Figure 22: DVB simulcrypt implementation115

Figure 23: Simulcrypt: LAN-to-LAN via VPN between Mobistar and CableCo's116

Figure 24: Bottom-up approach with DSG instead of CableCo proposal.....119

Figure 25: DOCSIS Set Top Gateway120

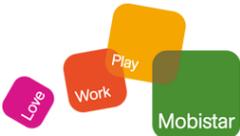


Figure 26: DOCSIS SetTop Gateway standard..... 121

Figure 27: analogies DOCSIS/CAS/ADSL..... 123

Figure 28: Bottom-up approach for DOCSIS CMTS Sharing 124

Figure 29: DHCP discover transmitted to DHCP servers in the same CableCo domain..... 126

Figure 30: Modem is attached to the right OLO VRF 127

Figure 31: Mobistar TFTP server delivers configuration files to M* modem 128

Figure 32: public IP address allocation to Wifi Router..... 129

Figure 33: Broadband Internet Traffic routing 131

Figure 34: Telenet network design evolution 133

Figure 35: Installation process..... 135

Figure 36: Customer eligibility 139

Figure 37: General Backoffice systems 140

Figure 38..... 141

Figure 39: customer monitoring & trouble ticketing 142

Figure 40: Template for Customer Operations forecast 153

Figure 41: Template for Planning & Field Operations forecast (note only BROBA ADSL is represented)..... 154

Figure 42: Forecasting Template for BRxx and WBA Orders..... 155

Figure 43: Coherency check between Planning & Field operations forecast and Customer operations forecast..... 156



Executive summary

Mobistar agrees with the regulators that the reference offers submitted for consultation **are far from having the necessary maturity** in order to provide an eventual beneficiary a clear workable view on the operational and technical aspects required for an implementation of a service based on these offers.

Mobistar strongly regrets that there is an **absolute lack of commonality** between the different cable operators' proposals, which forces candidate beneficiaries of these offers to interface with three very different solutions in terms of system architecture (three different DOCSIS modems, three different TV decoders, three different IT systems, etc...). This lack of commonality has a drastic and dramatic negative effect on implementation timing and implementation costs for any beneficiary aiming at a (near) national deployment of services based on the regulated reference offers. While Mobistar is strongly convinced by the need for and the potential of the regulation of the cable operators, it considers the current proposals overly complex and impossible to put into practice in a competitively attractive way.

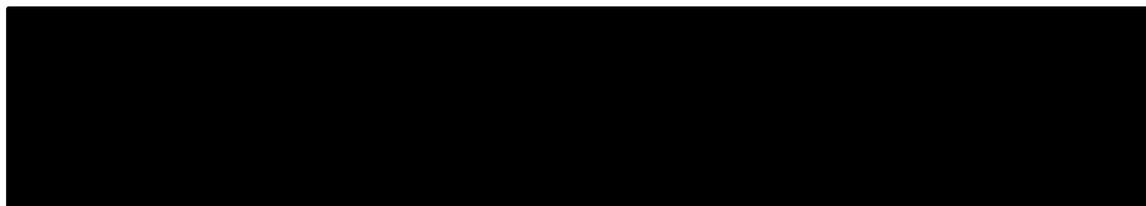
Furthermore, Mobistar deplores that the reference offers contain **many unacceptable requirements** on the beneficiaries of the offers : some requirements are excessive, other are contrary to the non-discrimination principle, other are contrary to the CRC market analysis decision as such. The refusal to make use of a real simulcrypt solution for Digital TV, the over-engineered and too complex technical architecture of the Telenet offer and the excessive forecast obligations put forward by Tecteo are just some highlights of such requirements.

Based on its experience as beneficiary of regulated products on Market 4 and Market 5 and taking the maturity of the proposed reference offers into account, Mobistar is convinced that there is still a long way to go before these offers can qualify as workable reference offers for the putting into practice of regulated wholesale services. We provide our comments on the various reference offers in section 2, and complement these with our comments on the draft regulatory decisions regarding these offers in section 3.

When considering the current status of these offers and the related comments, Mobistar invites the regulators to organise, together with the cable operators and the candidate beneficiaries of the offers, common workshops in which the missing technical and operational elements can be defined in an cooperative way.

In section 4 of this document we put forward **proposals aiming at a simplification of the technical solution**, leading to an easier implementation for both the cable operators and the alternative operators. Mobistar invites the regulators to take these simplification proposals utmost into account.

Finally, when considering the very quick market evolution (as illustrated by the Telenet's results presentation early February 2013) versus the slow progress being made towards the definition of workable regulated wholesale offer (as illustrated by the lack of quality of the offers now submitted for consultation, and the regulators' position regarding this), it is clear that pursuing the current process further will be extremely lengthy and time consuming before it will deliver workable deliverables.



1 Introduction & General Requirements

1.1 General Comments

As mentioned by Mobistar in its contribution to the draft Market Analysis Decisions², Mobistar supports the obligation on the SMP-operators to publish a reference offer as it allows alternative operators to develop a business case and commercial retail offers based on well-defined elements (technical and financial conditions, operational procedures, IT processes and interfaces, ...).

- In addition, Mobistar has highlighted that reference offers should be detailed enough in order for the alternative operators to purchase only the required services. In addition, these offers should contain all the necessary information in relation with the service provided: service description, ordering information, price, SLA-related processes and procedures, etc...

The reference offer should be kept up to date by the SMP operator and the regulators should be entitled to adapt the reference on their own initiative or on request of the beneficiaries, subsequently approved by the regulator..

Mobistar deplores that the reference offers provided by the cable operators are not meeting these requirements.

None of all the documents published by the regulators concerned by this consultation can be considered mature enough to enable Mobistar to analyse and decide to move forward in the future use of these regulated offers.

Mobistar will define (and justify) which elements are found as insufficiently documented in the different reference offers. Mobistar will propose alternatives to the cable operators proposals which it believes will be less complicated to implement for both Mobistar and the cable operators while ensuring the integrity of the cable operators' network and systems. For the sake of clarity and in order to avoid further delaying the process, Mobistar invites the regulator to define in their decisions on the approval of the reference offer all the key missing elements. Should some elements not be present in the reference offers, the beneficiary should be able to notify these to the regulators. The inclusion of these missing elements should be directly enforced by the regulators without additional delay.

We invite the regulators to focus strongly on those elements that are needed for implementation on both sides (wholesale provider and wholesale customer) first before starting discussions on any non-relevant details (or details that may become relevant much later in the process only).

Mobistar believes that the detailed operational elements should be discussed and agreed within working groups bringing together the cable operators, the potential beneficiaries as well as the different regulators in order to ensure efficient and effective processes and maximize the usage of standard technologies and common interfaces. Mobistar understands that such possibility is foreseen in the market analysis which states that:

“Une consultation et un groupe de travail doivent mettre au point un processus efficient, et largement standardisé entre les opérateurs, pour l'implémentation de [la revente de l'offre

² Mobistar's comments on the Media regulator's - VRM, CSA, Medienrat, BIPT- draft decision concerning the Market analysis of the Broadcast Market dd 18/02/2011

*analogique / l'accès à la plateforme numérique / pour l'implémentation de la revente de l'offre haut débit] dans les mois prochains. Ce système doit faire auparavant l'objet de tests approfondis.*³

Mobistar is of course at the regulators disposal in order to provide any additional elements or clarifications. and is ready to participate in such working groups.

1.2 General Requirements

The following picture gives an overview of Mobistar's view on the different responsibilities in the frame of the regulated offers. Of course, Mobistar's proposal is not a "take or leave" position and can be adapted in different ways (alternative approaches, phased implementations, ...). Mobistar is open to discuss this with the regulators.

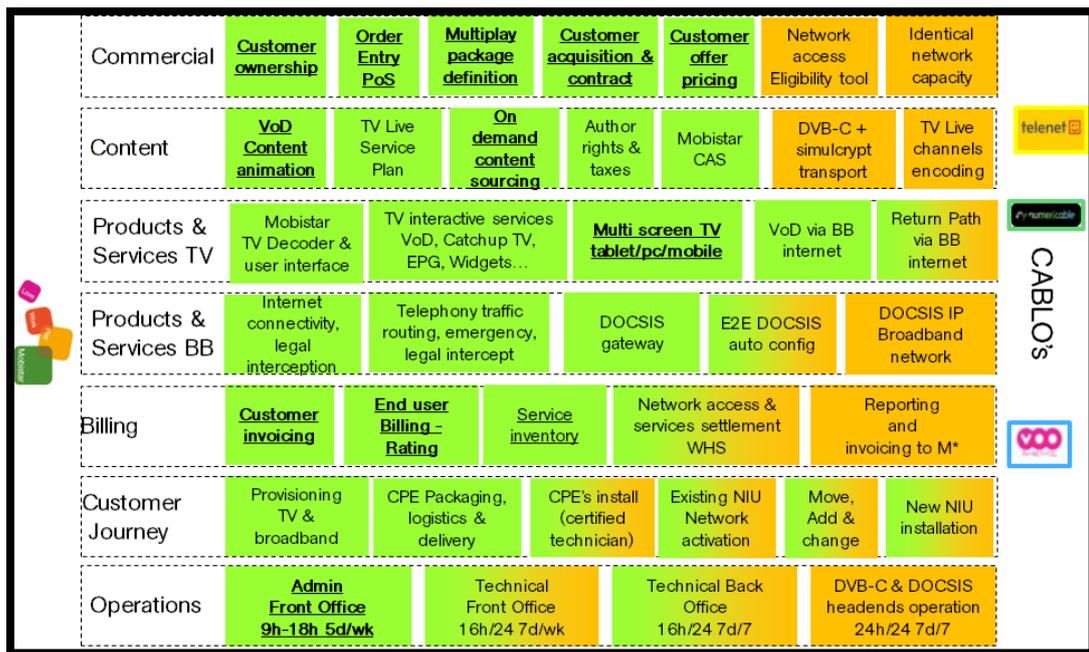


Figure 1: responsibility split (Mobistar view)

The next figure provides and high-level view on the architecture separation between the cable operator and a beneficiary as seen by Mobistar.

³ We refer to §804 , §902 and §1000 of "Décision de la conférence des régulateurs du secteur des communications électroniques (CRC) du 1 juillet 2011 concernant l'analyse du marché radiodiffusion télévisuelle sur le territoire de la région bilingue de Bruxelles-Capitale". We note that similar statements are present in the different market analyses.



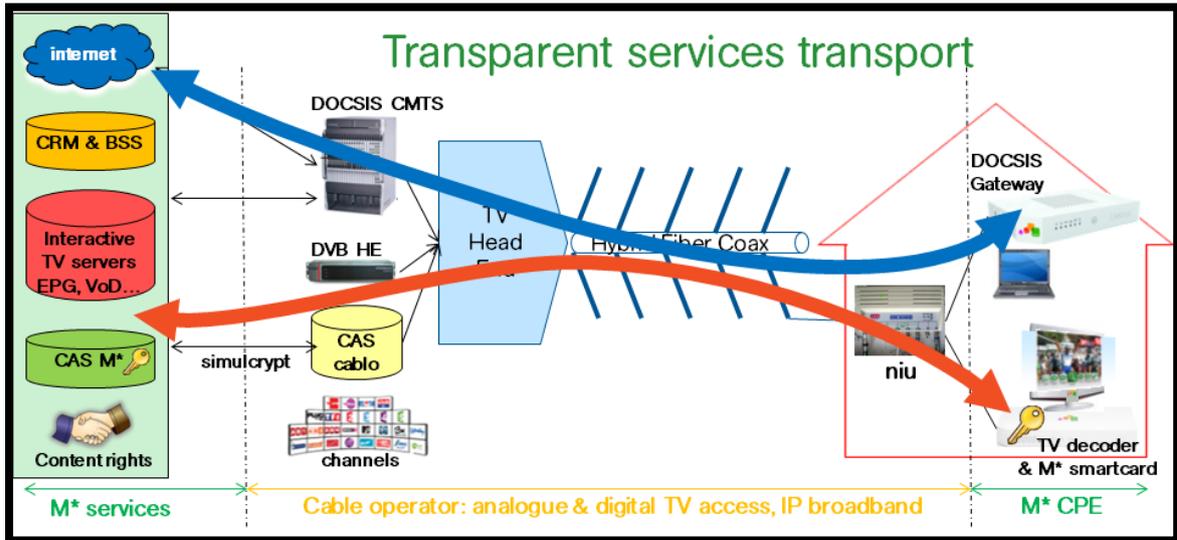


Figure 2: General architecture

Mobistar underlines that although there is a clear split between services included in the interactive TV platform and in the TV head-end, both must interoperate and thus respect common technical specifications and worldwide standards.

1.3 National coverage = 3 operators = three times more complexity

Mobistar regrets there are no common country guidelines for the implementation of the cable regulation. This will force potential beneficiaries of the offer to adapt to 3 different solutions & organizations, having an important impact on costs & timing. Mobistar will explain in this document how the use of strict standardized solution will tremendously make easier the implementation of the cable regulated offer into the market.

Mobistar will propose many simplifications ideas in chapter 4 with new bottom-up approach based on pure market standards. Without the integration of such ideas, which we would be pleased to discuss with all parties, Mobistar thinks the implementation of the regulated cable offers as such quite impossible.

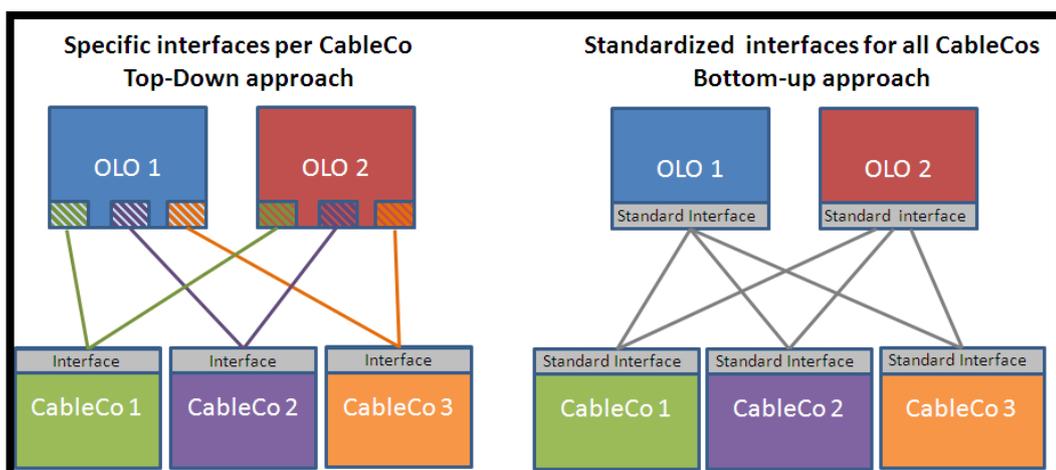


Figure 3: Cableco model vs. Mobistar simplification model

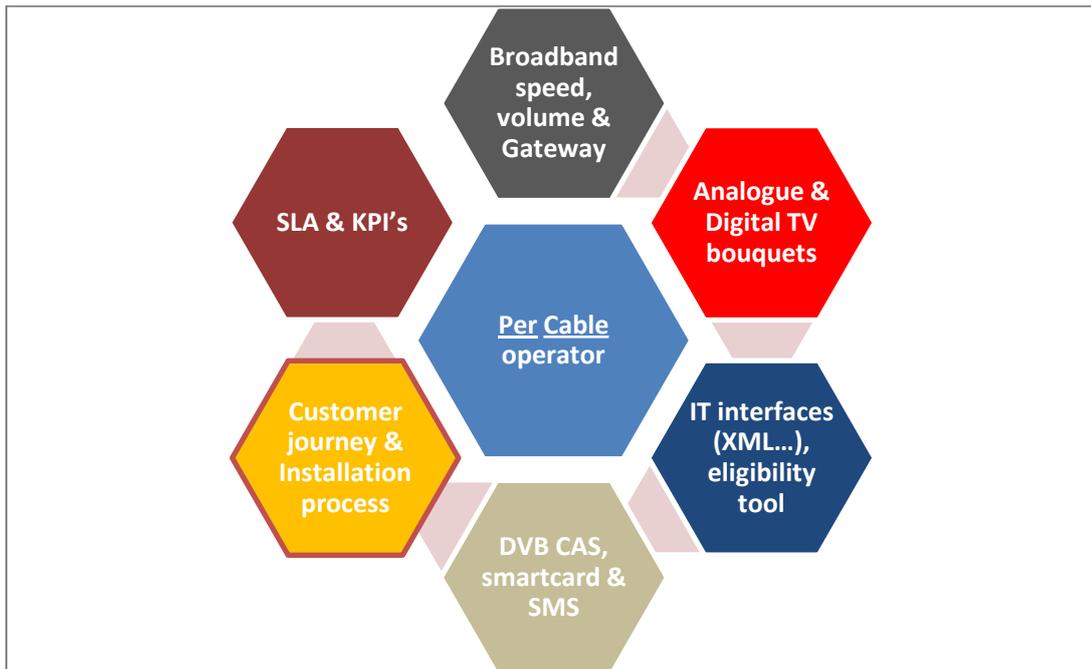


Figure 4: Implementation complexity is multiplied by 3

This is the reason why Mobistar insists on the need for common guidelines to deliver the regulated cable offers, and why these offers must be based on the use of common standards. We also invite the regulators to promote the implementation of simple solutions. Mobistar proposes in chapter 4 solutions which it believes will be simple to implement for both the cable operators as for the beneficiaries.

We believe that workshops must be organised in order to agree on the best way –and based on standards- to implement the ordering, provisioning, billing and supporting tools without further delaying the start of the implementation.

Mobistar is convinced that the most appropriate way to reach this goals is via the organisation of workgroups grouping the different cable operators, the interested parties as well as the regulators. As mentioned above, Mobistar believes that such workgroups can be enforced based on the different broadcast market analyses⁴.

1.4 Lessons from past experience with Belgacom ADSL

More than 10 years have been required to obtain *more or less* efficient regulated wholesale offers with one single national operator. The first BRUO/BROBA regulated offers have been defined in 2001 while still in 2011-12 Operational Workgroups had to be organized by the BIPT in order to further improve the operational processes which were not satisfactory.

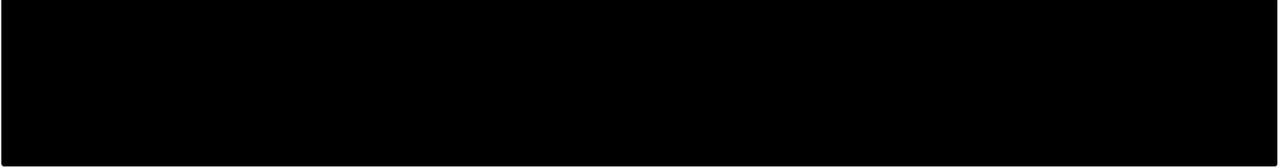
Mobistar is highly concerned about a similar “lack of progress” situation for the new regulation.

This past experience and the lessons learned from 10 years regulation of Belgacom must be re-used in order to define efficient operational processes in the frame of the broadcast market analysis and thus facilitate its operational implementations as from the very start.

⁴ We refer to our comments in section 1.1 General Comments

The lessons learned can be re used to define amongst others the forecasting mechanism⁵, the SLAs, the ordering process, the supporting IT systems/processes,

Looking back at this experience, and taking the current maturity of the proposed reference offers into account, Mobistar is convinced that there is still a very long way to go before having the necessary level of development of both the reference offers and their subsequent operational implementation.



We propose to use common working groups to define the operational details of the solutions.

⁵ We also refer to our comments in section 6 Annex B: Abuses of the forecast mechanism

2 Analysis of the reference offers

2.1 Brutele/Tecteo

Mobistar will make joined comments for Brut  l   & Tecteo as we have not noticed major differences between Brut  l  's and Tect  o's proposal (except a few one concerning the brand, analogue TV channel list and PoP's addresses).

Brut  l   & Tecteo will be named generally the "CableCo" in the following chapters.

2.1.1 General comments

2.1.1.1 Introduction

Our main general feedback is that the documents with the updated reference offers provided by the CableCo are very far from the necessary maturity to allow Mobistar to decide on the implementation of these offers in the near future and/or to start any in-house technical preparation to prepare for the use of these offers :

- The documents and solution description are at a too high level, a lot of elements are missing in order to understand or assess what will these offers actually mean and can offer towards Mobistar's business assets (network, service, marketing)
- The specifications are clearly discriminatory and non-transparent : the CableCo impose processes and rules that are not applied to their own retail services
- Many confusing specifications and contradictions are present in the offer
- ...

Mobistar has already expressed its concerns regarding the poor quality of the documents provided as soon as **early 2012** (we refer to BIPT's and CSA's -consultations). Mobistar considers that there is a clear lack of positive evolution in the updated documents published in November 2012.

The reference offer documents are to become an important part of a potential future contract between Mobistar and the CableCo. In the current status, such situation would be clearly not acceptable.

To better understand the unsatisfactory nature of the current proposals, we invite the regulators to compare the proposed reference offers of the CableCo and the documents provided by Belgacom in the context of BROBA/BRUO/WBA wholesale offers. Without a level of detail of documentation such as the one provided by Belgacom, it is not possible to assess the feasibility to offer competitive services to end-users based on the draft reference offers. And even then one must note that the detailed level of documentation provided by Belgacom still leads to uncertainties and the need for additional clarifications when implementing new processes or tools such as eg. the remapping project of Belgacom recently showed.

2.1.1.2 General Terms and Conditions

Mobistar notes (as the different regulators) the absence of a General Terms and Conditions section. We understand that the different regulators have tried to enforce and even have provided generic General Terms and Conditions but that these were not included by the CableCo in the reference offers. Such behavior is clearly unacceptable and we invite the regulators to take all necessary measures in order to enforce the completeness of the reference offers.

General Terms and Conditions are needed in order for the beneficiary to know under which conditions he can concretely benefit of the access as mandated by the Broadcast Market Analysis. The absence of these conditions is therefore a clear barrier for a Beneficiary to assess the offers proposed.

2.1.1.3 Pricing

No prices are given in annex "OR_Tecteo_v 1.3_Appendix A10_Aspects quantitatifs.docx", which does not allow to assess the financial relevance of the offer. We invite the regulators to launch as soon as possible a consultation on the level of the retail-minus pricing.

We note that despite the complexity of the pricing structure⁶ proposed in the document by the CableCo, it is incomplete. In the different documents, the CableCo indicate that some operations or elements will be recharged to the beneficiary of the offer, while these elements are not listed in the pricing annex. For example the following pricing elements are not listed:

- EPG quote part if reuse (ref. §2.2.3)
- Installation in case of new house/no cable
- Cost for certification in case of minor updates
- Costs for cable installation in case of not yet available

Mobistar must have a clear view on all possible pricing elements that will be invoiced by the CableCo for all the services. Each service must be described in detail with a clear responsibility split.

2.1.1.4 Wholesale conditions for CableCo <=> Mobistar deal (§3)

First, the CableCo, in its definition of "client final" (main body page 5) restricts the end customer to the residential market only, which is clearly discriminatory. Mobistar should not only be able resell its product to any Belgian customer but in addition, similarly to what is done in the frame of Market 4/5 access, the beneficiaries should be allowed to sell their products to retail (B2C) and business (B2B) end-users as well as to other operators (wholesale).

Second, the CableCo imposes preliminary conditions before signing the contract such as a Mobistar commitment to pay for an (unknown) upfront fee before the start of the project negotiations.

Such obligation is evidently contrary to the regulation. Although Mobistar can understand that a certain setup fee can be asked, this fee should be non-discriminatory, proportionate, justified and can not be a prerequisite for the signature of a regulated access.

The fee cannot be used (as it seems to be the CableCo's intention) to support 100% of the development required by the CableCo to offer wholesale services.

Third, the CableCos may not intervene in the contractual relation between the beneficiary and its customer/suppliers.

Statements as those made in the main document §3.1.2 where Mobistar must reuse some of the CableCo's general sales conditions are obviously not acceptable:

« En supplément des obligations et des responsabilités qui sont reprises dans cette Offre de Référence, le Bénéficiaire devra reprendre et imposer au Client Final, certaines clauses des conditions générales de vente de TECTEO, telles que décrites en annexe. »

To require evidence that Mobistar is in negotiation with the content rights owners is evidently abusive and useless as the content rights are excluded from the access obligation.

⁶ Mobistar wonders if the price structure could not be simplified in order to enhance the transparency of the cost aspects.

Fourth, the CableCo request information which is so disproportionate compared to the pursued objective that the information request becomes a barrier to entry. The obligation to provide a detailed forecast for the next three years with the additional constraints that no SLA is applicable in case of incorrect forecast is not only discriminatory but simply grotesque.

Mobistar also fails to understand why it should be liable towards The CableCo third parties in case of potential issues when Mobistar stops the contract (main body §3.2.7.1)

Fifth, clear boundaries must be defined between CableCo's network and Mobistar's network. The proposal to use the NIU as demarcation point at the customer premise is rather odd as in various cases, there is no NIU installed at the customer's house (for example: analogue TV customer only, some digital customers which have their TV decoder directly connected to wall plug without a NIU (shared NIU between flats,...), etc.)/ Mobistar proposes to use as separation end-point the NIU when it exists or the coaxial interface where the master coaxial cable enters in the house (this cable is generally bigger).

Finally, Mobistar is also concerned by the fact that nothing is described by the CableCo regarding the security and governance rules that will be implemented in order to ensure Chinese Walls between its retail departments and its wholesale department. Such Chinese walls are evidently mandatory.

The CableCo defines also "open days" Mon-Fri 8H30-17H. Mobistar asks to add also Saturday as normal open days knowing all sales activities during this day.

2.1.1.5 Planning & availability

First, the CableCo should commit to answer to any reasonable request within a certain number of days. Such timing is currently not detailed in the process (§3.2.3). Mobistar considers 10 working days as sufficient to answer the OLO's on the acceptance of a request and to start the discussion on this initial request.

Second, the contract procedure as proposed by the CableCo is odd taking the regulated offer description in account. In §3.2.3, the CableCo foresees 15 days between the reception of beneficiary's official request to make use of the reference offer and the signature of the wholesale contract ! Should the beneficiary make a request outside the scope of the reference offer, no timings are provided for any negotiations related to such requests.

Such elements are clearly contradictory to the regulators' market analysis decision which foresees that within the frame of the reference offer the contractual negotiations may not exceed 3 weeks⁷, while outside the frame of the reference offer the maximum negotiations delay may not exceed 4 months⁸. Especially when Taking the need for alternatives to the strict minimum specifications of the reference offers into account, the timing of the negotiations on elements outside of the reference offer framework is long.

⁷ We refer to §800, §898 and §996 of "Décision de la conférence des régulateurs du secteur des communications électroniques (CRC) du 1 juillet 2011 concernant l'analyse du marché radiodiffusion télévisuelle sur le territoire de la région bilingue de Bruxelles-Capitale". We note that similar statements are present in the different market analyses.

⁸ We refer to §798, §896 and §994 of "Décision de la conférence des régulateurs du secteur des communications électroniques (CRC) du 1 juillet 2011 concernant l'analyse du marché radiodiffusion télévisuelle sur le territoire de la région bilingue de Bruxelles-Capitale". We note that similar statements are present in the different market analyses.

Third, the CableCo does not provide any detailed nor high level implementation timeline. Mobistar understands that the regulators will enforce the implementation within a maximum period of 6 months after the approval of the reference offer.

Finally, Mobistar insists on the need to perform integration tests (lab) and friendly user tests of the different services. A clear process of implementation with required validation testing and phases must be described and should be non-discriminatory. It is obvious that information is lacking and that CableCo intentionally limited the information about this : in essence rather empty some statements of good intentions and other generalities are present (§3.4).

2.1.1.6 Commercial

Commercial ownership:

For the sake of clarity, Mobistar confirms its position that should have full ownership of the customer.

Order entry & Point of Sales tools:

Mobistar notes that no reference is made related to this topic in the document. For the sake of clarity, Mobistar confirms its position that should have access to supporting tools which can be integrated in its own tools in its Point of Sales.

Multiplay package definition:

Mobistar notes that no reference is made related to this topic in the document. For the sake of clarity, Mobistar confirms its position that it should be able to define its own multiplay packages and product mix.

Customer acquisition & contract:

Mobistar notes that no reference is made related to this topic in the document. For the sake of clarity, Mobistar confirms its position that it should be able to do the customer acquisition and to get a Mobistar contract signed by the end user.

Customer offer pricing:

Mobistar notes that no reference is made related to this topic in the document. For the sake of clarity, Mobistar confirms its position that it should be enabled to manage its own end user pricing & promotions without any consultation, approval, validation or interference whatsoever of the CableCo.

Network access eligibility:

Mobistar notes that no reference is made related to this topic in the document. For the sake of clarity, Mobistar confirms its position that we should have exactly the same eligibility for its customers (= same technically eligible customer base) than applies for Cableco retail customers.. If a customer is not eligible for having access to Mobistar cable offer, it won't be eligible to have access to the Cable retail offer.

Non discriminatory offer:

Mobistar underlines the need to apply, enforce and control the non-discrimination obligation. This can be done in the form of audit by regulators, by monthly transparent reporting to regulators and by regular reporting to the market, ... For the sake of clarity the non-discrimination obligation must apply to both operational and technical aspects (same SLA, same speed, net transparency, same traffic shaping rules, same network coverage, same eligibility...)

The CableCo current reference offer proposals give far too few elements which indicate that the non-discrimination obligation will be adhered to in a "non-enforced" way.

Volume forecasts:

According to the reference offer, beneficiaries must provide rolling forecasts for the 3 coming years for each service and this split per broadband speed, per bouquet – and which can be changed by the CableCo...- per province/area. On top of this beneficiaries of the wholesale offer will lose the (already poor) SLA for out of forecasts orders. This is clearly not acceptable. Mobistar considers this requirement to be discriminatory and insists that the regulators oblige the CableCo to apply forecasting obligations imposed on beneficiaries of the regulated offer in a non-discriminatory way to their own retail arm of the CableCo.

Mobistar considers that forecasts on a quarterly basis for each product line (analogue, Digital TV & Broadband) are acceptable. However, there are limitations to the possibility of relevant and accuracy of forecasts, both in terms of level of detail and in global accuracy (a global market forecast could be relatively stable, the split however over the different actors in the market is heavily impacted by actions of the other players, and not really in the hands of a specific operator). More details for Mobistar's proposal are provided in chapter 4.6.2

2.1.2 Content

2.1.2.1 Analogue TV access & rights

As mandated by the Broadcast Market Analysis decisions, Mobistar agrees to manage the TV rights. However, Mobistar would strongly appreciate to have the possibility to be entitled to benefit of an access to analogue offers which include the content rights already. Mobistar's position on this is further described in chapter 4.2.

Some elements imposed by the CableCo are not acceptable regarding the analogue TV access. Mobistar invites to the regulators to tackle these elements:

- According to the proposal, Mobistar must have the rights for all analogue channels, and this condition is preliminary the right to distribute any regulated service (analogue, digital and broadband). If the rights negotiations with one TV broadcaster fail (i.e. too expensive proposal), Mobistar would not be able to launch any regulated service. Not having the right for one single analogue channel will block access to cable and analogue, digital & broadband services completely, which is clearly not an acceptable situation.
- Mobistar believes that access to regulated content could be a solution. We refer to chapter 4.2 for more information.
- The CableCo broadcast their own BARKER channel (branded channel promoting their own products & services), which is not acceptable. (cfr. annexe 6 of the CableCo reference offer). This Barker channel must either be removed, or either other service providers on the same network (such as Mobistar) should have the opportunity to broadcast their own Barker channel, or the Barker broadcasting time must be split equally among all the alternative operators using the CableCo regulated offer.
- The CableCo put forward to unilaterally stop the analogue TV service, with a prior notification of only 1 month. Such short timings are clearly not acceptable, especially as this access is part of a regulated offer. Any change in the analogue bouquet (i.e. the removal of a channel) must be approved by the regulator in charge of this CableCo. Additionally, a minimum period of minimum 24months is required to prepare the migration from an analogue TV channel to a digital only TV channel with the content owners.

- A complete out-phasing of the analogue service should be notified at least 3 years in advance to bring this more in line with what is applicable to broadband where such out-phasing must be notified 5 years in advance⁹.
- A simple declaration by Mobistar to the CableCo stipulating that Mobistar has the required authorization for a given content should be enough to clear the CableCo responsibility against TV broadcaster/content provider.
- No information is provided on the frequency plan of the CableCo. The frequency plan (which channels are available on which frequency) must be provided for all the analogue TV/Radio channels per region (and not a website where we should query per zip code, which is basically a relevant approach for individual end-users only...)

2.1.2.2 Digital TV access & rights

Mobistar agrees to manage the Digital TV rights directly with the content owners. However, as mentioned above, Mobistar would definitely welcome an access possibility to a regulated TV content package. Mobistar's position is further described in chapter 4.2.

Mobistar notes that, in general, there are less issues on the Digital TV service compared to the analogue TV service as it is more easy to switch off/on each individual channel access via the conditional access system.

2.1.2.3 On Demand TV selection and rights

Mobistar does agree with the CableCo proposal regarding the on-demand selection & rights (Video on demand, Subscribed VoD, Catchup-TV, TV on Demand, etc...). The sourcing and content rights negotiation are to be managed by Mobistar. Mobistar is also responsible for the content selection, the promotion and animation towards its end customers.

However, Mobistar would definitely welcome a regulated TV on demand content package or to share existing rights with the CableCo.

2.1.2.4 Author rights & taxes

Mobistar manages Sabam, Auvibel, contribution etc... if broadcasters rights are sourced and managed by Mobistar.

2.1.2.5 Digital TV encryption & access control

The CableCo proposal is totally unacceptable if Mobistar must deploy its own TV decoder¹⁰

The CableCo impose the implementation of a new instance of their current CAS (Nagra Merlin) dedicated for all their wholesale customers. This CAS will be totally managed by the CableCo and will be charged to the alternative operators.

⁹ We refer to a.o. §636 of the Decision of the Conference of Regulators of the electronic communications sector (CRC) of 1 July 2011 regarding the analysis of the broadband markets

¹⁰ As this will be explained in chapter 4.7, for short term solution waiting the implementation of this full regulation model, Mobistar is ready to resell a kind of white labeling retail-minus offer from each CableCo, including their TV decoder etc...

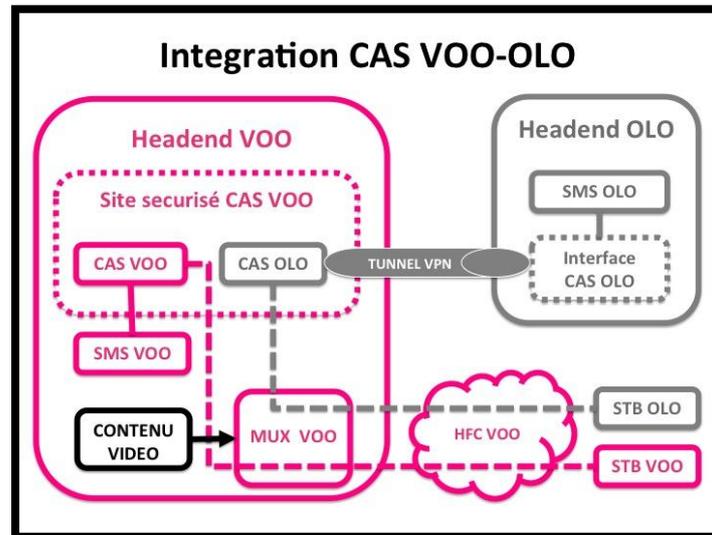


Figure 5: Tecteo/Brutele CAS

There are several reasons why Mobistar can not accept this CableCo proposal:

1. Mobistar does not have any of the advantages given by this simulcrypt solution. Adding a new instance of CAS inside the CableCo's network as proposed by CableCo can be considered as simulcrypt as specific keys (ECM's & EMM's) for OLO's customers are added to the ones already sent for CableCo customers. We remind that the main advantages of simulcrypt are the following:
 - Each operator can choose its CAS vendor, under the condition it is compatible with DVB-simulcrypt. This implies that each operator is responsible for the integration in their STB and is independant from other operators. CAS integration in STB is always a costly and long way process that must be managed carefully. Each new release of STB firmware (new releases of STB 4 software are typically implemented around every trimester) requires certification by the CAS vendor. Therefor it would be unacceptable for Mobistar to have to rely on a CAS vendor not selected and managed by Mobistar directly.
 - Each operator operates its own instance of CAS (indicated as CAS & SMS on the picture above) independently from each other
 - Each operator manages its own TV bouquets
 - This system keeps clear Chinese walls between all different operators sharing the same DVB network and DVB-streams.
2. As there are at least 3 different CableCo's in Belgium, and considering Mobistar would provide national coverage in line with the coverage provided by its mobile network, this proposal implies that Mobistar should integrate and/or interface with 3 different CAS systems to cover the Belgium territory. This is unrealistic, knowing that to integrate a single unique CAS in the TV decoder and the IT architecture already requires 9 to 12 months implementation. On top of this there is the need to build new partnerships.
3. It is unacceptable to be forced to use the CAS solution delivered by one specific vendor (NAGRA-Merlin by Kudelski for this CableCo) as Mobistar will not have any commercial levers to negotiate good terms & conditions (including financial conditions) if we are obliged to use a predefined supplier.
4. Mobistar is already using a DVB CAS solution, provided by Viaccess, for its current Mobistar TV offer, to simulcrypt all TV premium channels (~150) present in Mobistar TV bouquet. Viaccess is of course fully compatible with the DVB-simulcrypt standard and integrated in multiple satellite uplinkers stations across Europe delivering Mobistar customers decryption keys via satellite. Viaccess is a reliable, flexible and worldwide recognised security partner for TV digital right

management and access control. Mobistar has a long partnership with Viaccess, noting that: 1) Viaccess CAS client is already integrated in Mobistar's decoder. Additionally the certification procedures are well known and quite rapid (2-4 weeks maximum). 2) Mobistar also uses Viaccess ORAS (Subscriber Management System operated as a service by Viaccess on behalf of Mobistar) to maintain its TV customers rights and bouquet management.

5. The total cost of this approach for alternative operators (own internal development + the CableCo's charges recharged to the alternative operators) will be huge: we estimate that the CAS integration inside a new TV decoder + SMS-IT integration costs will amount to approximately 500.000 € per CAS.
6. The CableCo will be in full control of all Mobistar customers as they will manage the CAS infrastructure on behalf of the OLOs. They will have a global view on the Mobistar customer base and activities, which is not acceptable from a competition and non-discrimination point of view.
7. As we will explain in § 2.2.2.2, Telenet is proposing a real simulcrypt solution where the first OLO can select its own CAS vendor. This approach demonstrates implicitly that the arguments of these Cableco regarding risk and complexity of real simulcrypt solutions is not credible.
8. Finally, there is insufficient information given on the Conditional Access System to clearly understand the CableCo proposal. In "OR_tecteo_v 1.3_Appendice A9_CAS.docx, the CableCo make reference to the vendor's public website Nagra for more information. It is impossible to find technical information on the internet for such security & encryption system without getting in touch with the supplier and signing a Non-Disclosure Agreement.



Mobistar has been obliged to collect indirect information from France Telecom Group, TV decoder suppliers, integrators and some market experts to prepare our contribution to the consultation¹¹.

Mobistar's requirements are quite simple to summarize: we want to have independence in the choice, the implementation and the management of the Conditional Access System. The CableCo must support transparently (as the standard enables) all CAS from the different OLO'. To achieve this objective, there are two possible alternatives that have limited impacts on the Cableco infrastructure:

- CAS transport via DVB simulcrypt
- CAS transport with "DOCSIS Set-top Gateway" (DSG¹² which is standard as from DOCSIS 3.0)

These Mobistar propositions guarantee a simple implementation for any new alternative operator wanting to reuse the CableCo regulated offers.

Mobistar describes these solutions more in detail in chapter 4.3 with the pro and con for the different parties.

2.1.2.6 TV Bouquet customer offer definition

Mobistar understands that it will be able to define its own TV bouquets (number & structure). However, The CableCo do not give any details on how this is achieved.

¹¹ Finally, Mobistar had a short unique meeting with Kudelski in the beginning of February, but with not real exchange of information regarding possible solutions for doing wholesale TV in Belgium.

¹² http://en.wikipedia.org/wiki/DOCSIS_Set-top_Gateway

We note that the beneficiaries are totally dependent on the CableCo when a TV channel is removed from the CableCo's network (for example if the CableCo stop the contract with the broadcaster because of financial disagreement, not match with the CableCo's strategy anymore,...). In that case Mobistar does not have a solution to continue offering such channel, which is not acceptable. As agreed by the BIPT in the frame of the IPTV Multicast offer by Belgacom, it should be possible for Mobistar to ask the CableCo to transport a limited number of extra channels specifically for Mobistar (in the IPTV multicast offer, a multicast dedicated capacity of 25 Mbps was allocated to transport ~8 SD specific channels).

We note that another advantage of the DVB CAS simulcrypt model (one CAS per operator) is to enable the possibility for each operator to define their own TV bouquets.

2.1.2.7 TV Service plan

The channels spectrum allocation varies per CableCo and also per sub-region within each CableCo's network. Such differences can be explained by differences in coaxial network capacity, presence of local TV channels, specific content needs, etc...

Mobistar nevertheless requests access in a simple and transparent way to the details regarding the service plan for each of the different regions and their future evolution.

In order to offer the same customer experience to all its customers, Mobistar should be able to manage its own digital TV channel ordering list. Mobistar has implemented a "Fast Scan Table" containing the list of all Mobistar TV channels, frequency and channel names in a specific format. It should be possible to broadcast this information as DVB-SSU over the CableCo's networks to all customers. It requires only 50 kbps independently on the number of customers and the number of channels. The Mobistar TV decoder is (and will be) configured to listen to a default channel to capture any update in the channel organisation without having to scan again the entire spectrum (which is time consuming). Mobistar is obviously ready to provide all technical details required for the implementation of this feature which enhances the customer experience.

2.1.2.8 TV channels encoding & brdcasting

It is clearly understood that the CableCo manage the sourcing, the transcoding and the DVB multiplexing of all TV channels and associated data (CAS, EIT etc...). The CableCo also manage the QAM encoding and the transmission over the hybrid fiber coax network(s).

Mobistar notes that some important information, impacting the TV decoder is missing in the document. The CableCo must provide, for each TV channel, the exact characteristics of the encoding (video MPEG-2, MPEG-4 H264 , audio profile,...) and the details regarding the transport standards (MPEG-2 transport stream,...).

2.1.2.9 Teletext, EPG, EIT, audio dubbing & subtitles

Nothing is described regarding the availability of Teletext and other extra information transmitted by the TV broadcasters such as audio dubbing (for blind people, ...) & subtitles in DVB MPEG2 transport streams. As Mobistar does not control the sourcing and multiplexing for the different local TV channels, Mobistar cannot commit to be transparent in the transport for TV channels for such services as this could be requested by TV regulators and TV broadcasters.

Mobistar requests The CableCo to give more technical details on the extra information delivered per channel as well as the used formats.

Regarding short-term EPG (EIT for 2-3 days), almost nothing is described by the CableCo in their main document. Details are also missing in the document "OR_Tecteo_v1.3_2 Annexes_spec techn et procédures opérationnelles.docx".

2.1.2.10 Parental control

All TV operators in Belgium must respect the Media & TV regulators rules regarding minor protection and therefor implement parental controls. This information is provided by each TV broadcaster and often integrated inside DVB signalling inside the MPEG-2 transport stream and in EPG information (EIT). The CableCo must make this parental level information available for alternative operators. TV decoders and TV service head ends are impacted by this service.

Mobistar wants to highlight that parental control level information is generally transmitted via EIT inside DVB as this info should be accessible in any circumstances (even without IP connectivity). Therefor access to this information must be granted by the CableCo

The CableCo give no information about this function in their regulated offer proposal, which is not acceptable.

2.1.2.11 Extra Mobistar specific TV channels

Mobistar underlines that any change (move, add, remove) in the analogue TV bouquet structure (channels list, ordering,...) should be validated by the regulators before the implementation.

For Digital TV, the CableCo state they will analyse any request made by an alternative operator to add new Digital TV channel(s) in their network. Mobistar deplores the absence of any details about the process and the conditions for this to happen. In addition, the CableCo indicate that this will be treated outside any regulation, which contrary to the Broadcast Market Analysis decisions.

For the sake of clarity, Mobistar finds this proposal not acceptable and discriminatory. Mobistar would indeed not be able to differentiate its TV content offer without having the possibility to integrate a limited number of own TV channels.

Mobistar invites the regulators to apply similar principles than the ones proposed by the BIPT in the frame of xDSL's regulated multicast offer where alternative operators have the possibility to transmit a limited number of TV channels (~25Mbps or ½ DVB-C Mux).

2.1.3 TV products & services

As mentioned above, Mobistar proposes a phased approach to limit total cost of ownership (TCO) and reduce the time to market (TTM). We refer to chapter 4.7 for more details.

2.1.3.1 TV Decoder, UI & branding

For Digital TV, and certainly for Interactive Digital TV, Mobistar strongly prefers to use its own TV decoder, with its own branding & customer interface. The CableCo confirm it is Mobistar's responsibility to source, integrate and manage the TV decoder for its customers.

Mobistar has experience in the integration of TV decoders with the current Mobistar TV product (which is a hybrid satellite-IP decoder). Mobistar knows crucial this development phase is for the planning and the quality of the customer experience (zapping time, image quality, menu-browsing, interaction with services...). Based on the current offer, Mobistar can impossibly estimate the workload and impact to interconnect as the required technical specifications for this are missing.

The CableCo accept that each alternative operator deploys its own TV decoder. However, there is an important lack of information regarding the technical specifications (interoperability standards, DVB requirements, DOCSIS inside modem specifications, upgrade mechanism, ...) to be respected in order to be interoperable with the CableCo's infrastructure. In the absence of such technical information, Mobistar cannot evaluate the effort to prepare a TV decoder and to have it adapted to fit the CableCos' networks.

The certification procedure is unclear

Knowing that the CableCos impose their supplier for the Conditional Access System - Kudelski Nagra-Merlin (we refer to chapter 2.1.2.5 for more details about Mobistar's position concerning the CAS), the CAS client must be implemented in the Mobistar TV decoder by Mobistar's TV integrator. Afterwards, the TV decoder must be, for each firmware release, (re)certified by Nagra which is a supplier out of Mobistar's control. This process is not acceptable. On top of this, the CableCos do not give any details about this certification: no process, no details about certification requirements, no info on planning or on the cost....

Based on our experience with our partner Viaccess, the TV decoder certification is usually performed by the CAS vendor to validate the correct behaviour of the new firmware, mainly for security & DRM parts. Viaccess signs the firmware with Mobistar certificates to guarantee full security with the Mobistar TV decoder (CAS Pairing). Depending on the importance of the firmware upgrade, only some elements are re-certified to save time and money. Based on our good relationship with Viaccess, in some circumstances where for example only the user interface is impacted, only a declarative certification is enough. Such "fast-track" process saves a lot of time and money.

If a Mobistar customer will suffer from technical problems due to the Mobistar TV decoder, the impact will be fully on Mobistar, not on the CableCo. It is clear that Mobistar commits to manage related problems asap with its supplier.

In conclusion Mobistar insists on the fact that if the CableCo require an extra certification, these requirements must be relevant, non-discriminatory and justified. The additional tests must be mutually agreed by both parties and may not extend the time to market and the total cost of ownership for Mobistar.

TV decoder upgrade procedure is not explained.

The CableCo do not explain how Mobistar will be able to perform TV decoder firmware upgrades remotely. This can be performed by DVB (via DVB-SSU standard specific for decoder upgrade) or outband via the DOCSIS network. Mobistar requests some minimal capacity in the network to perform this important task. Mobistar upgrades 4 times a year its decoder. The CableCo must give concrete elements how this will be achievable.

2.1.3.2 Interactive TV platform

Following The CableCo proposal, the TV decoder and interactive TV platform should be provided by the alternative operator.

Mobistar agrees that if we use our own TV decoder, we should also use our own TV interactive platform (for user interface portal interaction, content browsing, search & recommendation engine, widgets, PVR remote control, user profile management...). The TV decoder and TV interactive platform are working as client-server.

However, the CableCo do not give any detailed information on the setup and the parameters of the (bi-directional) DOCSIS return path that will be open for TV interactive services. If Mobistar choses to work with an internal DOCSIS modem inside the TV decoder, we must understand how the configuration and the provisioning of this gateway will be performed. Service flow & QoS should be managed by Mobistar exactly as for broadband internet access.

2.1.3.3 Companion device

The second TV screen experience¹³ is becoming more and more important on the market. Mobistar considers this service as strategic.

¹³ TV on tablets, smartphones, PC, connected TV, games consoles...

There are two use cases:

1. Usage at home. Reusing TV DVB streams received by the TV decoder in the home LAN for companion devices¹⁴ is a simple approach with limited impact. Mobistar notes that imposing the Nagra-Merlin CAS inside the decoder is a barrier to propose this kind of services.
2. Nomadism usage with Over The Top solution. In this case, Mobistar must be also able to reuse the TV signal (analogue / digital) from the CableCo for its OTT services.

Mobistar considers that nothing should be put forward by the CableCo in their regulated offers to block the access to companion device services. Mobistar requests to be able to reuse the TV signals from the CableCo for companion devices and for the second screen experience.

2.1.3.4 TV return path

For Mobistar, the interactive TV traffic must be transported via broadband TCP/IP over DOCSIS. Mobistar considers two solutions: to integrate internally in the TV decoder a DOCSIS modem (cfr. Voo) or the usage of external DOCSIS modem (cfr. Telenet). No decision is made at this stage.

The information provided by the CableCo in their proposal is not enough to understand exactly the proposed solution for the return path:

- No detail about the IP architecture, routing, interconnection with Mobistar's network...
- No detail about the DOCSIS service flow parameters, which must be bidirectional
- No information on the guarantees for a non-discriminatory service

2.1.3.5 On demand streaming via EDGE QAM

The CableCo propose as an option the possibility for Mobistar to reuse the CableCo's EDGE-QAM streaming solution for Video on Demand. Mobistar would have access to VoD streaming over EDGE QAM , resource Manager etc... via an IT & streaming interface.

The information provided by the CableCo is not enough for Mobistar to understand in detail the proposed solution and to evaluate the impact on Mobistar's decoder and infrastructure:

- No details about infrastructure and architecture, or interconnection standards
- No details about resource allocation manager rules and specification. Mobistar evidently considers that this must be non-discriminatory for Mobistar customers : a CableCo user may not benefit of a higher priority versus a Mobistar user.
- No details about the files format (MPEG4 ? Profiles ? Transport stream parameters ?)

The CableCo propose to interconnect with 6 different POP's across Belgium, which seems excessive. Mobistar recommends an interconnection with maximum 2 different PoP's in Belgium to save flexibility and keep independence.

Doing VoD with EDGE QAM is a very complex and difficult approach. Trick Play (pause / backward / fast forward...) and Content protection (DRM Tiers-Based, Session-based and pre-encrypted file) have an impact on all CableCo heard and EDGE QAM architecture.. There will be impacts on the CableCo backbone for traffic routing. In addition this requires tight interconnection with the CableCo resource managers, real-time IT interfaces, etc...

¹⁴ By DTCP, DLNA and others similar standards

This is why Mobistar strongly recommends to use on demand streaming over DOCSIS as described below in chapter 4.5

2.1.3.6 On demand IP streaming over DOCSIS

Nothing is described in the proposal concerning IP streaming over DOCSIS. Taking (some degree of) net neutrality into account as well as the wide OTT VoD offer already existing on the Belgian market, Mobistar believes that this kind of service will be transparent for the CableCo and an interesting alternative.

Mobistar is in favour of this solution in the context of the regulation and addresses this further in chapter 4. **Error! Reference source not found.**

2.1.3.7 Switched Digital Video¹⁵

SDV is commonly used in some countries for the long tail TV channels. There is no indication if this technology is used or not by the CableCo to manage their TV channels.

If this is used by the CableCo, Mobistar should have access to the SDV service. The CableCo must then provide all technical & financial elements in their reference offers.

2.1.4 Broadband products & services

Remark: Mobistar proposes an alternative by a phased approach to save time and money. We refer to chapter 4.7.

2.1.4.1 Access to DOCSIS Broadband IP network

The CableCo propose to share their DOCSIS network infrastructure with Mobistar and to aggregate all Mobistar's users IP traffic and to send it to Mobistar interconnect.

2.1.4.2 DOCSIS modem

The CableCo wrote in §2.3.3:

« En ce qui concerne le Modem, le Bénéficiaire peut choisir son propre type de modem câble pour autant que celui-ci soit en conformité avec les spécifications techniques imposées par TECTEO. La conformité du Modem avec ces spécifications techniques doit être certifiée (ou doit avoir été certifiée préalablement) par un bureau de certification externe reconnu par le secteur. Les spécifications techniques sont décrites en annexe. »

Following the CableCo proposal, Mobistar could use its own DOCSIS modem, certified by an external entity, which is fine for Mobistar. However, Mobistar cannot proceed with this proposal because there are no technical details about the requirements Mobistar should respect to be compliant with the CableCo DOCSIS infrastructure and the design of the CableCo. Only a short reference to DOCSIS 3.0 is made.

The CableCo also impose the certification by an external & independent partner. Mobistar agrees to use Eurodocsis as certification partner.

As written by the CableCo, Mobistar is not obliged to source its own DOCSIS modem and can use the same gateway as the CableCo. Mobistar asks for the CableCo to give all technical and financial elements that are not provided in the regulated offer proposals to evaluate this alternative.

¹⁵ http://en.wikipedia.org/wiki/Switched_digital_video

Mobistar will communicate - when they are known - the list of MAC addresses of its DOCSIS modem for initial declaration in CMTS and/or DHCP Proxies (pre-provisioning).

2.1.4.3 Broadband customer management (authorization, activation / deactivation) and provisioning

The (de)activation procedure as explained by the CableCo is unclear. The schemes and explanations provided by the CableCo are not detailed enough to understand how the provisioning, the activation and the deactivation of a customer are performed.

Mobistar must be in full control of its customer for these actions:

- Activation & Deactivation of the service
- Suspension and re-activation of the service
- Change of the service
- Attribution of the service profile per customer

Cable modems are auto-configured based on DOCSIS standards. DOCSIS provisioning server framework standard shall be followed. DHCP, TFTP... servers should be managed by Mobistar and user information must come from Mobistar. Configuration files are also managed by Mobistar. Indeed, these configuration files contain also the parameters for the LAN services offered to end customers such as:

- WiFi parameters
- Firewalling rules and capabilities
- VoIP
- Extra such as HomeLAN services etc...

Mobistar should be able to change and adapt the configuration files at any moment. Of course, the Mobistar inventory information (number of customers, type of profiles,...) will be exchanged via the IT interface every open day for wholesale invoicing purposes.

There is no concrete reason to implement the very complex system such as described in the offer, where any action on the customer offer should be executed by the CableCo on behalf of Mobistar. This kind of mechanism will make the IT interface and the implementation very long and expensive.

As the DOCSIS modem has been certified by an external entity, any change in the configuration file should not jeopardize the correct behavior of any DOCSIS user.

It is reminded that the CableCo have always the possibility to check and see what's happening on their network via the DOCSIS CMTS management console.

Mobistar proposes simplified solutions, based on standards, in chapter 4.4.

The CableCo cannot intervene on Mobistar customers without respecting a clear procedure and a prior request to Mobistar.

Clear rules and internal Chinese wall must be defined.

2.1.4.4 Broadband customer offer definition & specific DOCSIS profiles

Mobistar regrets that the access to Broadband internet access regulated offer is constrained by the integration with analogue TV and digital TV. Mobistar cannot resell Broadband access in standalone or with analogue TV only.

Knowing this, Mobistar must be able to define its own broadband offer: internet speed profiles downstream/upstream and monthly data volumes offered.

The CableCo put forward that Mobistar must reuse the same speed profiles as defined for the CableCo retail offers. Mobistar expects the CableCo to give the details of the profiles available: up/down speed, monthly volume, quality of service (maximum delay, loss of packet, jitter, real-time, non-real time,...) ...

Mobistar notes there is some latitude left to request specific speed profiles, but in Mobistar's view the conditions imposed by The CableCo for the request of supplementary profiles (see §2.3.1 "La capacité disponible sur le réseau compte et autres exigences ») discriminatory :

- This request must not be linked to available capacity as the specific profiles must be lower than those already used by CableCo in any case.
- If is unclear what are the "autres exigences" ?

Mobistar proposes a similar solution as used in Belgacom DSL BROBA/WBA reference offer where a set of common profiles are shared between OLO's and a number of specific profiles can be requested per OLO. More details are given in chapter 4.4.2.

The CableCo indicate that it can apply "Fair Use Policy" on Mobistar's customers to secure a good broadband customer experience. On one hand, Mobistar understands that some actions should be taken in some circumstances to avoid negative effects on the broadband experience. On the other hand, Mobistar fears this statement can be discriminatory and in any case it lacks transparency. How can Mobistar be certain that CableCo customers will not be treated with higher priority when the Fair use Policy is activated ? Mobistar asks for the regulators to define clear governance and transparent procedures to ensure that all customers are handled at the same level.

2.1.4.5 DOCSIS modem trouble shooting

Mobistar should have a view on its DOCSIS modems installed base and their real-time status for customer supervision, monitoring and troubleshooting.

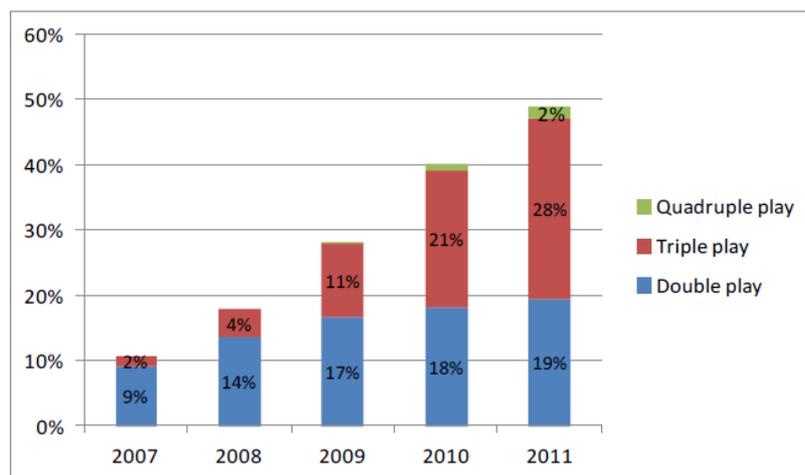
Mobistar cannot find any concrete proposal on this in the offer, which is unacceptable. Mobistar must know exactly and specifically what will be made available and the associated cost of these elements to evaluate the financial and technical impact on gateway and CRM tools.

As a minimum, Mobistar should be enabled to perform the following tasks remotely on its cable gateway:

- Display all technical information of the gateway: software release, profiles, channels, signal levels
- Reset the gateway
- Performance measures

2.1.4.6 Telephony service

Although not part of the broadcast market analysis, Mobistar regrets the absence of proposals in the reference offer to provide access to fixed telephony services. As stated by the regulators, telephony is one of the most important elements for multiplay pack offers on the Belgian market.



Source: Opérateurs (IBPT)

Figure 6: importance of multiplay packs

Mobistar requests the CableCo to provide access to fixed telephony via EMTA or any other simple solution.

2.1.4.7 IP addresses

The CableCo require that Mobistar must provide its own IP address ranges. Mobistar agrees to provide and manage the IP addresses for the end users. This should be done via Mobistar DHCP servers.

Mobistar regrets however that the CableCo did not give more information about the usage and/or the migration from IPV4 to IPV6.

2.1.4.8 Internet traffic routing & interco

Mobistar understands (Main body §2.3.2) that the CableCo will perform DOCSIS service flows association to Virtual Routing Instance (VRF¹⁶). Mobistar finds this is the easiest way to proceed minimizing the technical impacts. Mobistar will communicate the public IP addresses pools to the CableCo to ensure the correct implementation of the different VRF's.

The CableCo propose to interconnect with the Mobistar IP backbone in two different PoPs, which is fine for Mobistar. However, there are no further specifications nor details for this IP interconnect: type of interface, standards, routing & peering rules, redundancy... The CableCo must provide more concrete elements to let Mobistar evaluate the technical & financial impacts.

2.1.4.9 Legal intercept & fraud

The CableCo specify that all legal constraints regarding the delivery of internet access services to end-customers are Mobistar's responsibility.

Also here the CableCo do not give enough information on the technical solution for Broadband services in order to guarantee that Mobistar will be able to perform legal intercept as in most cases, specific configurations have to be made on CMTS equipment for legal intercept (CALEA).

¹⁶ Virtual Routing Forwarding

2.1.5 Billing

2.1.5.1 End user invoicing and billing

As requested for operator wholesale services, the CableCo will never invoice the (Mobistar) end user directly.

2.1.5.2 Information about user activities (IP, VoD,...)

A normal wholesale process imposes that Mobistar should have all the customer usage information to invoice directly its customers. Information on broadband traffic (monthly volume...), VoD usage, TV bouquet subscriptions, etc... are known by Mobistar as all traffic passes through the Mobistar network and subscriptions are managed by Mobistar.

However, specifically for broadband access, Mobistar cannot confirm this statement as there is not enough information on the architecture and the configuration foreseen by the CableCo regarding the CMTS. More specifically for the traffic exchanged by two customers attached on the same CMTS. Is this traffic directly routed inside the CMTS or by the router inside Mobistar's network ?

2.1.5.3 Wholesale settlement

The CableCo will invoice the service globally (no individual invoice) on a monthly basis to Mobistar.

Mobistar would like to understand better how the settlement will be organized and executed between the CableCo and Mobistar.

No details are given for:

- Monthly reporting for wholesale invoicing
- How will the CableCo deal with the pay per view use such as VoD ?
- Refunding shall be in the form of a reduction of this global invoice. For example, specific mechanisms in case of VoD interruption due to CableCo failure/action must be foreseen.
- Agreement procedure in case of dispute
- How/where IP data volume are counted ?
- Especially how will we know whether a VoD session went to its end/terminated well or if a problem occurred during the display ?
- What happens with a customer upgrade in the middle of a month ?
- Etc...

2.1.6 Customer journey

2.1.6.1 Customer Eligibility

The customer journey starts at Point of Sale. As explained in chapter 2.1.1.6, Mobistar will use specific proprietary tools to manage the sales process.

§4.1.1 "Le Bénéficiaire ne peut introduire des commandes (d'activation, de désactivation, etc.) que si le Client Final est enregistré dans les systèmes de TECTEO comme étant raccordé au Réseau »

There is NO information on the way to know if a customer is eligible for services.

Cableco documents are not compliant at all with minimum expectations regarding this crucial service. There is not enough information given by the CableCo: only some simple reference to a Web Tool only and no Soap/XML interface.

We invite the regulators to capitalize on the practices and experience on systems and processes which have been developed in the frame of the M4/M5 markets.

The CableCo also impose the signature by the customer of a “Letter of Authority” before requesting the activation of a new customer (document OR_Tecteo_v1.3_Appendice A5_LOA.docx). The usage of such a letter is disproportionate. Mobistar understands the need of a written consent/request of the customer. The Mobistar contract signature by the customer must be enough as a proof of the customer request. Indeed, the customer will never have its Tecteo customer number when (s)he will be in a Mobistar shop.

Furthermore, the following sentence is totally unacceptable:

« La facturation de l’abonnement par <Bénéficiaire> cessera et sera transférée vers TECTEO en cas de mesure de protection pour protéger la continuité du service pour l’utilisateur final. »

2.1.6.2 Customer provisioning tools

Mobistar will use its own ordering tools, provisioning and activation backend. These are connected with CableCo’s IT systems for inventory notification, etc....

Mobistar expects that all technical details required to interface correctly its systems to Cableco’s elements will be clearly defined. Currently Mobistar does not know what kind of information to exchange with the CableCo backends.

Unfortunately the CableCo provide very few information regarding the activation tools. Mobistar cannot judge the efficiency nor estimate the technical and financial impacts of the proposed solution. Mobistar strongly insists that more detailed documentation is absolutely indispensable for the alternative operators to start analyzing the relevance of the offer. The current absence of the necessary details will delay any possible competition. Furthermore, the situation is even more complex than in case of BROBA/BRUO as alternative operators risk to need 3 interfaces/processes/tools to cover Belgium with a competitive offer. Therefore, Mobistar urges the regulators to align not only the reference offers, but also the underlying processes as much as possible and to facilitate the development of a common reference system for the different CableCo.

Based on simplified solution architectures as described in chapter 4 (simulcrypt and usage of DOCSIS provisioning framework standards), the provisioning interfaces can be reduced to the following minimum actions:

- Activation & deactivation of network access and analogue TV
- Pre-provisioning of DOCSIS modems in CableCo DHCP Common server (MAC Addresses list) or AO/OLO DHCP Server.
- Request of a Simple Network Adaptation (NIU,...)
- Request of a new customer installation

We will see in chapter 4 that there is no need to implement complex IT interfaces related to the individual service activation, speed upgrade/downgrade, TV bouquet changes etc.....

In document « OR_Tecteo_v1.3_2 Annexes_spec techn et procédures opérationnelles.docx » §3.1.1, the CableCo write:

« TECTEO est responsable pour le développement, le support et la maintenance de l’application web. Dans certains cas, ces travaux peuvent nécessiter la non-disponibilité de l’application web. Dans le cas où l’application web nécessite une maintenance qui peut être planifiée et que celle-ci prend lieu pendant un Jour Ouvrable, TECTEO informera le Bénéficiaire au minimum 5 Jours Ouvrables à l’avance »

It is unacceptable that The CableCo could plan maintenance during working days (Monday - Friday) of such critical tool, used in any point of sales for customer eligibility tests ! Furthermore, Mobistar considers also that maintenances should not occur on Saturday as the sales points (shops) are open on Saturday. Planned maintenance must occur only on Sunday or during the night.

In document « OR_Tecteo_v1.3_2 Annexes_spec techn et procédures opérationnelles.docx » §4.1.2, the CableCo write:

« Une commande d'activation de Services Utilisateur Final ne sera acceptée que lorsqu' il n'y a pas de situation de facture impayée chez TECTEO de la part du Client Final pour le service de télévision analogique. Cette condition est requise car la seule façon de couper le service de télévision analogique est de couper physiquement la connexion, ce qui couperait aussi tous les autres Services Utilisateur Final de n'importe quel opérateur. »

This is not acceptable. Mobistar is not responsible and cannot be penalized by the CableCo if there is an old litigation between the end customer and the CableCo. Any pending issue between the CableCo and its end user can not impact the relation/service between the alternative operator and the end user.

Main body document §4.1.2 :

«L'activation du Client Final sera facturée directement au Bénéficiaire et ce également lorsque l'activation n'a pu être réalisée de façon complète lors de la plage horaire convenue en raison d'une cause non liée à TECTEO. Le Bénéficiaire devra effectuer une nouvelle demande pour procéder à l'activation. »

It is not acceptable that the invoicing of the customer access to Mobistar starts if the service has not been activated properly. The beginning of the invoicing must start only when the end customer has been activated properly on the CableCo network.

2.1.6.3 IT interface specifications

CableCo writes:

§4.1 : « TECTEO mettra à la disposition du Bénéficiaire un système de communication informatisé afin d'effectuer les opérations de traitement des commandes. »

We cannot accept such vague declaration by the CableCo about the IT interface and tools. There are no technical specifications nor descriptions of the proposed tool.

Mobistar re-iterates the need to have common interface specifications across the different cable operators in Belgium. Otherwise, it will be too complex, and induce longer time and costs to interface with three different IT systems (cfr. chapter 1). There is a unique moment now to impose a common syntax (web API) to all operators knowing that they do not have a wholesale interface at this stage.

In main body chapter §4.5.2, CableCo writes:

«Dans le cas où le Bénéficiaire identifie une panne dans le système de communication informatisé de traitement des commandes, le Bénéficiaire doit créer dans les meilleurs délais via le système de communication informatisé un « Trouble Ticket » chez TECTEO, dans lequel, le Bénéficiaire spécifiera le mieux possible, tous les aspects et conditions liés au problème »

Mobistar would like the CableCo to explain more detailed how to use an IT system that is broken down, to notify this system is broken down... in short, it is important to define a fall-back procedure to cope with such critical situation

2.1.6.4 Customer installation organisation

Ideally, Mobistar should be the unique interface communicating with the end customer.

The proposal does not explain with enough details the procedure that will be followed for the installation of a new customer. Mobistar requests a clear workflow procedure with all exceptions and pointing the responsibilities and expectations of each party (for example: how are the appointments organized ?).

How will the technicians report back that the install is adequate ?

Mobistar reminds that there should be only one unique technician visit at customer premises for the overall installation, in order to have a correct customer journey. Mobistar can agree that in some exceptional circumstances more visits may be required (e.g. when civil works are to be planned).

2.1.6.5 Unique installation visit with certified Technician

This is a very sensitive topic, crucial for the customer experience. The CableCo write §4.1.2

« Toute activation effective requiert de la part de TECTEO, une prestation sur place et dans l'habitation du Client Final, notamment pour la validation de l'installation, l'installation ou le remplacement du Point de Connexion, la suppression d'un filtre existant et le placement d'un repère d'identification de la ligne.

L'installation chez le Client Final d'un NIU conforme est requise pour l'activation de tout Service Utilisateur Final demandé par le Bénéficiaire. »

Mobistar cannot agree with this procedure, which is totally abusive and contrary to the regulators market analysis decisions.

Knowing the penetration of Digital TV and Broadband Internet in Belgium, in most of the cases, the end customer is already connected to a CableCo network with the required equipment (NIU). In other use cases, there is no NIU required (for analogue TV only i.e.).

As the NIU is part of the CableCo network, Mobistar cannot accept to pay for the extension of this CableCo network. Furthermore, for its own customers, the CableCo does not invoice its end customer¹⁷ for this service.

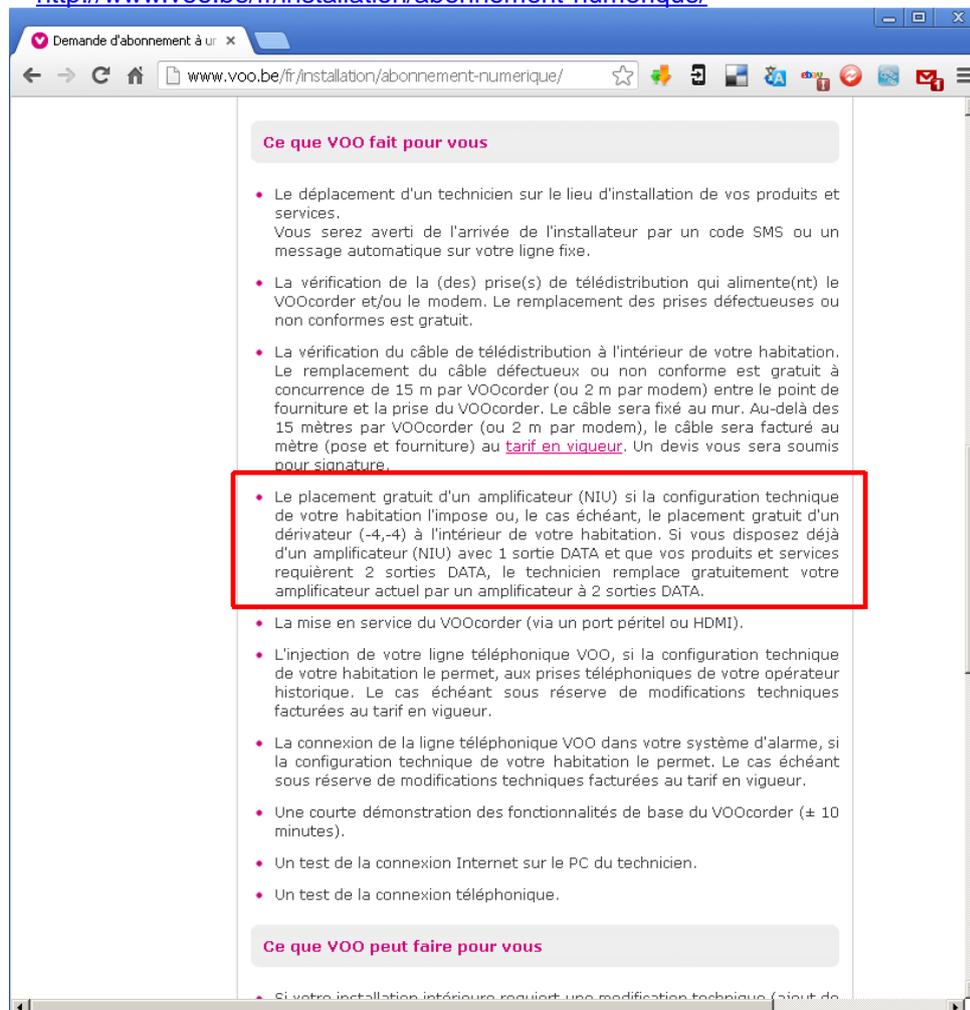
This Cableco proposal imposes also two visits: one CableCo technician for the network access, and one additional visit by a Mobistar technician for the installation of gateway, decoder and internal cabling infrastructure. This is not acceptable and this will ruin the customer experience.

The eligibility tool must indicate clearly if a Small Network Adaptation (SNA) is required for the end customer or not. This seems not to be foreseen by the CableCo, and this is not acceptable. In absence of such information, the OLO can only assume that an eligible customer is connectable at standard price, and that nothing can/will be charged additionally.

Mobistar asks to the regulators to include the possibility to use only one unique technician visit; a technician who will be in charge of the overall installation tasks: cable access installation & activation, CPE's installation and testing and reporting. There are two solutions:

1. Mobistar uses its own technicians, to be certified by the Cable Operator to install the end-to-end

¹⁷ <http://www.voo.be/fr/installation/abonnement-numerique/>



Ce que VOO fait pour vous

- Le déplacement d'un technicien sur le lieu d'installation de vos produits et services.
Vous serez averti de l'arrivée de l'installateur par un code SMS ou un message automatique sur votre ligne fixe.
- La vérification de la (des) prise(s) de télédistribution qui alimente(nt) le VOOcorder et/ou le modem. Le remplacement des prises défectueuses ou non conformes est gratuit.
- La vérification du câble de télédistribution à l'intérieur de votre habitation. Le remplacement du câble défectueux ou non conforme est gratuit à concurrence de 15 m par VOOcorder (ou 2 m par modem) entre le point de fourniture et la prise du VOOcorder. Le câble sera fixé au mur. Au-delà des 15 mètres par VOOcorder (ou 2 m par modem), le câble sera facturé au mètre (pose et fourniture) au **tarif en vigueur**. Un devis vous sera soumis pour signature.
- Le placement gratuit d'un amplificateur (NIU) si la configuration technique de votre habitation l'impose ou, le cas échéant, le placement gratuit d'un dérivateur (-4,-4) à l'intérieur de votre habitation. Si vous disposez déjà d'un amplificateur (NIU) avec 1 sortie DATA et que vos produits et services requièrent 2 sorties DATA, le technicien remplace gratuitement votre amplificateur actuel par un amplificateur à 2 sorties DATA.
- La mise en service du VOOcorder (via un port péritel ou HDMI).
- L'injection de votre ligne téléphonique VOO, si la configuration technique de votre habitation le permet, aux prises téléphoniques de votre opérateur historique. Le cas échéant sous réserve de modifications techniques facturées au tarif en vigueur.
- La connexion de la ligne téléphonique VOO dans votre système d'alarme, si la configuration technique de votre habitation le permet. Le cas échéant sous réserve de modifications techniques facturées au tarif en vigueur.
- Une courte démonstration des fonctionnalités de base du VOOcorder (± 10 minutes).
- Un test de la connexion Internet sur le PC du technicien.
- Un test de la connexion téléphonique.

Ce que VOO peut faire pour vous

- Si votre installation intérieure requiert une modification technique (ajout de

service for the end customer. In this case, Mobistar needs the full details of the procedure, timing and the content of the certification (and eventually its costs), which are not provided by the CableCo at the moment. A clear definition of the knowledge and know-how that will be certified should be provided. Evidently the certification must be non-discriminatory and identical to the certification undergone by the CableCo own technicians.

2. Or Mobistar deals with the same technicians companies as used by the CableCo and makes them also certified with Mobistar products & services (Gateway & TV Decoder). This could also be a part of the regulated offer. In any case the technician should do the work on behalf of Mobistar, and not on behalf of the CableCo (branding).

In general, the CableCo do not give enough details for all the use cases existing on the field: apartment sharing NIU, communitarian installation etc...

2.1.6.6 In-house installation

It is not acceptable that the CableCo impose some commercial brands for the selection of the in-house equipment's (cable, plug,...). We expect from the CableCo a list of technical standards to be compliant with, to let us choose the best suppliers on the market and it should be possible to only choose 1 same supplier to cover Belgium (OR_Tecteo_v1.3_Appendice A2_Spéc Tech Installation Intérieure.docx).

Furthermore, the CableCo refuse to be accounted for troubleshooting if the installation is not compliant to its own specifications. Such approach can only be accepted if the CableCo demonstrate that this point is also mentioned explicitly in the General Terms and Condition that apply to its own customers. Moreover, it has to be demonstrated that the CableCo do not try to solve their customer issues in that case.

Moreover, European/National standards on cabling exist: the CableCo should explain why their specifications rule over the standards.

Considering the high level of standardisation, obtaining a certification by one Cableco should be valid/recognised by the other Cableco.

The Cableco have to demonstrate that such requirement is not a discrimination.

2.1.6.7 Customer installation not yet connected to cable network

In this case, the CableCo indicate, without giving any details, that Mobistar can request the connection of a new customer on the cable network.

Mobistar asks to provide specific elements on the procedure (could be the one the Cableco are currently using), the timing for the answer and the associated costs¹⁸. In any case the processes and costs may not be discriminatory.

2.1.6.8 Customer Move (same network)

The CableCo propose to perform the move in two steps:

1. De-activation at the old address (+ associated de-activation costs and planning)
2. New activation as a new customer at the new address (+ associated costs and planning)

If the end customer remains under the same CableCo coverage, it is not acceptable to use this two-step procedure.

¹⁸ Retail pricings are available on http://www.voo.be/files/voo/VOO_FraisRaccordement_fr.pdf and are often forfait based.

Mobistar asks for a specific move process to be detailed and requests the regulators to ensure that the process is non-discriminatory.

2.1.6.9 Customer cancellation

The CableCo force in all use cases the visit of their technician to install a filter when the analogue access must be stopped.

It must be possible to use a M* technician to perform this action (cfr. chapter above). Mobistar does not understand why an appointment is required with the end user as in most of the case, the CableCo disconnects the customer from the street splitter ('TAP'). We invite the regulators also to ensure that the process is non-discriminatory.

2.1.6.10 Customer upgrade/downgrade

According to Mobistar (cfr. Simplified solutions as proposed by Mobistar in chapter 4), when the end customer requests a service upgrade/downgrade (extra bouquet, higher speed...), this should be completely transparent for the CableCo. Indeed, thanks to simulcrypt for the Bouquet management and thanks to the TFTP server managed by Mobistar, this is directly managed by Mobistar without the CableCo intervention.

2.1.6.11 CPE's logistics

All the logistics will be managed by Mobistar, with eventually its installer partners.

2.1.7 Operations

2.1.7.1 Network supervision & monitoring

It is understood that the CableCo operates the HFC network 24h/day, 7days/week.

Mobistar insists again on the clear definition of limits of responsibilities, element which is not well described in the current documents (interconnect, customer location)

Especially access to the Cableco site in case some Mobistar equipment would be located there (Video server, CAS system, etc...) is important.

It should be clear up to which equipment/network part is considered to be monitored and operated under these conditions and if monitoring involves customer equipment. The CableCo should provide necessary tools in a non-discriminatory way to OLOs.

2.1.7.2 SLAs & KPIs + penalties

The CableCo explain their SLA proposal in the document "OR_Tecteo_v 1.3_Appendice A3_SLA.docx".

In few words, the proposed SLA's and penalties are not acceptable and discriminatory.

Some of the not acceptable or missing elements regarding SLA & KPIs are :

- Unclear monthly reporting that will be made by the CableCo. A list of clear KPIs (SLA, usage, customer base,...) must be defined and reported every month to Mobistar and a regular follow-up must be organised as well.
- SLAs are not applicable during the 6 first months. This means that Mobistar will not have any pressure nor solution to have directly a good and fair customer experience in the activation and installation processes. Furthermore, if no SLA applies, it is impossible to follow up orders/repair tickets in good cooperation and with clear timers. This will lead to unnecessary manual follow up (calls/emails between operational teams) as both parties will have different ideas on normal delays. In order to facilitate a learning curve, SLAs should be

applicable; while there can be flexibility during a limited period to have no penalties. Mobistar proposes to limit this period to 2 months.

- SLAs and penalties are only defined on activation & resolution time. No SLAs defined on service performance & availability.
- Crucial information is missing, e.g. on the way how the SLAs are measured and computed etc...
- There are unacceptable values for confirmation time, activation time (90% activation on site in 6 weeks), failure resolution (90% failures resolved in 6 open days), etc...

Regarding repair: a clear distinction should be made between service interruption and service degradation and between single end user issues and multiple end user issues (e.g. P1: service interruption in region; P2: service degradation in region; P3: service interruption single end user; P4: service degradation single end user)

Mobistar did some informal testing in different points of sale and by calling the CableCo Telesales to ask about the required delay for a new customer to obtain the service. It appeared that most of the time a customer can be activated for digital TV & broadband internet in less than two weeks. Mobistar also found the information below from a CableCo resellers agent:



Figure 7: Voo installation time¹⁹

On its website²⁰, the CableCo indicate 4 weeks in case of customer move, which is always a more complex procedure.

In essence, Mobistar cannot understand why the proposed SLA by the CableCo is three times longer...

In addition Mobistar notes:

¹⁹ Check websites <http://www.tv-internet.be/formule/TV-Numerique-avec-le-VOOorder> and <http://www.astel.be/showDelays.php?source=Voo>

²⁰ <http://www.voo.be/fr/demenagement/infos-pratiques/>

- Insignificant penalties
- There are too many possibilities for CableCo to bypass SLA & penalties
- Some of the wordings are too vague (such as “reasonable operational workload”, “requirement as asked by the beneficiary is erroneous”).
- In many cases the CableCo give reasons for the SLAs not to apply. However in that case, no precision is given on the so called “best effort” approach which should apply as fallback. .
- No SLA for other provisioning actions such as move, add, change, delete, suspend actions
- No SLA on respect of wished service date, appointment date (incl. time slots), initial due date
- No SLA on IT tools (provisioning, eligibility, trouble ticketing....) despite the importance of these critical elements.
- Repair penalty limited to working days (it is not because a repair ticket will not be treated outside (limited) working hours, that the customer is not impacted during the other days. Therefore at least repair penalties should be applicable for all days

As all TV regulators have also reacted against the elements in the proposition and made new proposals, Mobistar will detail its position in chapters 3 & 4.6.6. **Error! Reference source not found.**

2.1.7.3 Governance

There is no detailed governance model proposed by the CableCo for the BUILD and the RUN. Only some references to single points of contact and statements of good intentions are mentioned.

Mobistar requests the CableCo to dedicate a wholesale team for this programme; a team which is evidently independent from the retail department with clear Chinese walls. Governance and rules should also be proposed.

2.1.7.4 Customer trouble shooting

As Mobistar will perform the first & second line line support, we should have access to customer trouble shooting tools to make the problem resolution as easy as possible. For example, the Mobistar helpdesk should have a view, via remote management console and status, on:

- Signal levels (DVB and/or DOCSIS) at customer premises (via gateway & STB monitoring)
- Services parameters (service flow, speed,...)
- IP connectivity (“remote ping”)
- ...

We also note that the CableCo do not give any detail on the trouble ticketing tool and its capabilities. The CableCo do not make any proposal or description of customer trouble shooting tools that will be enabled for Mobistar.

2.1.7.5 FrontOffice & Backoffice

Mobistar will manage first & second line support.

2.1.7.6 Third line support

In case of a technical issue at CableCo side, a ticket will be opened to the CableCo technical support. If there is a more important regional failure, direct contact between NoC’s should be allowed.

Mobistar is fine with the principle of the proposal, which should be detailed more in-depth. Especially how these tickets are being sent, acknowledged, and processed through the CableCo organisation with regular reporting on progress toward final resolution must be further specified.

Furthermore, Mobistar would like to highlight two issues related to CableCo support:

1. The open hours are too restrictive according to the CableCo definition: only Mon-Fri 8h30-17H00. Mobistar asks the possibility to offer at least the same service as proposed by the CableCo for their own customers:



Figure 8: Voo technical support opening hours²¹

2. In the main body document §4.5.1, it is written

« Le Bénéficiaire assure le support du service qu'il offre à son Client Final, éventuellement en intervenant sur place afin de remédier à l'Installation Intérieure. Si le Bénéficiaire constate, lors de l'intervention sur place, que le signal du Réseau de TECTEO n'est pas reçu à la sortie du Point de Connexion, le Bénéficiaire signale la panne de Réseau à TECTEO conformément au paragraphe 4.4.1.1 »

Mobistar reiterates its position (cfr. Chapter 2.1.6.5) that a unique technician visit must be enough to repair the customer installation in most of the cases (inside home and outside by finetuning street cable configuration). Of course, if some civil works should be performed to replace a cable in the street etc... the process will differ. Otherwise, the customer will be too negatively impacted.

2.1.7.7 Preventive maintenance

In case of preventive maintenance, the CableCo propose to notify Mobistar one day before notifying its own retail customers.

This is not acceptable as Mobistar must be able to notify its customers at the same time as the CableCo notifies its retail customers. Mobistar cannot organise a communication plan in 24 hours. This is discriminatory and abusive.

²¹ <http://www.voo.be/fr/contact/service-technique/>

Mobistar asks the CableCo to be notified of preventive maintenance at least 5 open days before the CableCo will notify its own customers.

Regarding preventive maintenance of the mission-critical Web application for provisioning and communication between Mobistar and CableCo, the proposition has already been rejected as explained in chapter 2.1.6.2.

2.1.7.8 Change Management

Mobistar requests that any change in the regulated offers must be approved by the different regulators. This is not the way the CableCo detail their regulated offers. Mobistar provides some possible (non-exhaustive) changes that can be made to the regulated offers.

Mobistar refers to its proposal in chapter 4.6.5 for change management procedure requirements, elements that are mainly missing this the current CableCo offer:

- Add a new Analogue TV channel: 2 months are not enough. Mobistar requests at least 6 months in order to complete right negotiations with the new channel. Please refer to chapter 2.1.2.1 for Mobistar's proposal regarding the analogue TV regulated bouquet.
- Remove an existing Analogue or Digital TV channel: 1 month notification before CableCo notify their own customer is not enough for Mobistar to prepare the communication towards its end customers.
- Stopping all analogue TV services: 1 month is totally unacceptable as already explained in chapter 2.1.2.1
- No details about the availability of a new Digital TV channel on the network. This must also be communicated to Mobistar. As digital TV access is managed channel by channel with the CAS, there should not be any major constraint.
- Change in the DVB multiplexing or Audio/Video CODEC: at least 6 months in order to eventually update & prepare the Mobistar TV decoder.
- No info for DOCSIS related service change management.
- No info related to IT interface & provisioning process.

2.1.7.9 Escalation process

The CableCo give some principles for the escalation procedure. However, the CableCo do not define what are the different levels of escalation and what will be achieved for each of these levels.

2.1.7.10 Massive migration process & rush mode

The CableCo do not plan any specific migration process and tools for an alternative operator having already an installed customer base and wanting to migrate to the CableCo regulated offer.

Mobistar would like to have such procedure defined and available.

In such context, the CableCo should explain how migration can be realized (batch file ordering, etc...), maximum number of activations per day etc...

2.2 Telenet

Telenet will be referred to as "The CableCo" in the following chapters.

2.2.1 General comments

2.2.1.1 Introduction

Our main feedback is that the documents with updated reference offers provided by The CableCo are very far from the necessary maturity to allow Mobistar to decide on the implementation of this offer in the near future:

- Too high level documents and solution descriptions are provided. A lot of elements required to understand what will be the impact on Mobistar assets (network, service, marketing, IT) are still missing.
- Very complex document structure (more than 70 annexes !) making the understanding of the offer very difficult and fuzzy.
- Discriminatory and non-transparent offers as The CableCo imposes processes and rules that do not apply for its own retail services
- Many confusing and contradictory statements are present in the offer
- Over-engineered solutions where The CableCo wants to remain in full control of all Mobistar activities, e.g. by the usage of proxy, control, outstanding certification processes etc...
- ...

Mobistar has already expressed its concerns regarding the poor quality of the documents early 2012 (we refer to the related BIPT and CSA consultations). Mobistar doesn't notice positive evolutions in the updated documents published in November 2012.

This reference offer documents are an important part of the potential future contract between Mobistar and the CableCo, and the current content of these documents is not acceptable for that purpose.

We also invite the regulators to compare the proposed reference offers of The CableCo and the quality of the documents provided by Belgacom in the context of BROBA/BRUO/WBA wholesale offers.

Mobistar also notices that the following documents are missing:

- TLN-WRO-TA-T-T-PAAG.
- "Groupe XTB-02» et «Groupe XTB-03".
- TLN-WRO-GA-G-P-CCPP.
- "Groupe XTT-01"
- TLN-WRO-GA-G-O-PAAE

Mobistar would also like some more explanation about the situation of WoluTV. Is this included in the Telenet scope or not ?

In general, Telenet does not commit to offer the regulated offers in a clear and understandable planning, but most of the case after Proof of Concept and validation, that make the planning totally uncontrollable and uncertain.

2.2.1.2 General Terms and Conditions

Mobistar has following comments concerning Telenet's General Terms and Conditions:

Introduction

Withdrawal of reference offers: Mobistar formally rejects the inclusion of the section in which Telenet has the right to simply withdraw the reference offer in case of a positive outcome of

Telenet's legal action. Indeed, simply withdrawing the reference offer would mean the end of the service for the Beneficiary's end-users.

Definitions:

Beneficiary: We ask the regulators to adapt the definition of beneficiary in the following way: "An Authorized Operator ~~who has been qualified valid and complete by Telenet~~ and with whom a Contract (and an Agreement) was concluded for the delivery of one or more Services." as Telenet's phrasing adds an unnecessary condition.

Demarcation point: The demarcation point is defined as "the point in the house where the coax cable enters and to which the in-home-network is connected". We invite The CableCo to provide a more precise definition in order to avoid any further discussions on the demarcation point

Request by Beneficiary

§ 1 order to Telenet: there are no details how the order is made. We also suggest to add contact points.

§ 1: letter of Authority for End-Users: we suggest to delete entire alinea 2 as it is abusive to request a signed letter for each end-user. A signed contract should be considered to be sufficient. In addition there is need for such guarantee for Telenet.

§ 3: refusal to execute the order: We suggest to add a last paragraph under point 3 similar to Coditel "In the event of a refusal on one of the grounds listed above, Telenet shall notify within **3** working days the Beneficiary of its decision and the grounds for the decision by ordinary mail. A copy will be sent to the "competent regulators" in the same delay."

Conclusion, entry into force, duration of a Contract and/or Agreement :

§5: Mobistar suggests to add the following sentence (second sentence): "The contract is concluded when accepted by both parties in writing per mail or per email"

Obligations of Parties

Mobistar suggests to add between §12 and 13: "Telenet will inform the Beneficiary of any modification of the technical specification, enabling a modification of the services offered, at the latest 3 (three) months before the commercial launch by Telenet of a commercial service"

Beneficiary

§17 liability for equipment: a definition of the targeted equipment as well as the concerned legislation is welcome. In the absence of any clear necessity we suggest to delete this §.

§ 20: we suggest to add at the end "Telenet will set up a standard form listing the information to provide for a Service request"

§23a replace in section the last sentence by "Telenet will inform within 2 hours of the disconnection and confirm within the working day of the disconnection by email". It is indeed important for the beneficiary to know ASAP when a customer has been disconnected by Telenet.

§23b the reference to direct contact with the client should be deleted, only the beneficiary can contact the client directly.

Other: We ask the inclusion of an additional paragraph in this chapter similar to §25 of the Codenet GT&C

“For any changes which may have a significant impact on the system (new types of messages or new exchange process), the Beneficiary shall be notified, to the extent possible, at least 6 months in advance with a high level description of the impact and with a structure of the documentation. Telenet will provide detailed impact and documentation, to the extent possible, 3 months prior to the start of the modifications. For smaller changes, the Beneficiary shall be notified, to the extent possible, at least 3 months in advance with a high level description of the impact and with a structure of the documentation. Telenet will provide detailed impact and documentation 1 month prior to the start of the modifications.”

Financial conditions

Financial Guarantees:

§42 – Mobistar requests following adaptations: 3 months period instead of 6 months (which is in line with the GT&C of Belgacom as well as a minimum of 250.000€ instead of 500.000€ (considering that this last would correspond to 6 months guarantee)

Principles

Branding

§46 : we propose the following adaptation (removal red part):

“46. Notwithstanding the foregoing, Parties acknowledge that the installation of equipment on the site after the Demarcation Point of the relevant Beneficiary’s End Users who have subscribed to an offering of a Beneficiary, ~~can never be realized by Telenet personnel~~. Both Parties agree that Telenet shall have no obligation to unbrand or rebrand its service technicians or trucks. Telenet will act in accordance with its general standard of integrity that it has internally developed and enforced.” As in some cases Telenet will have to perform some works after the Demarcation Point (installation of NIU for example)...

Liability

Mobistar proposes following adaptations:

§53b add a limitation in the liability of max 1.25 Mio €. A financial limitation must be included.

Add a point 66.2

“if such liability results from any material damage (including any dysfunction of the Belgacom’s Network), other than those referred to above, arising out of or in any way connected with the performance by the relevant Party of the Services or the breach of such Party’s obligations under these Terms and Conditions, then the total amount which can be recovered from such Party for all acts or omissions shall, in no event, exceed an aggregate amount equal to EUR 1,250,000 (one million two hundred fifty thousand euro)”

Add a point 66.3

“Neither Party shall be liable for indirect damages (pure and consequential), including without limitation loss of profit, loss of revenue, loss of data, loss of use, loss of savings, loss of goodwill, interruption of business or claim by third parties.”

Operational Matters

Essential requirement

§69: Mobistar requests to slightly adapt the last sentence as follows (addition in red) : “Telenet shall ... in good faith Beneficiary the **longest possible** notice”

Term, Termination & Suspension

Suspension

Mobistar requests following adaptations:

§73: replace 5 WD by 15 WD, this is also in line with what is applicable by Belgacom in the frame of their GT&C

§75: adapt the last sentence with following addition (in red) "as soon as possible of the cause of such suspension and at the latest within 1 WD after the suspension". This is also in line with what is applicable in Belgacom's GT&C

§76: replace "Telenet shall be entitled to suspend with immediate effect subject to a prior Notice of Suspension" with (in red) "Telenet shall be entitled to suspend within a period of 15 days following the written notice of Suspension"

Consequence of Suspension

§78 Taking into account that it will be up to Mobistar to manage the relation with its customers, we ask to remove §78 from the document.

Termination for cause

§81- The current wording is strictly unacceptable from an OLO point of view and from an end-user point of view. If the event referred to would apply (i.e. "In the event that an obligation imposed on Telenet in the CRC Decisions of 1 July 2011 is suspended or nullified by the Court of Appeal of Brussels or any other competent authority, ..." then the parties will have to negotiate on the way forward, given sufficient time to all stakeholders involved to adapt to the new situation. Therefore this element should not be integrated in the "General Terms and Conditions" section of the reference offers.

Applicable Law & Jurisdiction

§106 – Mobistar would prefer the Court of Brussels, but does not consider this a blocking issue.

2.2.1.3 Pricing

No pricing values are given, which does not allow to assess the offer. We invite the regulators to launch as soon as possible a consultation on the level of the retail-minus pricing..

Mobistar must have a clear view on all possible pricing aspects and service details that will be invoiced by The CableCo for all the services. Each service must be described in detail with a clear responsibility split.

TLN-WRO-TA-T-T-PAAG referring to pricing demand is missing.

Mobistar cannot accept to pay for the usage of eligibility tool as stated in T"LN-WRO-GA-P-O-PAAA V0.61 §7". This is a basic service that must be included de facto in the wholesale offer and no restrictions in its usage are acceptable. It is obvious that Mobistar will use this online tool "en bon père de famille".

2.2.1.4 Wholesale conditions for CableCo <=> Mobistar deal (§3)

First, it is obvious that Mobistar must be able to resell its TV offer, based on Telenet wholesale services, to any Mobistar customer for any market segment (residential, business and wholesale).

Second, The CableCo imposes preliminary conditions before signing the contract such as a Mobistar commitment to pay for an (unknown) upfront fee before the start of the project negotiations.

Such obligation is evidently contrary to the regulation. Although Mobistar can understand that a certain setup fee can be asked, this fee should be non-discriminatory, proportionate, justified and cannot be a prerequisite for the signature of a regulated access.

The fee cannot be used (as it seems to be The CableCo's intention) to support 100% of the development required by The CableCo to offer wholesale services.

Clear boundaries must be defined between CableCo's network and Mobistar's network. The proposal to use the NIU as demarcation point at customer premises is rather odd as in various cases, there is no NIU installed at the customer's house (for example: analogue TV customer only, some digital customers which have their TV decoder directly connected to wall plug without a NIU, shared NIU between flats, etc...). Mobistar proposes to use as separation end point the NIU when it exists or the coaxial interface where the master coaxial cable enters in the house (this cable is generally bigger).

Finally, Mobistar is also concerned by the fact that nothing is described by The CableCo regarding the security and governance rules that will be implemented to ensure Chinese Walls between its retail departments and its wholesale department. Such Chinese walls are evidently mandatory.

2.2.1.5 Planning & availability

Mobistar firmly regrets that no planning or implementation plan are provided by Telenet, and requires the following elements to be integrated in the offers.

First, The CableCo must commit to answer to any reasonable request within a certain number of days. Mobistar considers 10 working days as sufficient to answer the OLO's on the acceptance of their request and to start the discussion on the request.

Second, the contract procedure as proposed by the CableCo is quite odd taking the regulated offer description in account. The CableCo foresees 15 days between the reception of a beneficiary's official request to make use of the reference offer and the signature of the wholesale contract ! Should the beneficiary make a request outside the scope of the reference offer, no timings are provided for the conclusion of the negotiations.

Such elements are clearly contradictory to the regulators market analysis decision which foresees that within the frame of the reference offer the contractual negotiations may not exceed 3 weeks²², while outside the frame of the reference offer the maximum negotiations delay may not exceed 4 months²³.

Third, the CableCo does not provide any detailed nor high level implementation timeline, which is clearly lacking. Mobistar understands that the regulators will enforce the implementation within a maximum period of 6 months after the approval of the reference offer.

Finally, Mobistar would like to insist on the need to perform integration tests (lab) and friendly user tests of the different services. A clear process of implementation with required validation testing and phases must be described and should be non-discriminatory. It is obvious that information is lacking and that The CableCo wrote insufficient information about this, leaving only some meaningless statements of good intentions and others generalities present (§3.4).

²² We refer to §800, §898 and §996 of "Décision de la conférence des régulateurs du secteur des communications électroniques (CRC) du 1 juillet 2011 concernant l'analyse du marché radiodiffusion télévisuelle sur le territoire de la région bilingue de Bruxelles-Capitale". We note that similar statements are present in the different market analyses.

²³ We refer to §798, §896 and §994 of "Décision de la conférence des régulateurs du secteur des communications électroniques (CRC) du 1 juillet 2011 concernant l'analyse du marché radiodiffusion télévisuelle sur le territoire de la région bilingue de Bruxelles-Capitale". We note that similar statements are present in the different market analyses.

2.2.1.6 Commercial

Commercial ownership:

Mobistar notes that no reference is made related to this topic in the document. For the sake of clarity, Mobistar confirms its position that it should have the full ownership of the customer.

Order entry & Point of Sales tools:

Mobistar notes that no reference is made related to this topic in the document. For the sake of clarity, Mobistar confirms its position that it should have access to supporting tools which can be integrated in its own tools in its Point of Sales.

Multiplay package definition:

Mobistar notes that no reference is made related to this topic in the document. For the sake of clarity, Mobistar confirms its position that it should be able to define its own multiplay packages and product mix.

Customer acquisition & contract:

Mobistar notes that no reference is made related to this topic in the document. For the sake of clarity, Mobistar confirms its position that it should be able to do the customer acquisition and to get a Mobistar contract signed by the end user.

Customer offer pricing:

Mobistar notes that no reference is made related to this topic in the document. For the sake of clarity, Mobistar confirms its position that it should be entitled to manage its end user pricing & promotions without any consultation, approval, validation of the CableCo.

Network access eligibility:

Mobistar notes that no reference is made related to this topic in the document. For the sake of clarity, Mobistar confirms its position that it should have exactly the same eligibility than CableCo customers.

Non discriminatory offer:

Mobistar underlines the need to control the non-discrimination obligation. This can be done in the form of audit by regulators, monthly transparent reporting to regulators and to the market, ... For the sake of clarity, the non-discrimination obligation should apply to both operational and technical aspects (same SLA, same speed, net transparency, same traffic shaping rules, same network coverage, same eligibility...).

The CableCo gives too few elements proving its willingness to be non-discriminatory.

Volume forecasts:

According to the reference offer (TLN-WRO-GA-G-O-PAAE V0.6.pdf), Mobistar must provide rolling forecasts for the next 6 months (rolling forecasts) for each service split per broadband speed, per bouquet –and which can be changed by the Cableco...- per province/area. Mobistar cannot agree to make the split according to different CableCo areas (which are not even exactly known by the way). In addition, Mobistar will lose the (poor) existing SLA for out of forecast orders. This is clearly not acceptable. Mobistar also wonders to which extend this obligation is not discriminatory and to which extend the CableCo's own retail arm provides such forecasts.

Mobistar is willing to share on a quarterly basis its volume forecasts to CableCo for each product line (analogue, Digital TV & Broadband). More details regarding Mobistar's proposal are provided in chapter 0

2.2.2 Content

2.2.2.1 Analogue TV access & rights

As mandated by the Broadcast Market Analysis decisions, Mobistar agrees to manage the TV rights. However, Mobistar would strongly appreciate to be entitled to benefit of an access to analogue offers containing also the content rights. Mobistar position is further described in depth in chapter 4.2.

Some elements imposed by the CableCo are not acceptable for Mobistar regarding the analogue TV access. Mobistar invites the regulators to tackle these elements:

- Mobistar must have the rights for all analogue channels. This condition is a preliminary condition to distribute any regulated TV service (analogue, digital and Broadband). If the rights negotiations with one TV broadcaster were to fail (e.g. too expensive proposal), Mobistar would not be able to launch any regulated service. Not having the right for one analogue channel will block access to the cable and analogue, digital & broadband services completely, which is clearly not acceptable.
- Mobistar believes that access to regulated content could be a solution. We refer to chapter 4.2 for more information.
- The CableCo broadcasts their own BARKER channel (branded channel promoting their own products & services), which is not acceptable. (cfr. annexe 6 of the reference offer). This Barker channel must either be removed, either Mobistar should have the opportunity to broadcast its own Barker channel, or the Barker broadcasting time must be split equally among all the alternative operators using the CableCo regulated offer.
- The CableCo proposes it can unilaterally stop its analogue TV service, with a prior notification of only 1 month to Mobistar. Such short timing is clearly not acceptable, especially as this access is part of a regulated offer. Any change in the analogue bouquet (aka the removal of a channel) must be approved by the regulator in charge of the CableCo. In addition, a period of minimum 24 months is required to prepare the migration from analogue TV channel to Digital TV and to prepare the phasing out with the content owners. A complete out-phasing of the analogue service should be notified at least 3 years in advance similar to what is applicable for broadband where such out-phasing must be notified 5 years in advance.
- A simple declaration by Mobistar to the CableCo stipulating Mobistar has the required rights authorization should be enough to clear the CableCo responsibility against TV broadcasters.
- No information is provided on the frequency plan of the CableCo. The frequency plan (which channels are available on which frequency) must be provided for all the analogue TV/Radio channels per region. Website information where multiple queries should be performed to collect the information is not enough.

2.2.2.2 Digital TV access & rights

Mobistar agrees to manage the Digital TV rights directly with the content owners. However, as mentioned above, Mobistar would definitely welcome an access possibility to a regulated TV content package. Mobistar's position is further described in chapter 4.2.

Mobistar notes that there are less issues on the Digital TV service compared to the analogue TV as it is more easy to switch off/on each individual channel via the conditional access system.

2.2.2.3 On Demand TV selection and rights

Mobistar does agree with CableCo proposal regarding the on-demand selection & rights (Video on demand, Subscribed VoD, Catchup-TV, TV on Demand, etc...): The sourcing and content rights negotiation are to be managed by Mobistar. Mobistar is also responsible for the content selection, the promotion and animation towards its end customers.

However, Mobistar would definitely welcome, depending on the financial conditions, to use a regulated TV on demand content package or to share existing rights with The CableCo. This is explained in detail in chapter 4.2

Content is streamed to the TV decoder and only limited trick mode functionalities (short pause delay, fast forward,...) are proposed by the Cableco. (not clearly detgailed).

2.2.2.4 Author rights & taxes

Mobistar manages Sabam, Auvibel, contribution etc... if broadcasters rights are sourced and managed by Mobistar.

2.2.2.5 Digital TV encryption & access control

As already stated, Mobistar wants to use its own single CAS infrastructure for the entire Belgium territory.

The CableCo refers (TLN_WRO_TA_I_A_PIAA_V0.60.pdf) to DVB Simulcrypt standard by offering the possibility to Mobistar to install a third-party CAS. The Cableco however limits the simulcrypt to only one more CAS system, which is too restrictive for all the potential wholesalers.

The document TLN-WRO-TA-I-S-PAAB.pdf mentions that The CableCo can use cardless scrambling that could perturbate Mobistar's/OLO's CAS but it does not provide any further details on this.

The CableCo proposes a "Proof Of Concept" that Mobistar should support with no guarantee on time and functionalities (and unknown pricing...). Mobistar should finally comply to The CableCo interfacing standards and not to the DVB simulcrypt standard.

Mobistar will have to interconnect its CAS solution to the CableCo Head End via a specific IT interface. Telenet wishes to remain in control via its proxy (CPPS) to control all CAS activities, which arbitrarily complexifies the process (TLN-WRO-TA-I-S-PAAB_V0.50.pdf). This leads to an over-engineered architecture that will generate extra cost, increase failure risks and is totally useless for the cable regulation objectives. Mobistar cannot accept this complex architecture that voids all advantages of Simulcrypt for both parties.

Mobistar believes that imposing one third-party unique CAS for all the alternative operators might be discriminatory. We refer to already given explanations in § 2.1.2.5. Each alternative operator must be able to interconnect its own CAS system. Most of the DVB MUX/encryptor supports up to 30 different CAS systems. As an example, we observe in the picture below the presence of already 3 existing CAS. Some are Card based, some are cardless. This clearly demonstrates the possible interoperability and scalability of the Simulcrypt model.

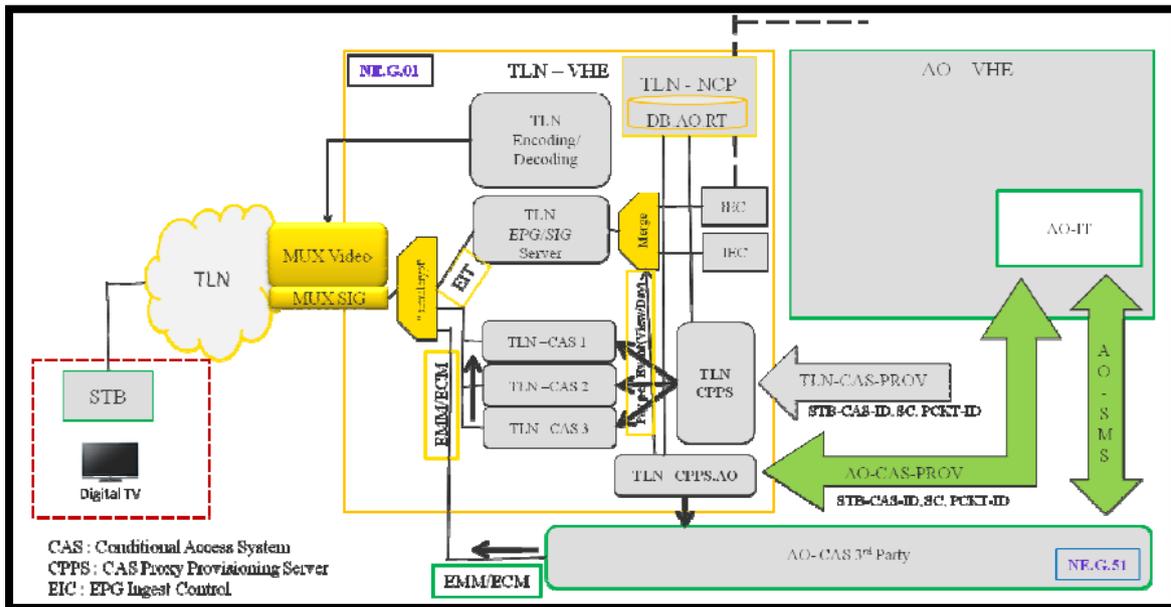


Figure 9: Telenet CAS proposal

Mobistar considers the certification process to be under the future STB vendor responsibility, according to the Simulcrypt standard, specific private data should not affect other CA STB.

By using its own CAS, Mobistar will simplify the integration, no need to use CPPS - Telenet CAS XML API v3. (See TLN-WRO-TA-I-SPAAB;p11;§4.3.3.(17).

In such a way, with an independent CAS, Mobistar maintains the control of its customers with Chinese wall.

All of the current CAS systems use “chipset pairing” technology that guarantees a high level of security. There is therefore no reason to not admit any well-known CAS vendor²⁴ that is conform with chipset pairing technology. See TLN-WRO-TA-I-S-PAAB;p11;§4.3.2.(16): so called “pairing” of a STB with a smartcard. In this way, a STB works only with its SmartCard and vice-versa. This reduces drastically the piracy risk.

There must be regular updates of the customer installation from Alternative Operators to The CableCo.

We do believe that a regular refresh of the Mobistar decoder inventory is enough. This should help the CableCo to calibrate the signaling (EMM) channel present on all the transport streams of the cable network..

We appreciate that The CableCo states the presence of well-defined standard interfaces for Simulcrypt (TLN-WRO-TA-I-S-PAAG;§4.2.1;(8)), even if Mobistar does not accept the proxy architecture.

The Alternative Operator third-party CA system is connected to the CableCo Video Headend via a DVB-C signaling interface carrying EMM/ECM messages as well as to the TLN-CPPS-AO unit for STB service provisioning over a secure IP Link. This is confirmed also in TLN-WRO-TA-I-S-PAAB;p11;§ 4.3.2.(16): The

²⁴ Irdeto, NDS, Nagra, Conax, Viaccess,...

CA system Provisioning server (CPPS) is the CableCo API server that is used for all CA system provisioning currently in use in the CableCo network.

However, Mobistar proposes some simplifications that are beneficial for all parties in § 4.3

2.2.2.6 TV Bouquet customer offer definition

Mobistar understands that we will be able to define our own TV bouquets (number & structure). However, the CableCo does not give any details on how this is achieved.

We note that the beneficiaries are totally dependent on the CableCo when a TV channel is removed from the CableCo's network (for example if CableCo stops the contract with the broadcaster because e.g. financial disagreement, not in line with CableCo's content strategy anymore,...). In this case, Mobistar does not have any solution to continue offering this channel, which is not acceptable. As it was agreed by the BIPT in the frame of the IPTV Multicast offer by Belgacom, it should be possible for Mobistar to ask the CableCo to transport a limited number of channels specifically for Mobistar (in the IPTV multicast offer, a multicast dedicated capacity of 25Mbps was allocated to transport ~8 SD specific channels).

We note that another advantage of the DVB CAS simulcrypt model (one CAS per operator) is that the enabling of such feature is simplified.

.Finally, Mobistar evidently wants to define its own bouquet & channel ordering.

2.2.2.7 TV Service plan

The CableCo mentions the use of the country code (See TLN-WRO-TA-I-S-PAAG;P15;§4.5.4.(22). Mobistar wants to understand how it can present the channel list the way it wants. Should we rely on other tables like LCN DVB Tables (Logical Channel Number) ? This will have a strong impact on the integration and on the customer journey at the first boot of the TV decoder. We ask for the CableCo to be more explicit how each alternative operator can define its own bouquet of services based upon the CableCo content.

In the same way, the CableCo mentions the usage of private extra capabilities (DVB-SSU payload...) and a number of private signaling descriptors (see TLN-WRO-TA-I-S-PAAC;p 8;§4.2.1.(6) & 4.2.3.(9). We should be able to use such possibility also to deliver our own channel list selection. Also, in TLN-WRO-TA-I-S-PAAG document;p15;§4.5.4.(22), the CableCo states: it is up to the AO STB middleware to only allow regional channels with a country_code that matches with the correct region_id that the user entered through the scanning menu. We expect additional clarifications about how Mobistar can generate its own channel list including regional content. We expect such regional specificities to be part of the eligibility tool. We would like also to have the easiest possible customer experience to simplify the customer installation process.

Mobistar nevertheless requests to have all the details regarding the service plans for all the different regions, and of course their future evolution.

In order to offer the same customer experience to all its customers, Mobistar should be able to manage its own digital TV channel ordering list. Mobistar is used to implement a what is called "Fast Scan Table" containing the list of all Mobistar TV channels, frequency and channel names in a specific format. This information is broadcasted as private data (DVB-SSU) over CableCo's network to all customers. It requires only 50kbps independently from the number of customers and the number of channels. The Mobistar TV decoder is configured to listen to a default channel to capture any update in the channel organisation without having to scan again all the spectrum (which is time consuming). Mobistar is ready to give all technical details required for the implementation of this feature that enhances the customer experience.

Mobistar expects the capability to deliver some extra channels which is contrary to the CableCo statement (see TLN-WRO-TA-I-S-PAAG, p17,§.4.7.(28).) : "currently, the CableCo has no bandwidth available to add extra AO DTV channels", which is difficult to understand knowing the regular change in the CableCo digital channels offering.

2.2.2.8 TV channels encoding & broadcasting

It is clearly understood that the CableCo is managing the sourcing, the transcoding and the DVB multiplexing of all TV channels and associated data (PSI: PAT/PMT/CAS and SI :EIT etc...) respecting the DVB-C standards.

The CableCo must provide, for each TV channel, the exact characteristics of the encoding (video MPEG-2, MPEG-4 H264 , Audio profile,...) and the details regarding the transport standards (MPEG-2 Transport stream,...)

Channels spectrum allocation varies per operator and also per sub-region within each operator (Eg: Ex-UPC Brussels, Integan subsidiaries acquisition). Spectrum coaxial network capacity, presence of local TV channels, specific content needs, etc impose such variants in spectrum organisation. This should be reflected clearly to the OLO's via specific signaling. See TLN-WRO-TA-I-S-PAAG;P14;§4.5.

Mobistar requires to get all details regarding the service plans for all the different regions, and of course their future evolution. Such info must be also available in the eligibility tool.

In order to offer the same customer experience to all its customers, Mobistar should be able to manage its own TV channel ordering list.

The CableCo mentions in TLN-WRO-TA-I-S-PAAC ,P9,§4.3.3.(13) the presence of a DVB-C Home channel to perform many operations like OTA (Over the Air) Upgrade.

We expect the CAS system to do such function on the STB (Data Playout).

We suppose The CableCo is involved in the SI tables (NIT) to create a linkage descriptor and some private descriptor that only the specific STB will recognize.

Not enough information is given on the related technical details, which can have an important impact in the TV decoder specifications.

The CableCo should be instructed to provide all the required information.

2.2.2.9 Teletext, EPG EIT, audio dubbing & subtitles

Generally, 2 days EIT are provided inside DVB EIT.

We can envision to deliver extended EPG through the IP return path. However, the CableCo is limiting the return path to TV interactivity and EPG (AIDTV V0 60.pdf §5), which is not acceptable.

Nothing is defined about DVB tables related to EPG and other functionalities like Teletext, audio dubbing etc.... Mobistar should have a non discriminatory access to these components and the CableCo must describe the formats and standards in use.

2.2.2.10 Parental control

No info is presented by Telenet

Parental control mechanisms should prevent access to some channels without a PIN. Mobistar Parental control is managed by the CAS in the STB and based on standard CAS parameters automatically injected at the HE.

Nothing is told about Rating in the EIT table (short term EPG) and CAS control, normally required by the regulators.

Mobistar needs more information to understand how the parental control function is currently implemented on The CableCo network.

2.2.2.11 Extra Mobistar specific TV channels

It is unclear if Mobistar can propose a reasonable number of specific TV channels on The CableCo network: "TLN_WRO_TA_I_S_PAAG_V0 50 NDA.pdf" §4.7, currently The CableCo has no bandwidth available to add extra AO DTV channels.

As already stated in previous chapters for the other CableCo, Mobistar requires to have this possibility.

2.2.3 TV products & services

As mentioned above, Mobistar proposes a phased approach to limit the total cost of ownership (TCO) and to reduce the time to market (TTM) for the opening of the market. We refer to chapter 4.7 for more details.

2.2.3.1 TV Decoder, UI & branding

For Digital TV, and certainly for Interactive Digital TV, Mobistar wants to propose its own TV decoder, with its own branding & customer interface. CableCo confirms it is Mobistar's responsibility to source, integrate and manage the TV decoder for its customers.

Mobistar has already some experience in the integration of TV decoders with the current Mobistar TV product (which is a hybrid satellite-IP decoder). Mobistar knows how this development phase is crucial for the planning and the quality of the customer experience (zapping time, image quality, menu-browsing, interactions with services,...). With the document provided now, Mobistar cannot estimate the workload and the impact to interconnect as the technical specifications required for this are missing.

2.2.3.2 Interactive TV platform

Following The CableCo proposal, the TV decoder and interactive TV platform should be provided by the alternative operator.

Mobistar agrees that the own TV decoder is used, we should also use our own TV interactive platform (for user interface portal interaction, content browsing, search & recommendation engine, widgets, PVR remote control, user profile management...). The TV decoder and TV interactive platform are working as client-server.

However, The CableCo does not give any detailed information on the setup and the parameters of the (bi-directional) DOCSIS return path that will be open for TV interactive services. Which Service profile ? Which QoS ? Bandwidth ? IP management ? If Mobistar chooses to work with an internal DOCSIS modem inside the TV decoder, we must understand how the configuration and the provisioning of this gateway will be performed. Service flow & QoS should be managed by Mobistar exactly as for Broadband internet access.

2.2.3.3 Companion device

The second TV screen experience²⁵ is becoming more and more important on the market. Mobistar, as mobile company commercializing mobile devices that can typically be used as second screen considers this service as strategic.

There are two use cases:

1. Usage at home. Reusing TV DVB streams received by the TV decoder in the home LAN for companion devices²⁶ is a simple approach with limited impact. Mobistar notes that imposing a

²⁵ TV on tablets, smartphones, PC, connected TV, games consoles...

²⁶ By DTCP, DLNA and other similar standards

unique CAS inside the decoder is another barrier for new market comers to propose these kind of services.

2. Nomadic usage with Over The Top solutions. In this case, Mobistar must also be able to reuse the TV signal (analogue/digital) from The CableCo for its OTT services.

Mobistar believes that there should be no elements in the regulated CableCo offer that block the access to companion device services. Mobistar wants to be able to reuse TV signals from The Cableco for companion devices and for a good second screen experience.

2.2.3.4 TV return path

Telenet only mentions the possibility to use an external DOCSIS modem for TV interactive services, such as what they propose for their own offers. Mobistar also requires the possibility to use the internal DOCSIS modem inside the TV decoder, to facilitate the installation at customer premises (one coaxial cable will be enough).

Furthermore, as we will explain in the Broadband section (see further), Mobistar considers it not acceptable to impose to use GRE²⁷ tunneling for all IP traffic, including TV interactivity. The CableCo proposes to implement a second extra GRE tunnel in the DOCSIS modem (See TLN-WRO-TA-I-S-PIAD;p0;§4.1.(2) for TV interactivity. As far as we are aware, no basic (and cheap) DOCSIS modem supporting GRE tunneling exists on the market. This approach will be even more problematic in case of DOCSIS modem integration inside the TV decoder.

See application notes: "configuring GRE tunnel over cable". See TLN-WRO-TA-B-A-PAAA;P9 4.1;(2) & p10;§8.2.1.(9).

After checking the DOCSIS 3.0 Specifications, we do not see common TLV²⁸ encoding related to GRE default tunnel.

Therefor we propose an alternative, easier and cheaper solution (see § 4.)

2.2.3.5 On demand streaming via EDGE_QAM

In short, Mobistar understands that the CableCo (cf: TLN-WRO-TA-I-S-PIAF) will create an on demand environment for selected AO as a content provider on its own infrastructure. Mobistar can supply the necessary content with XML metadata (what kind of metadata ? thumbnails ? trailers ? Text ? which format syntax ?) and support material in SD quality MPEG 2 TS or HD in H264 AVC. Before provisioning content on the filer, the position (thematic) of the new content must be defined in the catalogue structure. The system delivers the content in streaming to the STB, and uses a security key for bundle of contents coming from tiers CA system.

Mobistar finds this approach very complex as it transfers all the complexity from a pure network challenge (share E-QAM, RTSP manager,...) as Tecteo/Brutele solution to TV decoder and IT integration in this new Telenet approach.

Mobistar cannot agree with the proposal because of the following :

- We understand The CableCo has currently 8 VoD server area's and refers to MPTS²⁹ with Dynamic PID delivery over E-QAM using Resource manager (see TLN-WRO-TA-I-S-

²⁷ GRE = Generic Routing encapsulation

²⁸ Type-Length-Value is the format used for DOCSIS configuration files

²⁹ Multiple Program Transport Stream

PIAD;p14;§.4.4.1.(25-26)). The CableCo mentions the possibility to use Tiers-based encryption for VoD content See TLN-WRO-TA-I-S-PIAD;p16;§4.6.2.(35) & §4.6.3.(37): “CAS for VoD (group tokens)”. This requires a special API between The CableCo CA system and STB-Third Party CAS for VoD. This is not evident at all and not documented.

- The CableCo imposes only 2 levels in the catalogue , which implies for Mobistar a lack of flexibility and a solution not compliant with what is existing already.
- The CableCo imposes a specific encoding (i.e. fixed gop at 12 frames), luminance, chrominance and black level and proposes a sanity check before production that we find irrelevant (See TLN-WRO-TA-I-C-PIAF;p7;Appendix A). This approach will generate extra costs for Mobistar to transcode the entire video catalogue (costs ~75€/content). We consider this requirement abusive. As soon as we define a CBR movie, this should permit a well-defined storage capacity on the server (3.75 Mbps for SD and 10 Mbps for HD). See TLN-WRO-TA-I-S-PIAD;p12;§ 4.3.4.(24): AO VOD media assets will be encoded conform to the existing CableCo parameters and bandwidth, currently SD or HD. No Bandwidth quality variants will be allowed which are different from The CableCo standards.
- In the same way, the CableCo mentions it will treat AO and the CableCo customers on a fair and equal basis. We are concerned by such behaviour and ask for a certain level of control by the regulators (see TLN-WRO-I-S –PIAD;p 12;§4.3.1.(17). According to Telenet, this implies that the resource management system will take into account that the bandwidth that can be allocated dynamically by a number of simultaneous streams generated on a node and VoD serving area is in proportion to the relative weight of the AO customer base on that node/area. We understand also the reason is to keep bandwidth resource management consistent (see The CableCo –WRO-TA-I-S-PIAD;p12;§4.3.4.(24)). We need more clarity on the policy the CableCo will put in place when The CableCo says: “to the relative weight of the AO customer base on that node/area.”
- There is no information on how Mobistar can animate its own content. No description of the CMS?

This justifies our proposal for simplification in §4 by using VoD streaming over IP.

2.2.3.6 On demand IP streaming over DOCSIS

In main bodies “AIDTV V0 60.pdf §5”, it is explicitly forbidden to use DOCSIS interactive path for Video streaming, which is not acceptable for Mobistar.

2.2.3.7 Switched Digital Video³⁰

SDV is commonly used in some countries for the long tail TV channels. There is no indication if this technology is used or not by The CableCo to manage its TV channels.

If this is used by CableCo, Mobistar should have the access to SDV service. CableCo must then provide all technical & financial elements in its reference offers.

2.2.4 Broadband products & services

Remark: Mobistar proposes an alternative phased approach to save time and reduce TCO. We refer to chapter 4.7

³⁰ http://en.wikipedia.org/wiki/Switched_digital_video

2.2.4.1 Access to DOCSIS Broadband IP network

The approach as proposed by the Cableco is useless over-engineered, too complex and too much aiming at controlling Mobistar's activities.

The CableCo recommends the use of a GRE tunnel between cable modem and a GRE tunnel concentrator (TLN-WRO-TA-B-A-PAAA). Mobistar does not understand why the Cableco imposes the usage of such tunneling architecture, that is discriminatory for Mobistar. As far as we know, the Cableco does not use GRE tunneling for its own retail customers.

Mobistar points out that :

- The support of GRE tunnel is not a common feature available on generic cable modems. Forcing Mobistar to deliver to its end user a cable modem that supports GRE may restrict the features offered by cable modems and therefore the services offered by Mobistar.
- Acquisition costs will be higher for each customer because the complexity imposed by tunneling in the DOCSIS modem and in the core network (tunnels aggregators)
- GRE tunneling will also have an impact on the DOCSIS modem performance due to overhead and processing power requirements. Will this kind of GRE compatible models, if they exist, ever sustain downstream speeds of 200Mbps that are announced by the Cable operators ?

If these GRE tunnels are created by Mobistar's cable modem, how Telenet shall enforce that in an end-to-end perspective ?

- GRE is an old technology, not supported anymore by many backhaul routers brands (this technical solution, even though quite simple, will limit the equipment types (and increase costs) that Mobistar can use if this technology were to be phased out by industry.
- The usage of such tunneling is imposing extra equipments that increase the risk of single points of failure.
- The installation process will be much more complex (or risk of bad install becomes more likely) if some Ethernet ports must be dedicated for TV interactivity and some others for internet traffic.

We assume that the Layer 3 routing protocol put in place on the CableCo backbone will support Mobistar end-customer tunnels and will guarantee the redundancy in case of link failure between the CMTS and the redundant Interconnect points.

Telenet shall describe the policy enforcement and bandwidth management and how it will guarantee the fair sharing to Mobistar end users, cf : TLN-WRO-TA-B-A-PAAA § 4.2.2.

We want to rely on the DOCSIS standardization and certification process, there is no reason to finance a "Proof Of Concept" each time there would be a new device.

We agree to implement some VLAN to 2 of the 5 ROIP of interco using DWDM data links available from The CableCo or third-party services.

However we do not get from the CableCo any QoS guarantee on the backbone, while we fear that the CableCo voice services can take precedence over data traffic from Mobistar internet customers. How will one guarantee constant data bandwidth on the backbone from the CMTS to the point of Presence of Mobistar ? Mobistar wants to make sure that the bandwidths we propose from the interco is spread over all the Mobistar customers transparently without any interference from The CableCo users (Voice & Data).

No references are made to future network evolutions like CCAP (Converged Cable Access Platform) which will definitely impact prices for the future of the Wholesale model and which has been announced in the Analyst & Investor presentation of 12/02/2013:

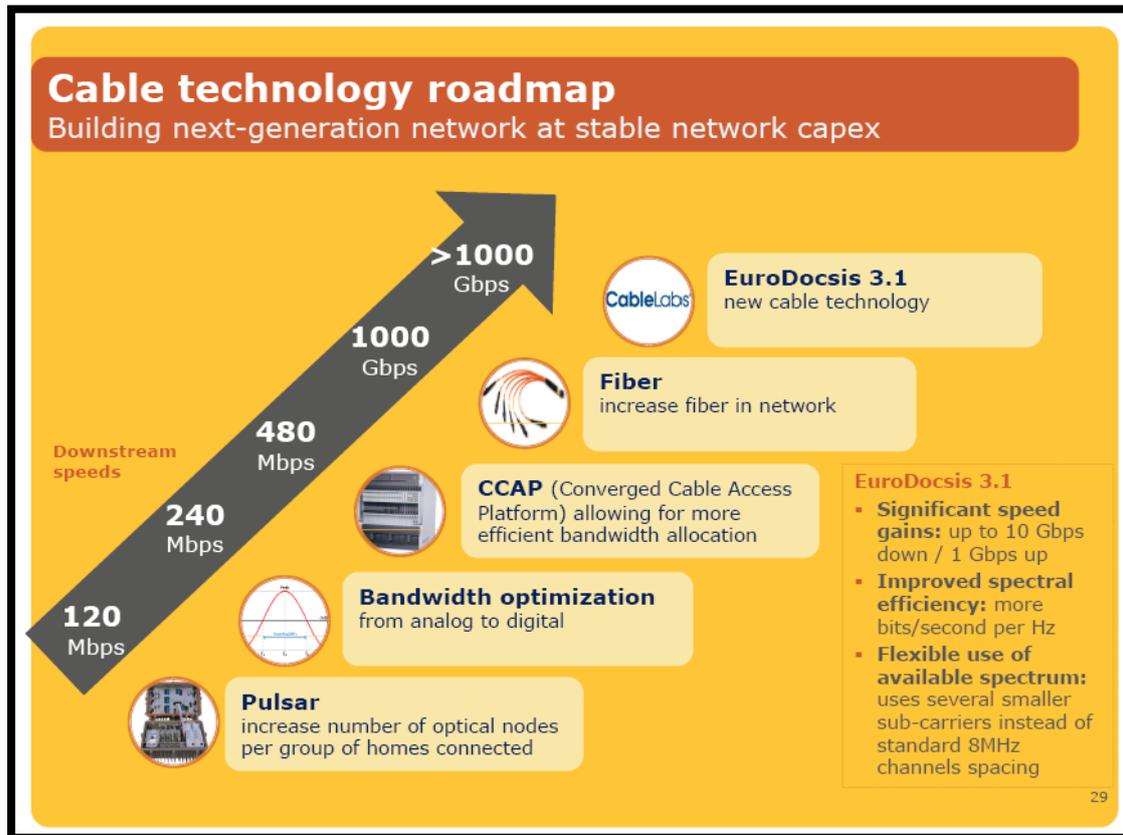


Figure 10: Telenet network evolution

2.2.4.2 DOCSIS modem

Mobistar will have to source a DOCSIS 3.0 compatible gateway, compatible with the CableCo network.

As already explained, the CableCo proposes to implement an GRE tunnel from the DOCSIS modem (See TLN-WRO-TA-I-S-PIAD;p0;§4.1.(2) to deliver interactivity. At the moment, we do not know about a basic DOCSIS modem supporting GRE tunneling. See application notes: "configuring GRE tunnel over cable". See TLN-WRO-TA-B-A-PAAA;P9 4.1;(2) & p10;§8.2.1.(9).

Both the GTC (GRE Tunnel Concentrator) and the PEP (Policy Enforcement EndPoint) must be acting on a fair sharing basis of resources. Both devices (Tunnel concentrator and Policy enforcement Point) become a possible point of congestion of the CableCO network. Mobistar wants to make sure such new concentration point will not create congestion on the Mobistar Traffic.

We are concerned about the GRE tunnel method proposed. The tunneling will be available for both IPv4 and IPv6. How to make sure a modem can support high speed data through a tunnel ? This would require systematically a premium modem. We find such constraint highly discriminatory.

The path followed by the AO packets are not the same path and treatment than the The CableCo packets. There might additional risks of service control at the aggregation point (VPN concentrator). As such, we find such proposal discriminatory.

There might be another solution on how to share a CMTS that we will analyse in the next chapter.

The CableCo proposes to implement an GRE tunnel from the Docsis modem (See TLN-WRO-TA-I-S-PIAD;p0;§4.1.(2) to deliver interactivity. So far, we do not see a basic Docsis modem supporting GRE

tunneling See application notes: "configuring GRE tunnel over cable". See TLN-WRO-TA-B-A-PAAA;P9 4.1;(2) & p10;§8.2.1.(9).

After checking the DOCSIS 3.0 Specifications, we have not seen any common TLV³¹ encoding elements related to GRE default tunnel.

We are afraid to get a tunnel on a bonding channel downstream and possibly upstream running DOCSIS 3.0 QAM dispersion technology. Most of the DOCSIS modems are CPU based packet processing. GRE tunneling of broadband access represents an extra CPU load of the modem we are not sure about if the modem can support this (e.g. 100 Mbps, soon 200Mbps, downstream burst over GRE tunnel). We need to make sure the modem can support high speeds in both directions when multiple tunnels are active (one for internet, one for TV interactivity as stated by the CableCo).

The GRE tunnel encapsulation will represent a significant extra overhead on the small size packets, mainly in upstream that the DOCSIS MAC protocol should support. We might be restricted to some MTU that will impact on the DOCSIS MAC signaling (Bandwidth request, ...).

A GTC (GRE tunnel concentrator) will represent a concentration point of the backbone prone to congestion.

Such solution would require premium modems which implies a prerequisite that we consider to be discriminatory.

Therefore we propose an alternative solution (see § 4).

Regarding the certification, Mobistar does not understand why the CableCo is doing another long batch of internal certification on Mobistar equipment. This is not acceptable. External independent third parties such as Excentis are experts in this specific domain and must be sufficient. There is no need for extra certification performed by the CableCo as stated in TLN-WRO-TA-B-C-PAAA and TLN-WRO-TA-B-C-PAAB and TLN-WRO-TA-B-C-PAAC and TLN-WRO-TA-B-C-PAAD. The certification documents must refer to specification documents. Of course, Mobistar and the CableCo will perform interoperability and integration tests to check that services are correctly delivered and integrated inside Mobistar offers.

Certification may not be limited in time for a given configuration (cf TLN-WRO-TA-G-C-PDAA §8.4).

Telenet shall provide to Mobistar the same document as described in §3, 4 and 5 from TLN-WRO-TA-G-C-PDAA when it plans to upgrade its equipment.

Financial terms must be clearly stated for all matters related to certification/interoperability. If Mobistar needs to revalidate some of its customer equipment after changes in the CableCo network, this should be for free.

2.2.4.3 Broadband customer management (authorization, activation/deactivation) and provisioning

Telenet may not perform any intrusive action on Mobistar cable modems without explicit agreement or communication for extreme cases with Mobistar (Cf : TLN_WRO_TA_B_S_PAAA §4.3).

1. Telenet complies to Euro-DOCSIS standard
2. The alternative operator will have to go through a certification process
3. (19): The info of the MIB to which The CableCo will be granted access has to be clarified in order to respect Chinese wall and customer privacy.

³¹ Type-length-value : parameters used in the service profile configuration file for DOCSIS gateway.

TLN_WRO_TA_B_S_PAAB:

This document describes how the CM connects to the CMTS MAC and PHY, in scanning the RF spectrum to check on QAM channel and get Sync, then Upstream Channel Descriptor, then Media Access Protocol.

in 4.5.1 (10): it requires AO to deliver the CPE MAC addresses 2 week in advance; why is it so long ? Could we envision a fast track in case of emergency (stock exhaustion after successful promotion for example) ?. A 24 hours express exceptional procedure should be defined.

In case of noise issues, The CableCo will change the Upstream frequency of all the modems. This can only be done following the preventive maintenance process, with clear notification period to all wholesale customers.

TLN_WRO_TA_B_S_PAAC: This document describes how the Cable modem synchronizes with the CMTS and gets access to the Mobistar DHCP. In §26, Mobistar cannot understand nor already commit that we will differentiate the IP pool for DOCSIS modem for internet access and TV decoder IP pool . Indeed, companion device between tablets, PC and TV decoder services are generally difficult to manage if they are not belonging to the same IP network (HomeLAN). Please note that according to our knowledge, this requirement is not applied by the CableCo itself for its own services...

We understand the possibility of sanity check using LDAP to confirm the legitimacy of the users (for instance if he has paid for the services). But it is up to Mobistar and not the CableCo to perform this check. The CableCo refers to an inventory that we want to use to simplify the solution. See Chapter 4.

2.2.4.4 Broadband customer offer definition & specific DOCSIS profiles.

According to us, the GRE tunnel configuration per config file is not part of DOCSIS standard. Only TLV³² Layer 2 VPN Encoding is supported by BSOD modem³³.

We also understand that each CPE modem, besides a management private IP address, will use the CableCo transport Public IP address and a specific IP address that would belong to Mobistar. In such case, Mobistar would be charged for the use of 2 IP addresses (one private management modem address and one IP public address from CableCo to support tunneling over the existing public CableCo Backbone).

We ask for additional explanations on this topic.

For us, such definition is discriminatory, as a Mobistar customer CPE will be seen differently from The CableCo customer CPE with a different path as already explained in previous chapter.

2.2.4.5 DOCSIS modem troubleshooting

Telenet proposes an API to pass the management view of Mobistar CPE to Mobistar as described in TLN-WRO-TA-G-S-PAAB §5. Mobistar wonders why again an over-engineered solution is proposed. Why can Mobistar not simply gather some SNMP traps at least those related to its DOCSIS CPE ?

The CableCo requires to manage the modem, only the DOCSIS part (not WIFI & eRouter for instance) and is working on the possibility of In band management to permit Mobistar to control the rest of the box. We can agree on this as soon as the CableCo does not interfere with Mobistar Services. We cannot imagine that the CableCo would reset the Mobistar modem or perform any operations on Mobistar CPEs without requesting the formal Mobistar agreement.

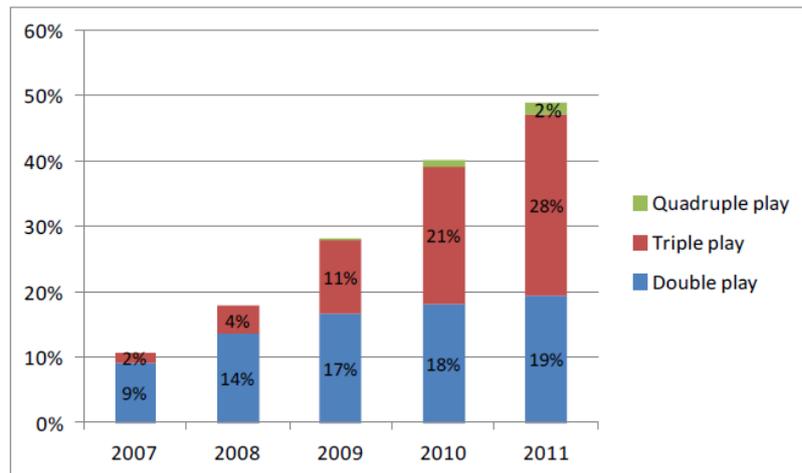
³² Type Length Value is a text format for configuration files.

³³ BSOD = Business Service Over DOCSIS. Leased line service over DOCSIS

See also TLN-WRO-TA-I-S-PIAA, p 15;§.4.9.1.(28): the CableCo requires that it has remote management access with a minimum basic capability set on AO CPE devices. This access is required to allow the CableCo to ensure network integrity (unclear statement ?) and assist the AO in efficient troubleshooting on complex E2E network problems, by being capable of integrating a basic management view of the AO devices in CableCo's troubleshooting tools (Data & Null Vod Stream loopback test & relevant receive parameters) when the return path is available.

2.2.4.6 Telephony service

Although not part of the broadcast market analysis, Mobistar regrets the absence of proposals in the reference offer to provide access to fixed telephony services. As stated by the regulators, telephony is one of the most important elements for multiplay pack offers on the Belgian market.



Source: Opérateurs (IBPT)

Figure 11: importance of multiplay packs

Mobistar invites the CableCo to provide access to fixed telephony EMTA or any other simple solution for access to this service.

2.2.4.7 IP addresses

Most of the current CMTS chassis on the market can support up to 50.000 subscribers. Therefore, 10% penetration would suggest an IP subnet IPV4 or V6 of About 5000 Subs(/18).

Surprisingly, The CableCo does not mention IPv4 and IPv6 addressing. The CableCo should give us the guarantee that Mobistar can deploy both IPv4 and IPv6 without any security and performance impact on the network.

The CableCo shall describe its current security procedures to protect its network from malicious behavior from an end user perspective. If The CableCo were to take protection measures against such a malicious Mobistar end user or a user seen as being so (discard packets such as DHCP, shut down access,...), The CableCo shall communicate and request actions immediately to Mobistar for the end user concerned and malicious behavior description. Cf TLN_WRO_TA_B_S_PAAC §4.7

TLN_WRO_TA_B_S_PAAD:

- (19): why is it required to provide sufficient IP address range address for each of the 5 regions ? what is the minimum for 'sufficient' ? How long in advance ?
- 4.5.3 (25): The CableCo provides info on volume per AO customer for billing purposes. These data can be used by AO to implement specific volume limits.

- 4.9: operational procedure changes. (33): The CableCo must indicate how much time they would leave to the AO to make the changes in the agreed procedure. To do so, they should provide the list of cases likely to happen and define the pre-notification period before implementing the foreseen changes (incl. test period).

2.2.4.8 Internet traffic routing & interco

We supposed that running GRE layer 3 tunnel technology permits also to get the benefits of IP link redundancy inside the CableCo backbone to guarantee the SLAs.

It is obvious that Mobistar will provide a minimum of 2 Interco's over the 5 ROIP's and the CableCo should guarantee fiber link layers redundancy among all the ROIP's. See TLN-WRO-TA-T-T-PAAF;P7;§3.1.(2) & (3): This traffic will then be logically separated on the physical link by means of VLAN's depending on the geographical area distinction. Typically, this is implemented through the 802.1.Q trunking protocol for example. No AO networking equipment is required in the CableCo

It's obvious that Mobistar will provide a minimum of 2 Interco's over the 5 ROIP's and the CableCo should guarantee fiber link layers redundancy among all the ROIP's. See TLN-WRO-TA-T-T-PAAF;P7;§3.1.(2) & (3): This traffic will then be logically separated on the physical link by means of VLAN's depending on the geographical are distinction. Typically, this is implemented through the 802.1.Q trunking protocol for example. No AO networking equipment is required in the CableCo facilities. (need 4 calendar weeks to commission data fiber link).

However in document TLN-WRO-TA-B-S-PAAD;P16;§4.7.2.(31), the CableCo mentions Aggregation Level restriction applicable. We need to understand where exactly (Interco Link between AO and The CableCo networks ?) and how ? We want to make sure that such situation will not be discriminatory.

Also The CableCo mentions Data fiber link restricted to 1 Gbps per RPOI. We consider this to be discriminatory. See TLN-WRO-TA-T-T-PAAF;p8;§.4.2.(12).

2.2.4.9 Legal intercept & fraud

Nothing has been told about CALEA³⁴ and IP intercept. Both functions must be possible on the Generic Tunnels Concentrators solution as proposed by the CableCo.

In our new proposal (see further), we propose to activate CALEA and IP Intercept from the CMTS itself to permit to capture local traffic of users on the same RF branch.

2.2.5 **Billing**

The only reference to Billing in the CableCo WRO is in the document 'General Terms and conditions TLN WRO GA G M PAAF; where in the chapter 26, they make reference to 2 annexes --describing charges and fees-- that are not provided (TLN WRO GA G P PAAA and TLN WRO GA G P PAAB).

2.2.5.1 Information about user activities (IP, VoD,...)

The IP related info is not relevant, as all IP traffic is dealt with by Mobistar. We must be sure that the traffic for customers sharing the same HFC branch will be correctly counted. In some situations, the CMTS routes directly the traffic and in that case Mobistar cannot see it.

³⁴ CALEA : Communications Assistance for Law Enforcement Act (=Call tapping)

To cover the RUN Phase, no data are available to describe how the different services delivered by the CableCo to Mobistar's customers are being traced and monitored (for instance to check the completion of the VoD delivered before invoicing).

2.2.5.2 End user invoicing and billing

As requested for operator wholesale service, The CableCo will never invoice the (Mobistar) end user directly.

2.2.5.3 Wholesale settlement

The CableCo will invoice Mobistar in 2 phases: every month (on the 2nd working day) a pre-invoice is sent to Mobistar (with a value calculated on the average amounts of the last 3 months) which shall be paid before the 20th day of the month. How does this process cope with the additional service day to day consumption (VoD) or with the one-shot cost related to the service launch and the BUILT phase ?

Mobistar cannot accept to pay upfront based on average forecasts as this will make the settlement process too complicated. Mobistar recommends to pay the invoice, based on monthly reporting, as it is the case for BROBA/BRUO wholesale offer.

Mobistar would like to understand better how the settlement will be organized and executed between The CableCo and Mobistar.

No details are given for:

- Unique customer identification system to be able to associate for each user_id the associated services. Of course each service shall have also a unique identification that must be communicated and detailed in technical specifications.
- Monthly reporting for wholesale invoicing.
- How will The CableCo deal with the pay per view consumption such as VoD ?
- Refunding shall be in the form of a reduction of this global invoice. For example, specific mechanisms in case of VoD interruption due to CableCo must be foreseen.
- Agreement procedure in case of disputes.
- How/where IP data volumes are counted ?
- Especially how will we know whether a VoD session went to its end/terminated well or if a problem occurred during the display?
- What happens with customer upgrades in the middle of a month ?
- Etc...

2.2.6 Customer journey

2.2.6.1 Customer Eligibility

There is insufficient information on the eligibility tools that will be proposed to Mobistar. As already stated, this is a crucial information Mobistar needs with high accuracy to perform proper sales activities.

CableCo documents are not compliant at all with minimum expectations regarding this crucial service. There is not enough information given by the CableCo: only some simple reference to a Tool only and no Soap/XML interface.

We invite the regulators to capitalize on the practices and experience on systems and processes which have been developed in the frame of the regulatory obligations imposed in the context of the M4/M5 markets.

The CableCo also imposes the signature by the customer of a “Letter of Authority” before requesting the activation of a new customer. (document TLN-WRO-GA-G-M-PAAD.pdf). The usage of such a letter is disproportionate. Mobistar understands the need of a written consent/request of the customer. The Mobistar contract signature by the customer must be enough as a proof of the customer request. Indeed, the customer will never have its Telenet customer number when (s)he will be in a Mobistar shop.

Furthermore, the following sentence is totally unacceptable:

« La facturation de l’abonnement par <Bénéficiaire> cessera et sera transférée vers TELENET en cas de mesure de protection pour protéger la continuité du service pour l’utilisateur final. »

2.2.6.2 Customer provisioning tools

Again, despite the large possibilities offered by the different standards DOCSIS and DVB simulcrypt, the CableCo has over-engineered the solution and makes it very complex and difficult to integrate. The CableCo wants to remain always as man-in-the-middle in the provisioning chain for each Mobistar action or request, which is not acceptable.

The CableCo delivers a Proxy application to pre-provision the modem and deposit the config file that will be checked (???) by the CableCo and complemented by the info (which ones ?) to permit to set-up the GRE tunnel towards the GTC. See Document TLN_WRO_TA_B_S_PAAC.

The CableCo requires a listing of modems (White listing) they put in The CableCo NCP inventory DB (LDAP), 2 weeks before installation. Mobistar must give configuration file associated to the modem, configuration filename etc... includes the mac address of the modem. Mobistar can provide this list of MAC addresses as soon the Gateways are received from the supplier.

This would require a modem certification process described in TLN-WRO-TA-B-C-PAAA document that we find not relevant as soon as the provisioning process has been validated per region via an official reception, this should be ok.

We understand also that Mobistar should deliver a list of mac address and filename associated. This means one configuration file per modem which is not necessarily the case for each MSO operator in Belgium. Some operators maintain only configuration files per Services profiles (including DS/US speed, number of CPEs, WIFI or not, Voice 1 line or 2 lines or not).

2.2.6.3 IT interface specifications

A specific WebApp will be provided by the CableCo for all customer operations, activation, network and troubleshoot (TLN-WRO-GA-G-M-PAAD V0.70 P.3). Again, insufficient information is given by the CableCo about the specification of this interface. Mobistar is expecting the usage of a WebService with standard XML/SOAP interface.

For DOCSIS management, the CableCo offers the SNMP polling using PROXY in order to avoid to saturate the network by useless polling rates. As soon as this does not impact on the support responsiveness and if the polling is performed fairly between all the modems whatever is the origin (Mobistar or TLN) this is OK (See TLN_WRO_TA_B_5_PAAA;P12;4.3.1.(14)).

The CableCo proposes a 15 day notice to activate a modem after Mobistar has communicated the Cable Modem MAC Address (Cf TLN_WRO_TA_B_S_PAAC §4.5). This can not be accepted as activation time as it is too long. Furthermore, there must be a fast track activation process in case a cable modem must be replaced following a failure with very short notice (J+1). Mobistar states again that the provisioning of DVB SmartCard and DOCSIS modems can be managed easily directly with the Mobistar CAS and Mobistar DHCP Server. Please refer to chapter 4.6.4 for a simplification proposal.

Telenet shall describe what is covered in its “sanity checks” and how this procedure complements Telenet certification in TLN_WRO_TA_B_S_PAAC §4.6

As stated in The CableCo document TLN-WRO-TA-G-S-PAAB § 3, Mobistar shall require visibility on the status of The CableCo network and service platforms so that it is able to describe if an incident comes from its equipment or from Telenet's network.

2.2.6.4 Customer installation organisation

Mobistar should be ideally the unique interface communicating with the end customer. In some circumstances, the installer can directly contact the end customer (in case of rescheduling, confirmation etc...).

The proposal does not explain with enough details the procedure that will be followed for the installation of a new customer. Mobistar requests a clear workflow procedure with all exceptions pointing the responsibilities and expectations of each party (for example: how are the appointments organized ?).

How will the technicians report back that the install is adequate or inadequate ?

2.2.6.5 Unique installation visit with certified Technician

Mobistar reminds that there should be, when it is absolutely required, only one unique technician visit at customer premises for the overall installation, in order to have a smooth customer journey. Mobistar can agree in some exceptional circumstances that more visits are required (civil works to be planned etc...). The CableCo is totally unclear regarding this point.

As part of QAM modulation, both DOCSIS and DVB-C signals should be tested at the same time, the same way for the return path. There are specific field test devices to do this. The CableCo should be able to define via the online eligibility tool which NIU is in use (One or 2 TV outputs and one or 2 modems I/O).

We take note that upstream bonding is not yet activated on the The CableCo network (See TLN_WRO_TA_B_5_PAAB;P12;§4.4.(31). Mobistar will not be able to propose the services in upstream depending on the regional upstream bonding properties.

Also, according to TLN_WRO_TA-B_5S_PAAB, some NIU can force to use 5-25 MHz US band. In other words, the upstream band is not uniform on all the The CableCo Network. Mobistar needs to know for each customer the bands to use in its DOCSIS modems. This could be done via the online eligibility tool.

The CableCo mentions a lot of specifications associated to RF, passive and Coax cables equipment. As soon as Mobistar uses the same suppliers and certified technicians, there should not be any difference regarding the quality of the installation.

By specifying the cable type between the NIU and the CPE, should we understand that The CableCo considers the gateway as the final responsibility point ? It is unclear why Telenet tends to impose a specific cable for internal house installations.

We agree that any RF outlet wall plates after the first in daisy chaining is considered as internal home wiring and is not under The CableCo responsibility (see TLN-WRO_TA_A_S_PAAA).

We consider some specifications related to testing of patch cord not relevant (See TLN_WRO_TA_A_C_PAAB) as soon as we use the same suppliers than The CableCo.

2.2.6.6 In-house installation

The CableCo requires that some equipment in the client's home network are marked with The CableCo Brand name which may induce confusion to the customer. Furthermore, The CableCo may contact directly a Beneficiary client which may also induce confusion to the end user - Cf : TLN-WRO-GA-G-M-PAAF p 7 & 8.

Extract from: TLN-WRO-TA-G-S-PAAA “the installation policies and usage rules of the different ports on NIU’s are described in general annex : <TLN-WRO-TA-G-S-PAAD>” . This is a Missing Annex !! No visibility on NIU capabilities and evolution.

The CableCo shall take all necessary steps to prevent any damages if the client would connect some equipment to unused ports of the NIU. In any case, Mobistar nor the client shall not be held responsible and shall not be charged. Cf TLN-WRO-TA-G-S-PAAA §4.1.4

Mobistar has to have a precise knowledge of the RF characteristics of the actual NIU that The CableCo shall deploy to deliver the AO offer and shall not be able to tune the equipment that it shall deploy in the field based on an “example” Cf TLN-WRO-TA-G-S-PAAA §4.2.

The CableCo shall not impose the length of the cable that Mobistar may use: TLN-WRO-TA-A-S-PAAB ; TLN-WRO-TA-A-S-PAAC ; TLN-WRO-TA-A-S-PAAD ; TLN-WRO-TA-A-S-PAAE ; TLN-WRO-TA-A-S-PAAF.

The CableCo shall not impose the marking of the cable with The CableCo Brand Name : TLN-WRO-TA-A-S-PAAB ; TLN-WRO-TA-A-S-PAAC ; TLN-WRO-TA-A-S-PAAD ; TLN-WRO-TA-A-S-PAAE ; TLN-WRO-TA-A-S-PAAF.

We do understand the concerns of The CableCo considering an HFC network as an “open system” with noise funnelling effect. However, we consider that imposing such cabling would be abusive and exaggerated. Mobistar will manage to get cabling at the same technical conditions than the CableCo.

2.2.6.7 Customer installation not yet connected to cable network

Following the CableCo proposal, in the case the end customer is not yet connected to the CableCo network, he/she should contact directly the CableCo to organize the setup of the cable access. Mobistar cannot agree totally with this proposal. Mobistar should be able to already give concrete elements to the end customer in Mobistar Point of Sale (pricing, procedure, etc...). Like for the other Cablecos, it should also be possible to order new installations directly to the CableCo.

2.2.6.8 Customer Move (same network)

The CableCo proposes to perform the move in two steps:

1. De-activation at the old address (+ associated de-activation costs and planning)
2. New activation as a new customer at the new address (+associated costs and planning)

If the end customer remains under the same CableCo coverage, it is not acceptable to use this two-step procedure.

Mobistar asks for a specific move process to be detailed and requests the regulators to ensure that the process is non-discriminatory and very smooth for the end user.

2.2.6.9 Customer cancellation

The CableCo shall deactivate the end user on the working date indicated by the Beneficiary provided a 5 days notice to Telenet. Unless immediate deactivation is requested by the Beneficiary, the CableCo shall not notify the Beneficiary of an end user deactivation but shall agree on a date with the Beneficiary. Cf **TLN-WRO-GA-G-M-PAAD V0.70 P.3.**

2.2.6.10 Customer upgrade/downgrade

According to Mobistar view (cfr. Simplified solutions as proposed by Mobistar in chapter 4), when the end customer requests a service upgrade/downgrade (extra bouquet, higher speed...), this should be completely transparent for the CableCo. Indeed, thanks to simulcrypt for the Bouquet management and thanks to the TFTP server managed by Mobistar, this is directly managed by Mobistar without the CableCo’s intervention.

The proposed procedure by the Cableco is too complex.

2.2.6.11 CPE's logistics

All the logistics will be managed by Mobistar, with eventually its installer partners.

2.2.7 Operations

2.2.7.1 Network supervision & monitoring

It is understood that The CableCo operates the HFC network 24h/day, 7days/week. Furthermore, we have noted from public website information³⁵, that for simple end user issues, the retail customers do have access to the help desk of the CableCo Mon-Fr 8-22h; Sat, Sun, holidays 9-22h. Operators should have at least access to similar repair tools to help end users during these hours. Opening of repair tickets should be possible 24h/day, 7days/week.

Mobistar insists again on the clear definition of limits of responsibilities, which are not well described in the document (interco, customer location).

Especially access to CableCo sites in case some Mobistar equipment would be located there is unclear (Video server, CAS system, etc...).

It should be also be stated up to which equipment/network part is considered to be monitored and operated under these conditions and if monitoring involves customer equipment.

2.2.7.2 SLA's & KPI's + penalties

The CableCo describes its KPIs and SLAs proposal in the document "TLN-WRO-GA-G-M-PAAC V0 70.pdf"

In few words, the proposed SLAs and penalties are not acceptable and discriminatory.

Here are the not acceptable or missing elements regarding SLA & KPIs:

- There are no KPIs, nor associated SLA & penalties regarding the validation of a Mobistar request.

Do you have an administrative or technical question or problem? Would you like to discuss that with one of our staff?

Call **015 66 66 66**

For all your **administrative** questions

GESLOTEN

- Monday to Friday: 8h - 20h
- Saturday: 9h - 17h30
- Sunday and public holidays: closed

For all your **technical** and **general** questions

OPEN

- 35
- Monday to Friday: 8h - 22h
 - Saturday and Sunday: 9h - 22h

<http://telenet.be/5/en/residential>

- Unacceptable value for activation time (90% activation on site in 20 open days) and failure resolution (90% failures resolved in 5 open days) etc...
- Mobistar does not know what kind of monthly reporting will be made by the CableCo. A list of clear KPIs (SLA, usage, customer base,...) must be defined and reported every month to Mobistar and a regular follow-up must be organised as well in an operational SteerCo. The absence of retail reports can not be used to defend no reporting on a wholesale level.
- SLAs are not applicable during the 6 first months. This means that Mobistar will not have any pressure nor solution to have directly a good and fair customer experience in the activation and installation processes. Furthermore, if no SLA applies, it is impossible to follow up orders/repair tickets in good cooperation and with clear timers. This will lead to unnecessary manual follow up (calls/emails between operational teams) as both parties will have different ideas on normal delays. In order to facilitate a learning curve, SLAs should be applicable; while there can be flexibility during a limited period to have no penalties. Mobistar proposes to limit this period to 2 months
- SLA limited to a minimal number of orders: it is unacceptable that in case of a small/focused beneficiary, SLA/penalties would not be applicable
- SLAs and penalties only on activation & resolution time. No SLA on service performance & availability.
- Crucial information is missing: i.e. on the way how the SLAs are measured and computed etc...
- Telenet proposes to exclude too much cases out of the SLA: we can accept that in specific well defined cases which are not under the control of Telenet, a stop clock procedure could be applicable. These cases should be well defined and processes should exist to ensure follow up.
- Telenet's SLA will not be applicable in case they can not comply to the SLA for their own customer base: whereas we do understand and support a non discrimination principle, this principle should not be used to stop any SLA. For the Beneficiary, it will be impossible to understand when the SLA is applicable or not. Such a reference is key for the regulator to ensure fair competition, and should be used ex post to ensure that SLA levels are still correct; however, in case a SLA is applicable, this should be applicable under all circumstances.

Especially for repair : it should be possible to have resolution for important incidents or in case of impact at regional level also outside business hours.

Furthermore, in this reference offer, the Telenet SLA is not applicable in case of multiple end user impacts: whereas we do understand there is/should be a difference between issues for 1 end user and multiple end users, it seems strange to exclude exactly these cases where there is a higher impact. In case of repair issues, there should be different priority levels, and for an incident where multiple users are impacted, the repair timers should even be much stricter. To be more specific, a clear distinction should be made between service interruption and service degradation and between single end user issues and multiple end user issues (e.g. P1: service interruption in region; P2: service degradation in region; P3: service interruption single end user; P4: service degradation single end user)

Mobistar made some informal testing in different PoS and by calling The CableCo Telesales to ask for the time required for a new customer to obtain the service. Most of the time, a customer can be activated for digital TV & broadband internet in less than two weeks. Mobistar also found this information from one CableCo reseller agent:



Figure 12: Telenet installation time

Mobistar cannot understand why the proposed SLA by The CableCo is much longer...

In addition, with respect to penalties, Mobistar notes:

- Insignificant penalties : penalties should be high enough to give incentives to improve and to compensate on business loss / additional operational costs due to non respect of SLA
- No minimal volumes for penalties can be accepted
- There are too many possibilities for CableCo to bypass SLA & penalties...
- Some of the wordings are too vague
- Repair penalty limited to working days (it is not because a repair ticket will not be treated outside (limited) working hours, that the customer is not impacted during the other days. Therefore at least repair penalties should be applicable for all days
- exclusion of 10% worst cases on a yearly basis (penalty calculation should be done either on monthly or bi-monthly basis – after 1 year, it is impossible for both parties to investigate efficiently such cases.
- In many cases The CableCo gives reasons for the SLAs not to apply. However in that case, no precision is given on the so called “best effort” approach which is applying then.
- Stop clock principles can only be applicable in limited number of cases (“fault” at OLO side (or its end user)); and should be easy to follow up during processes. In absence of clarity, stop clock can not be used in SLA/penalties
- No SLA for other provisioning actions such as move, add, change, delete, suspend actions
- No SLA on IT tools (provisioning, eligibility, trouble ticketing....), despite the importance of these critical elements.

As all TV regulators have also reacted against this proposition and made new proposals, Mobistar will detail its position in chapter 3.3.2.4 and next one.

2.2.7.3 Governance

There is no detailed governance model proposed by The CableCo for the BUILD and the RUN. Only some references to single point of contacts and statements of good intentions are mentioned.

Mobistar requests The CableCo to dedicate a wholesale team for this program, a team which is evidently independent from the retail department with clear Chinese walls. Clear governance and associated rules should also be proposed.

2.2.7.4 Customer troubleshooting

As Mobistar will perform the first and second line support, we should have access to customer troubleshooting tools to make the problem resolutions as easy as possible. For example, Mobistar helpdesk should have a view, via remote management console & status on :

- Signal levels (DVB and/or DOCSIS) at customer premises (via gateway & STB monitoring)
- Services parameters (service flow, speed,...)
- IP connectivity (“remote ping”)
- ...

We appreciate that The CableCo put in place modem monitoring. However, as already stated in CPE related previous sections, Mobistar would like to have more information on the tools and mechanisms that will be made available.

We want to insist that in no circumstance the CableCo is authorised to reboot a modem from Mobistar without prior authorization from Mobistar.

We also note that the CableCo does not give any detail on the trouble ticketing tool and its capabilities.

2.2.7.5 FrontOffice & Backoffice

Mobistar will manage first & second lines support.

2.2.7.6 Third line support

In case of technical issue at CableCo side, a ticket will be opened to CableCo technical support. If there is a more important regional failure, direct contact between NoC's should be allowed.

Mobistar is fine with this proposal, that should be of course detailed more in-depth. Especially how these tickets are being sent, acknowledged, and processed through the Cableco organisation with regular reporting on its progress toward final resolution should be further specified. Opening of any ticket should be possible 24h/24; 7days/7. Resolution timers should be depending on impact. As this should be common for the different CableCo's, Mobistar will go into more detail on repair timers in a later chapter.

2.2.7.7 Preventive maintenance

In case of preventive maintenance, The CableCo shall notify Mobistar in advance with the nature of the maintenance and the impact on the services.

Mobistar must be able to notify its customers at the same time as The CableCo informs its retail customers.

Mobistar asks for The CableCo to be notified of preventive maintenance at least 5 open days before CableCo will notify its own customers.

2.2.7.8 Change Management

Mobistar requests that any change in the regulated offers must be approved by the different regulators. This is not the way the CableCo details its regulated offers. Mobistar gives a few comments on some possible (non-exhaustive) changes that can occur in the regulated offers:

- It is unacceptable that Telenet could unilaterally change the regulated offer via a webapplication without the approval of regulators, CableCo's and other beneficiaries, as stated in the text below :

"Elke wijziging van de contractuele, tarifaire of andere voorwaarden van dit Referentieaanbod wordt door Telenet via de Webapplicatie gecommuniceerd."..

- There is no definition of "wezenlijke aanpassing", "gemiddelde aanpassing" or "detail aanpassing" (as defined in "Bijlage TLN-WRO-GA-G-P-PAAD")
- 2 working days to notify the beneficiary is not enough
- ...

Mobistar refers to its proposal in chapter 4.6.5 for change management procedure requirements.

2.2.7.9 Escalation process

The document TLN-WRO-GA-G-O-PAAA V0.70.pdf describes the process. Mobistar will be happy to fine tune this escalation process during implementation phase.

The escalation process should also indicate clear timers and SLA.

2.2.7.10 Massive migration process & rush mode

There is no clear reference to massive migration process, except that this will be treated as project mode by the CableCo, without any associated SLA.

Mobistar agrees that this will be treated as a project. However, SLAs should be applied as for any other activations.

2.3 Coditel / Numericable

Coditel will be named "CableCo" in this following chapter.

2.3.1 General comments

2.3.1.1 Introduction

Our main general feedback is that the documents with updated reference offers provided by The CableCo are very far from the necessary maturity to allow Mobistar to decide on the implementation of this offer in the near future:

- Too high level documents and solution descriptions are provided. A lot of elements are missing to understand what will be the impact on Mobistar assets (network, service, marketing). For example, all Annexes 6 are missing.
- Discriminatory and non-transparent offers as i.e. The CableCo imposes processes and rules that do not apply for its own retail services.
- Too complex solutions (for example for Simulcrypt)
- Many confusing and contradictions are present in the offer
- ...

Mobistar has already expressed its high concern regarding the poor quality of the documents provided early 2012 (we refer to BIPT's and CSA's consultations).

Mobistar noticed that the structure of the CableCo proposal is more well structured than for the other CableCo. The Table of content seems to contain all the elements of a cable wholesale offer. Unfortunately,

many chapters and annexes are incomplete, too vague or definitely missing (i.e. all technical annexes chapter 6).

Mobistar notices positive evolutions in the updated documents published in November 2012.

This reference offer documents are an important part of the potential future contract between Mobistar and the CableCo, purpose for which the current proposals are clearly not acceptable.

We invite the regulators to make a comparison between the proposed reference offers of the CableCo and the quality of the documents provided by Belgacom in the context of BROBA/BRUO/WBA wholesale offers. Without such a level of documentation, it is not possible to really assess the possibility to offer competitive services to end users based on the reference offers. Even the high level of detail of the documentation provided by Belgacom still leads to uncertainties and additional need for clarifications when implementing new processes or tools such as eg. the remapping project of Belgacom recently showed.

2.3.1.2 General Terms and Conditions

Mobistar has following comments concerning Coditel's General Terms and Conditions:

Definitions:

Demarcation point: The demarcation point is defined as "the point in the house where the coax cable enter and to which the in-home-network is connected". We invite the CableCo to provide a more precise definition in order to avoid any further discussions on the demarcation point

Request by Beneficiary

§ 5 order to Codenet: there is a reference Annex 3 "Planning & Operations" on how the order is made, but we also suggest to add contact points in the GT&C

§ 7: refusal to execute the order: See suggested changes in red : "In the event of a refusal on one of the grounds listed above, Coditel shall notify within **3** working days the Beneficiary of its decision and the grounds for the decision by ordinary mail. A copy will be sent to the "**competent regulators**" in the same delay."

Service covered by these GT&C

§14: We suggest to increase the prior notification of new services at least 6 month before commercial launch and not later than internally in order to ensure an efficient non-discrimination "In this respect Coditel will inform the Beneficiary of any modification of the technical specification, enabling a modification of the services offered, **not later than its own retail department or at the latest 6 (six) months** before the commercial launch by Coditel of a commercial service based on these technical specifications."

Financial conditions

Pre-payment

§37 & 52 – We propose to adapt the interest in a similar way as in the Telenet's GT&C: "a conventional default interest of the annual legal interest rate plus 2% points"

Financial Guarantees:

§55 – Mobistar requests following adaptations: 3 months period instead of 6 months (which is in line with the GT&C of Belgacom as well as a minimum of 250.000€ instead of 500.000€ (considering this last would correspond to 6 months guarantee)

Principles

Branding

§59: we propose the following adaptation (removal red part)::

“59. Notwithstanding the foregoing, Parties acknowledge that the installation of equipment on the site after the Demarcation Point of the relevant Beneficiary’s End Users who have subscribed to an offering of a Beneficiary, ~~can never be realized by Coditel personnel~~. Both Parties agree that Coditel shall have no obligation to unbrand or rebrand its service technicians or trucks. Coditel will act in accordance with its general standard of integrity that it has internally developed and enforced.” As in some cases Coditel will have to perform some works after the Demarcation Point (installation of NIU for example)

Liability

Mobistar proposes following adaptations:

§53b Add a limitation in the liability of max 1.25 Mio€. A financial limitation must be included.

Add a point 66.2

“if such liability results from any material damage (including any dysfunction of the Belgacom’s Network), other than those referred to above, arising out of or in any way connected with the performance by the relevant Party of the Services or the breach of such Party’s obligations under these Terms and Conditions, then the total amount which can be recovered from such Party for all acts or omissions shall, in no event, exceed an aggregate amount equal to EUR 1,250,000 (one million two hundred fifty thousand euro)”

Add a point 66.3

“Neither Party shall be liable for indirect damages (pure and consequential), including without limitation loss of profit, loss of revenue, loss of data, loss of use, loss of savings, loss of goodwill, interruption of business or claim by third parties.”

§68: Remove following sentence: “ ~~The use of the service for unlawful purposes, including the piracy by the End-User of the Beneficiary does not constitute an event beyond the reasonable control of the Beneficiary~~” as this is unreasonable restriction of the force majeure.

Term, Termination & Suspension

§94 bis – This § must be removed (for the same reasons as a removal of a similar clause in Telenet’s conditions is required) : “the service may stopped in the event that an obligation imposed on Coditel in the CRC Decisions of ...”

Confidentiality

§102 & 107– Mobistar would prefer to reduce the confidentiality to 3 years instead of 5, but does not consider this a blocking issue.

2.3.1.3 Pricing

No pricing values are given in chapter §6.10 of the main document, which does not allow to fully assess the offer. We invite the regulators to launch as soon as possible a consultation on the level of the retail-minus pricing..

Mobistar must have a clear view on all possible pricing elements and details that will be invoiced by the CableCo for all the services. Each service must be described in detail with a clear responsibility split.

2.3.1.4 Wholesale conditions for CableCo <=> Mobistar deal (§3)

In chapter §1.1, the Cableco indicates that the proposal is valid for residential customers:

“L’offre de revente est proposée à destination de clients individuels résidentiels. L’offre ne sera disponible que sur les communes du Territoire et sous condition d’éligibilité de raccordement.”

First, the CableCo restricts the end customer to the residential market only, which is clearly discriminatory. Mobistar should not only be able to resell its product to any Belgian customer but in addition, similarly to what is done in the frame of Market4/5 access, the beneficiaries should be allowed to sell their products to retail (B2C) and business (B2B) end-users as well as to other operators (wholesale).

Second, Mobistar would like to have a clear overview on the Cableco footprint, knowing all the uncertainty regarding the situation of A.E.I.S.H. What are the municipalities covered by the CableCo ?

It is also written:

“L’offre de revente impose des conditions de respect strict des contraintes du réseau afin de préserver l’intégrité d’une structure de réseau par essence non dégroupable. »

Of course, this affirmation is totally wrong and must be rejected. An HFC network could be easily unbundled as it was already done in many countries worldwide for the different services (Canada, Hungary, France,...³⁶)

It is obvious for Mobistar that all conditions imposed by CableCo in chapter §5 are totally unacceptable:

- The CableCo will analyze the request and make a proposal for development costs before the agreement
- The first alternative operator should support all the development costs
- Quotation and prices will be offered after all analysis, not in the scope of a regulated wholesale offer
- Bank guarantee of 500k€ is not in the scope of a regulated wholesale offer.

Also, clear boundaries must be defined between CableCo’s network and Mobistar’s network. The proposal to use the NIU as demarcation point at customer premises, which is rather odd as in various cases, there is no NIU installed at the customer’s house (for example: analogue TV customer only, some digital customers which have their TV decoder directly connected to wall plug without a NIU, shared NIU between flats, etc.). Mobistar proposes to use as separation end point the NIU when it exists or the coaxial interface where the master coaxial cable enters in the house (this cable is generally bigger).

Finally, Mobistar is also concerned by the fact that nothing is described by the CableCo regarding the security and governance rules he will implement in order to ensure Chinese Walls between its retail departments and its wholesale department. Such Chinese walls are evidently mandatory.

³⁶ http://www.telekom.hu/services/wholesale/national_fixed_line_solutions/tv_services

<http://lafibre.info/bbox-fibre/architecture-du-reseau-numericable/>

<http://www.crtc.gc.ca/eng/publications/reports/broadband/bbreport1111.htm#t2.1.1>

http://www.broadbandresearch.ca/ourresearch/middleton_vangorp_TPRC2009.pdf

2.3.1.5 Planning & availability

Reading the CableCo proposal (§5.1), Mobistar should not expect to start any implementation and integration with the CableCo before 24 months and even 36 months for go-to-live, which is totally unacceptable.

Mobistar would recommend, to save time and optimize the TCO for all parties, many simplifications in the approach, the solutions design and the implementation as written in chapter 4.

2.3.1.6 Commercial

Commercial ownership:

For the sake of clarity, Mobistar confirms its position that it should have the full ownership of the customer.

Order entry & Point of Sales tools:

Mobistar notes that no reference is made related to this topic in the document. For the sake of clarity, Mobistar confirms its position that it should have access to supporting tools which can be integrated in our own tools in our Points of Sale.

Multiplay package definition:

Mobistar notes that no reference is made related to this topic in the document. For the sake of clarity, Mobistar confirms its position that it should be able to define its own multiplay packages and product mix.

Customer acquisition & contract:

Mobistar notes that no reference is made related to this topic in the document. For the sake of clarity, Mobistar confirms its position that it should be able to do the customer acquisition and to get a Mobistar contract signed by the end user.

Customer offer pricing:

Mobistar notes that no reference is made related to this topic in the document. For the sake of clarity, Mobistar confirms its position that it should manage its end user pricing & promotions without any consultation, approval, validation of the CableCo.

Network access eligibility:

Mobistar notes that no reference is made related to this topic in the document. For the sake of clarity, Mobistar confirms its position that it should have the exact same eligibility than CableCo customers.

Non discriminatory offer:

Mobistar underlines the need to control the non-discrimination obligation. This can be done in the form of audit by regulators, monthly transparent reporting to regulators and to the market, ... For the sake of clarity the non-discrimination must be applicable to both operational and technical aspects (same SLA, same speed, net transparency, same traffic shaping rules, same network coverage, same eligibility...).

The CableCo gives too few elements clearly casting many doubts about its willingness to be non-discriminatory.

Volume forecasts:

In chapter §3.2.8 of the main offer: "L'OA établira un forecast indicatif de la demande d'installations de NIU, d'utilisation VOD et d'utilisation IP afin de permettre un dimensionnement correct des ressources partagées. En cas de déviation de plus de 20% de ce forecast, Coditel pourra porter à

charge de l'OA les coûts supplémentaires encourus. La procédure de forecast sera décrite en annexe 6.16. »

Mobistar cannot provide the forecasts for installation NIU, as we don't know how many households are already equipped. Mobistar cannot accept neither to pay for penalties for over-forecasted volumes.

Mobistar regrets that the CableCo does not join the annexe 6.16 in the set of documents.

Mobistar is willing to share on a quarterly basis its volume forecasts to CableCo for each product line (analogue, Digital TV & Broadband). More details on Mobistar's proposal are provided in chapter 4.

2.3.2 Content

2.3.2.1 Analogue TV access & rights

Mobistar appreciates that the Cableco publishes the list of analogue TV channels available in the different areas. Mobistar is requesting also the same table for the AEISH area.

As mandated by the Broadcast Market Analysis decisions, Mobistar agrees to manage the TV rights. However, Mobistar will be happy to benefit of an access to analogue offers containing the content rights. Mobistar position is further described in chapter 4.2.

Some elements imposed by the CableCo are not acceptable regarding the analogue TV access. Mobistar invites the regulators to tackle these elements:

- Mobistar must have the rights for all analogue channels, this condition is preliminary to distribute any regulated service (analogue, digital and Broadband). If the rights negotiations with one TV broadcaster fail (i.e. too expensive proposal), Mobistar will not be able to launch any regulated service. Not having the right for one analogue channel will block completely the access to cable and analogue, digital & broadband services, which is clearly not acceptable.
- Mobistar believes that access to regulated content could be a solution. We refer to chapter 4.2 for more information.
- CableCo can unilaterally stop its analogue TV service, with an **unknown** prior notification (§2.1.2). This is not acceptable, especially as this access is part of a regulated offer. Any change in the analogue bouquet (i.e. the removal of a channel) must be approved by the regulator in charge of this CableCo. Additionally, a minimum period of minimum 24 months is required to prepare the migration from analogue TV channel to Digital TV with the content owners.
- A complete out-phasing of the analogue service should be notified at least 3 years in advance similar to what is applicable for broadband where such out-phasing must be notified 5 years in advance³⁷.
- A simple declaration by Mobistar to CableCo stipulating that Mobistar has the rights authorization should be enough to clear CableCo responsibility against TV broadcaster. There is no need to sign a specific contract with the Cableco as requested in §2.1.5 as the regulated wholesale contract should implicitly cover this aspect.

³⁷ We refer to a.o. §636 of the Decision of the Conference of Regulators of the electronic communications sector (CRC) of 1 July 2011 regarding the analysis of the broadband markets

Mobistar is happy to see also the access to analogue Radio and some teletext services when available for some channels.

2.3.2.2 Digital TV access & rights

Mobistar agrees to manage the Digital TV rights with the content owner. However, as mentioned above, Mobistar would welcome to benefit from an access to a regulated TV content package. Mobistar's position is further described in chapter 4.2.

Mobistar notes that there are less issues on the Digital TV compared to the analogue TV as it is easy to switch off/on each channel access via the conditional access system.

A simple declaration by Mobistar to CableCo stipulating that Mobistar has the rights authorization should be enough to clear CableCo responsibility against a TV broadcaster. There is no need to sign a specific contract with the CableCo as requested in §2.2.6 as the regulated wholesale contract should implicitly cover this aspect.

2.3.2.3 On Demand TV selection and rights

Mobistar does agree with CableCo proposal (§2.2.11.6) regarding the on-demand selection & rights (Video on demand, Subscribed VoD, Catchup-TV, TV on Demand, etc...). The sourcing and content rights negotiation are to be managed by Mobistar. Mobistar is also responsible for the content selection, the promotion and animation towards its end customers.

However, Mobistar will be happy to start with a regulated TV on demand content package or to share existing rights with CableCo.

On the other hand, the CableCo document seems to be contradictory as it stipulates in §3.2.1:

“En cas d'utilisation de la VOD, l'OA sera tenu de signer un contrat de couverture des droits VOD avec Coditel et l'OA prendra en charge l'ensemble des obligations liées à la gestion de ces droits (paiement, reporting, gestion des conflits de droits, etc.).”

2.3.2.4 Author rights & taxes

Mobistar manages Sabam, Auvibel, contribution etc... if broadcasters rights are sourced and managed by Mobistar.

2.3.2.5 Digital TV encryption & access control

First, Mobistar would like to highlight that the CableCo documents are contradictory and unclear regarding the encryption of TV channels.

In chapter §2.2 of main document, the CableCo indicates Mobistar will have to use a specific unique CAS, installed, controlled & operated by the CableCo. However, in Technical annex 2, §32 (CA HOST integration), it is written:

“All Beneficiaries will have to work in the worst case with one shared hosted 3rd party CAS. In the best case, all OAs will use the same CAS as Coditel uses today which will reduce costs and implementation time. Regarding the worst case implementation scenario: the CA Host function of this CAS will be integrated in the VHE of SMP operator alongside the CA Host component of SMP operator's existing CA system(s) to allow decryption of digital broadcast content. This will happen through a mechanism known in the DTV industry as “DVB Simulcrypt”. Only one external 3rd party CAS can be supported to be used for all Beneficiaries. The Beneficiaries are free to select this CAS provided that the CAS system proposed can be considered a well-established state-of-the-art industry player...”

So, the CableCo admits the possibility to use real Simulcrypt standards but considers this as the worst scenario. We cannot agree with the CableCo that the Simulcrypt solution is the worst case. To force all

wholesale customers using a unique CAS voids automatically all the advantages of Simulcrypt for all parties. We refer to chapter 4.3 for all our argumentation. Some other comments on this proposal are below.

The CableCo proposal to force Mobistar to use only one unique CAS and not have the responsibility of its management is totally unacceptable if Mobistar must deploy its own TV decoder.

The CableCo accepts one new CAS system for all the new operators. In case of dispute, the regulator will be consulted to decide:

“In case there is any discussion about a CAS being an established state-of-the-art industry player, and that discussion cannot be resolved between the Beneficiaries and SMP operator, the matter shall be presented to the authorized regulator, who will decide.”

In Technical Annex 2, §38.4, Mobistar shall generate the EMM. This is another contradiction as the CableCo explains that all the CAS elements will be managed by the CableCo itself. Mobistar will indeed generate the EMM's and ECM's in the case of a true simulcrypt, for each alternative operator.

Mobistar cannot agree that in the context of a Belgian regulated offer, constraints and conditions are imposed by external third-parties, not submitted to this regulation. Mobistar understands that if the CableCo is regulated, it must organize itself to guarantee to offer the regulated services without the need of a specific agreement between Mobistar and external parties (Numericable France):

“D'autre part, Coditel attire l'attention de l'OA sur le fait qu'elle n'encrypte en direct qu'une partie des chaînes qu'elle diffuse et qu'elle ne dispose pas d'un CAS en propre. La moitié des chaînes diffusées par Coditel sont en effet encryptées par Numericable France au travers d'un accord de support passé entre les deux parties. Cet accord ne prévoit pas la revente de ce service à des parties tierces.”

« Le système d'encryption (SAS) à destination des Opérateurs Alternatifs sera physiquement séparé de celui de Coditel (Coditel ne disposant pas de CAS en propre, celui-ci étant effectué par Numericable France). Le SAS (et le système global de contrôle d'accès CAS) à destination des OA ayant souscrit à l'offre de Coditel seront gérés et hébergés par Coditel. L'ensemble des chaînes devra être encrypté par Coditel (à l'heure actuelle seulement 50% des chaînes sont encryptées en Belgique, le reste étant traité par Numericable France) »

For these reasons, Mobistar cannot accept the following statements:

Main document §2.2.1 & 2.2.8

- *“Le système d'encryption (SAS) à destination des Opérateurs Alternatifs sera physiquement séparé de celui de Coditel (Coditel ne disposant pas de CAS en propre, celui-ci étant effectué par Numericable France). Le SAS (et le système global de contrôle d'accès CAS) à destination des OA ayant souscrit à l'offre de Coditel seront gérés et hébergés par Coditel.”*
- *“Les smartcards à destination des décodeurs seront paramétrées par Coditel pour l'OA »*
- *« La mise à disposition, l'exploitation et les mises à jour du SAS »*
- *« L'exploitation de l'IMS, pour garantir la cohérence des critères d'accès des offres commerciales (bouquets) de l'OA et des droits diffusés »*
- *« Le paramétrage des critères d'accès via les ECB et en fonction des offres commerciales communiquées par l'OA »*

- « L'accès opérationnel au SAS via son Interface SI »
- « La personnalisation des smartcards en fonction de ses contraintes sécuritaires et des besoins de l'OA »
- « L'approvisionnement des smartcards de l'OA en fonction des besoins prévisionnels transmis par l'OA et suivant une procédure communiquée par Coditel. »

This is not in the scope of a standard simulcrypt and is making the implementation and the operation of wholesale TV solution impossibly complex.

Furthermore, it is written in §2.2.1:

“ STB doivent être conformes CAKV7, NASK, NOSK et Coditel ready (tiers certificateur) »

... for which Mobistar does not have any information. We suppose again this may relate to the Nagra solution from Kudelski Group for which Mobistar does not have access to information and details.

All the elements of §35 in Technical Annex 2 shall, contrary to CableCo position, be included in the regulated offer and must be detailed in the documents.

2.3.2.6 TV Bouquet customer offer definition

The CableCo writes in §2.2.9:

“Pour des raisons techniques, l'OA devra au minimum reprendre l'ensemble des chaînes numériques reprises au sein du bouquet TV plus de Coditel . Pour la reprise des autres chaînes, les parties conviendront de procédures et de mécanismes adéquats.»

This is abusive and unacceptable. It means that Mobistar will have at least to propose min. 130 TV channels towards its customers. With Digital TV and CAS, it is easy to manage individually and in a very flexible way, without the intervention of the CableCo, the list of TV channels that will be distributed by the alternative operator (under the condition that this channel is already broadcasted by the CableCo). The above mentioned procedures and mechanisms are unknown by Mobistar and not provided in the document.

We note that the beneficiaries are totally dependent on The CableCo when a TV channel is removed from the CableCo's network (for example if CableCo stops the contract with the broadcaster because i.e. financial disagreement, not in line with CableCo's strategy anymore,...). Mobistar does not have any solution to continue offering this channel, which is not acceptable. As it was agreed by the BIPT in the frame of the IPTV Multicast offer by Belgacom, it should be possible for Mobistar to ask The CableCo to transport a limited number of channels specifically for Mobistar (in IPTV multicast offer, a multicast dedicated capacity of 25Mbps was allocated to transport ~8 SD specific channels).

2.3.2.7 TV Service plan

This is unclear and contradictory in Annex 2 §7.1.3. What are the limitations about the table below ?

“This action is done for Coditel by a third party supplier. Coditel will facilitate the discussions between the OA and his supplier. If this cannot be done by the Coditel's supplier, Coditel will have to install its own SI/PSI generator system and this will increase the setup costs for the OA. “*

The CableCo shall ensure that a TV service plan dedicated for Mobistar will be possible with eventual associated costs.

In order to offer the same customer experience to all its customers, Mobistar should be able to manage its own digital TV channel ordering list. Mobistar is used to implement a what is called “Fast Scan Table” containing the list of all Mobistar TV channels, frequency and channel names in a specific format. This

information is broadcasted as DVB-SSU over CableCo's network to all customers. It requires only 50kbps independently from the number of customers and the number of channels. Mobistar TV decoder is configured to listen to a default channel to capture any update in the channel organisation without having to scan again all the spectrum (which is time consuming). Mobistar is ready to give all technical details required for the implementation of this feature that enhances the customer experience.

2.3.2.8 TV channels encoding & broadcasting

Mobistar understands the CableCo is managing all the TV head end, DVB and HFC network

It is clearly understood that The CableCo is managing the sourcing, the transcoding and the DVB multiplexing of all TV channels and associated data (CAS, EIT etc...). The CableCo also manages the QAM encoding and the transmission over the hybrid fiber coax network(s).

Mobistar notes that some important information, having impacts on TV decoder is missing in the document. The CableCo must provide, for each TV channel, the exact characteristics of the encoding (video MPEG-2, MPEG-4 H264 , Audio profile,...) and the details regarding the transport standards (MPEG-2 Transport stream,...).

2.3.2.9 Teletext, EPG EIT, audio dubbing & subtitles

The CableCo indicates that the beneficiary will have the same EIT as used by him. There is no info for Teletext, dubbing and subtitles for Digital TV.

Nothing is told about DVB tables related to EPG ,and other functionalities like Teletex, audio dubbing etc.... Mobistar should have a non discriminatory access to these contents and the CableCo must describe the formats and standards in use

2.3.2.10 Parental control

All TV operators in Belgium must respect Media & TV regulators rules regarding minor protection and thus implement parental control. This information is provided by each TV broadcaster and often integrated inside DVB signalling inside MPEG-2 Transport Stream and in EPG information (EIT). The CableCo must make this parental level information available for alternative operators. TV decoder and TV service head end are impacted by this service.

Mobistar wants to highlight that parental control level information is generally transmitted via EIT inside DVB. Indeed, it should be accessible in any circumstances (even without IP connectivity). Thus, the access to this information must be granted by the CableCo.

CableCo gives no information on this in its regulated offer proposal, which is not acceptable.

2.3.2.11 Extra Mobistar specific TV channels

Mobistar underlines that any change (move, add, remove) in the analogue TV bouquet structure (channels list, ordering,...) should be validated by the regulators before the implementation.

For Digital TV, The CableCo wrote it will analyse any request made by alternative operators to add new Digital TV channel(s) in its network. Mobistar deplores the absence of details about the process and the conditions to ensure non discrimination. In addition The CableCo indicates that this will be treated outside any regulation (as a price will be given case by case after request), which is according to Mobistar contrary to the Broadcast Market Analysis decisions.

For the sake of clarity, Mobistar considers this proposal not acceptable and discriminatory. Mobistar would indeed not be able to differentiate on its TV content offer without having the possibility to integrate a limited number of own TV channels.

Mobistar invites the regulators to apply similar principles as those proposed by the BIPT in the frame of xDSL's regulated multicast offer where alternative operators have the possibility to transmit a limited number of TV channels (~25Mbps or ½ DVB-C Mux).

2.3.3 TV products & services

In this chapter, we will give our feedback regarding the TV products & services, especially the customer equipment and the interactive TV platform.

Note: As mentioned above, Mobistar proposes a phased approach to limit the total cost of ownership (TCO) and to reduce the time to market (TTM). We refer to chapter 4.7 for more details.

2.3.3.1 TV Decoder, UI & branding

There is not enough information regarding the TV decoder. The annex 6.1 is totally missing.

For Digital TV, and certainly for Interactive Digital TV, Mobistar prefers to propose its own TV decoder, with its own branding & customer interface. CableCo confirms in this case it is Mobistar's responsibility to source, integrate and manage the TV decoder for its customers.

Mobistar has already some experience in the integration of TV decoders with the current Mobistar TV product (which is a hybrid satellite-IP decoder). Mobistar knows how the development phase is crucial for the planning and the quality of the customer experience (zapping time, image quality, menu-browsing, interactions with services...). With the currently provided document, Mobistar cannot estimate the workload and impacts to interconnect as the required Technical specifications are missing.

CableCo accepts that each alternative operator deploys its own TV decoder. However, there is an important lack of information regarding the technical specifications (interoperability standards, Video CODEC profiles, DVB requirements, DOCSIS inside modem specifications, upgrade mechanism, ...) to be respected in order to be interoperable with CableCo infrastructure. In absence of such technical information Mobistar cannot evaluate the effort required to prepare a TV decoder to have it adapted to and working on CableCo's network.

Certification procedure is totally missing (annex 6.7 in main document)

Knowing that the CableCo imposes one unique supplier for the Conditional Access, the CAS client must be implemented in the Mobistar TV decoder by Mobistar's TV integrator. Then afterwards, the TV decoder must be, for each firmware release, (re)certified by the CAS vendor which is out of Mobistar's control as this is managed and operated by the CableCo. This process is not acceptable. In addition to this, The CableCo does not give any details about the certification: no process, no details about the certification requirements, no info on the planning and on the cost....

Based on our long experience with our partner Viaccess, the TV decoder certification is usually performed by the CAS vendor to validate the correct behaviour of the new firmware, mainly for security & DRM parts. Viaccess signs the firmware with Mobistar certificates to guarantee full security with the Mobistar TV decoder (CAS Pairing). Depending on the importance of the firmware upgrade, only some elements are re-certified to save time and money. Thanks to our good relationship with Viaccess, in some circumstances where there is limited change (for example when only the user interface is impacted), only a declarative certification is enough. Such "fast-track" process saves a lot of time and money.

Also related to chapter §3.2.3 in main CableCo document:

"Les STB devront être également être compatibles avec la structure de réseau de Coditel, moyennant test d'acceptance."

Mobistar has absolutely no view on these extra acceptance tests and cannot accept to be liaised with the CableCo unilaterally.

If a Mobistar customer suffers from technical problems due to the Mobistar TV decoder, there will be only impact on Mobistar, and not on the CableCo. Mobistar commits to manage this problem asap with its supplier to the interest of its customers.

In conclusion Mobistar insists on the fact that if The CableCo requires an extra certification, this must be relevant, non-discriminatory and justified. The additional tests must be mutually agreed upon by both parties and may not extend the Time To Market and the Total cost of Ownership for Mobistar.

TV decoder upgrade_procedure is not explained.

CableCo does not explain how Mobistar will be able to perform TV decoder firmware upgrades remotely. This can be performed by DVB (via DVB-SSU standard specific for decoder upgrade) or outband via the DOCSIS network. Mobistar requests some minimal capacity in the network to perform this important task. Mobistar upgrades 4 times a year its decoder. CableCo must give concrete elements how this will be achievable.

2.3.3.2 Interactive TV platform

Following The CableCo proposal, the TV decoder and interactive TV platform should be provided by the alternative operator.

Mobistar does agree that if we use our own TV decoder, we should also use our own TV interactive platform (for user interface portal interaction, content browsing, search & recommendation engine, widgets, PVR remote control, user profile management...). TV decoder and TV interactive platform are working as client-server.

However, The CableCo does not give any detailed information on the setup and the parameters of the (bi-directional) DOCSIS return path that will be open for TV interactive services. If Mobistar chooses to work with an internal DOCSIS modem inside the TV decoder, we must understand how the configuration and the provisioning of this gateway will be performed. Service flow & QoS should be managed by Mobistar exactly as for Broadband internet access.

Mobistar understands that it will be able to provide any interactive services on TV: voting, quizz, gaming, social networks, web content,... and will not be limited to EPG as the figure page 17 of main document stipulates.

2.3.3.3 Companion device

Second TV screen experience³⁸ is becoming more and more important on the market. Mobistar, as mobile company, considers this service as strategic.

There are two use cases:

1. Usage at home. Reusing TV DVB streams received by the TV decoder in the home LAN for companion devices³⁹ is a simple and limited impact approach. Mobistar notes that imposing Nagra-Merlin CAS inside the decoder is another barrier for new market comers to propose these kind of services.
2. Nomadic usage with an Over The Top solution. In this case, Mobistar must also be able to reuse the TV signal (analogue/digital) from The CableCo for its OTT services.

³⁸ TV on tablets, smartphones, PC, connected TV, games consoles...

³⁹ By DTCP, DLNA and others similar standards

Mobistar believes that nothing should be included in The CableCo regulated offer that blocks the access to companion device services. Mobistar therefore wants to be able to reuse TV signals from CableCo for companion devices and second screen experience. This should be defined clearly in the wholesale offer.

2.3.3.4 TV return path

For Mobistar, the Interactive TV traffic (signaling and content) must be transported via broadband TCP/IP over DOCSIS. Mobistar considers two solutions: to integrate internally in the TV decoder a DOCSIS modem (cfr. Voo) or the usage of an external DOCSIS modem (cfr. Telenet). No decision is made at this stage.

Information provided by CableCo in its proposal is not enough to understand exactly the proposed solution for the return path:

- No detail about the IP architecture, routing, interconnection with Mobistar's network...
- No detail about the DOCSIS service flow parameters, that must be bidirectional
- No information on the guarantees for a non-discriminatory service

Mobistar recommends, as detailed below, to reuse the Broadband Internet access as return path to simplify the architecture.

2.3.3.5 On demand streaming via EDGE_QAM

As stated in the main document §2.2.11:

« L'OA aura la possibilité de développer des services interactifs via IP sous condition d'activation de l'option IP/Haut Débit.. Coditel facturera les Gigabytes supplémentaires en cas de dépassement de certains seuils de consommation. Nous attirons votre l'attention sur le fait que Coditel se réservera le droit de prendre toute mesure nécessaire afin de préserver la fluidité de son réseau en cas de consommation anormale ou excessive (« trafic shaping ») tel que prévu dans nos conditions générales (voir points 2.3.4). Notons que Coditel ne donnera pas de garantie de qualité sur ce service de VOD via IP.

*Coditel ne possède pas de système de VOD à l'heure actuelle, le service de VOD de Coditel étant une revente du service VOD de Numericable France. Aucune architecture VOD n'est dès lors présente sur le réseau de Coditel. Ceci rend nécessaire une implémentation de "revente VOD" (terme techniquement incorrect mais qui sera utilisé pour la facilité de compréhension) **au travers un interfaçage complexe des serveurs VOD de l'OA avec les ressources partagées QAM de Coditel et un interfaçage avec le ressource manager Numericable.** Ces QAM seront partagés entre le service VOD de Numericable France et le service VOD de l'OA. »*

The only interactive service proposed is the supply of VoD transport capacity. Technically, this proposal is close to what Tecteo/Brutele defines in their offer: sharing of the CableCo EDGE QAM capacity and deployment of Mobistar streamers. As indicated by the CableCo, and already stated for Digital TV CAS, Mobistar must conclude a contract with Numéricable France for the usage of the VOD service, which is not acceptable.

In Technical Annex 2, chapter 11 §73-77 is very confusing as it seems to explain that Mobistar is also able to reuse the entire VoD portal, Server and Streaming capabilities. Is this intended or is it an erratum ?

However and based on the proposal made by the CableCo:

«Nous acceptons alternativement de la VOD sur IP telle que décrite 2.2.5 »

Mobistar will not comment further on the EDGE-QAM based proposal to deliver VoD and Mobistar fully agrees with the CableCo recommendation to use VoD over IP as alternative.

2.3.3.6 On demand IP streaming over DOCSIS

Mobistar welcomes the CableCo proposal to use broadband IP for VoD services...:

“ L’OA aura la possibilité de développer des services interactifs via IP sous condition d’activation de l’option IP/Haut Débit. Coditel facturera les Gigabytes supplémentaires en cas de dépassement de certains seuils de consommation. Nous attirons votre attention sur le fait que Coditel se réservera le droit de prendre toute mesure nécessaire afin de préserver la fluidité de son réseau en cas de consommation anormale ou excessive (« trafic shaping ») tel que prévu dans nos conditions générales (voir points 2.3.4). Notons que Coditel ne donnera pas de garantie de qualité sur ce service de VOD via IP »

But Mobistar cannot accept all these conditions for the following reasons:

- The VoD is related to Digital Service wholesale regulation and not linked to the reselling of the Broadband service. The service should be accessible for a customer contracting only analogue TV and Interactive Digital TV services without imposing to subscribe also to Internet broadband services
- This will be discriminatory as for its own retail offers, the CableCo does not impose a supplementary subscription in order to offer VoD to its customers.
- The Volume used for VoD (MegaBytes) cannot be counted as general Internet customer traffic and must be invoiced separately as it should be done if EDGE-QAM technology would be used. We remind in this specific case that the volume is not important but the EDGE-QAM resource is a static allocation of bandwidth during the movie duration. It is easy to clearly identify Mobistar VoD traffic based on server IP addresses and therefor not to take this traffic into account in the invoicing.
- Mobistar cannot accept that the CableCo will apply, in a discriminatory way, traffic shaping on Mobistar customers as there are no rules nor criteria defined in the document. To avoid any issue, Mobistar wants to highlight that we already apply some limitations in the current Mobistar TV product: the customer cannot purchase more than a certain amount of VoD per month. This constraint will limit defacto the potential abuse.

Mobistar does not expect the internet broadband access service to offer a different quality than the one offered by the CableCo to its own Broadband customers.

Of course, Mobistar will transmit its usage forecasts, including also VoD services, according to the agreed procedure to let the CableCo estimate the traffic impact on its network.

Mobistar appreciates the Cableco proposal to use internet broadband for VoD and will come back on more technical details and a simplification proposal in chapter 4.5

2.3.3.7 Switched Digital Video⁴⁰

SDV is commonly used in some countries for the long tail TV channels. There is no indication if this technology is used or not by the CableCo to manage its TV channels.

If this is used by CableCo, Mobistar should have access to the SDV service. CableCo must then provide all technical & financial elements in its reference offers.

⁴⁰ http://en.wikipedia.org/wiki/Switched_digital_video

2.3.4 Broadband products & services

Remark: Mobistar proposes an alternative phased approach to save time and money. We refer to chapter 4 - Access to DOCSIS Broadband IP network

CableCo proposes to share its DOCSIS network infrastructure with Mobistar and to aggregate all Mobistar's users IP traffic and send it to Mobistar interconnect.

2.3.4.1 DOCSIS modemDOCSIS modem

The CableCo only stipulates that the DOCSIS modemDOCSIS modem is to be provided by the alternative operator and must be compliant with DOCSIS 3.0, which is fine for Mobistar. The gateway will be certified by an external validation party (Excentis), which is also OK for Mobistar.

However, it is written in §3.2.3:

“L'OA sera responsable du mauvais fonctionnement éventuel des équipements terminaux et des dommages causés au réseau. »

Mobistar cannot be held responsible for any damage on the network due to a defect of a customer premise equipment.

Mobistar will communicate as soon as possible the list of MAC addresses of the DOCSIS modemDOCSIS modems for initial declaration in CMTS and/or DHCP Proxies (pre-provisioning).

2.3.4.2 Broadband customer management (authorization, activation/deactivation) and provisioning

The (de)activation procedure as explained by The CableCo is unclear. The schemes and explanations provided by The CableCo are not detailed enough to understand how the provisioning, the activation and the deactivation of a customer is performed.

Furthermore, the CableCo documents are very contradictory:

- In main document chapter 2.3.1 schema 7&8, Mobistar understands that TFTP & DHCP servers are managed by the CableCo (for the sake of clarity, this is what we don't like)
- On the other hand, in Technical Annex 2 chapter 10.4, §71.4-71.6, it is stipulated that Mobistar is managing the DHCP server and TFTP server (what we like as it simplifies the IT interface and procedure)

Mobistar must be in full control of its customer for the following actions:

- Activation & Deactivation of the service
- Suspension and re-activation of the service
- Change of the service
- Attribution of the service profile per customer

Cable modems are auto-configured based on DOCSIS standards. The DOCSIS provisioning server framework standard shall be followed. DHCP and TFTP servers should be managed by Mobistar and user information must come from Mobistar. Configuration files are also managed by Mobistar. Indeed, these configuration files contain also the parameters for the LAN services offered to end customers such as:

- WiFi parameters
- Firewalling rules and capabilities
- VoIP
- Extra other such as HomeLAN services etc...

Mobistar should be able to change and adapt the configuration files at any moment. Of course, Mobistar inventory (number of customers, type of profiles,...) will be exchanged via the IT interface every open day for the wholesale invoicing.

There is no concrete reason to implement a very complex system such as described in the offer, where any action on customer offer/contract should be executed by the CableCo on behalf of Mobistar. This kind of mechanisms will make the IT interface and the implementation very long and expensive.

As the DOCSIS modem has been certified by an external entity, any change in the configuration file should not jeopardize the correct behavior of any DOCSIS user.

It is reminded that the CableCo has always the possibility to check and see what's happening on its network via the DOCSIS CMTS management console.

Mobistar describes simplified solutions, based on standards, in chapter 4.4.

The CableCo cannot intervene on Mobistar customers without respecting a clear procedure and prior request to Mobistar.

Clear rules and Chinese walls must be defined.

2.3.4.3 Broadband customer offer definition & specific DOCSIS profiles

Mobistar regrets once more that the access to Broadband internet access regulated offer is constrained by the integration with analogue TV and digital TV. Mobistar cannot resell Broadband access in standalone or with analogue TV only.

Knowing this, Mobistar must be able to define on its own its broadband offer: internet speed profiles downstream/upstream and monthly data volume offer.

CableCo requires (§2.3.3) that Mobistar must choose between only three speed profiles defined for CableCo retail offers. Moreover the profiles proposed by the CableCo are lower compared to the CableCo retail profiles, which is not acceptable.

In December 2012 and February 2013⁴¹, the CableCo was proposing (downstream Mbps/upstream Mbps/monthly volume GB):

- DL/UL/Vol: 30/1/50
- DL/UL/Vol: 100/5/100

These are larger monthly volumes than the ones proposed in the wholesale offer. Mobistar must have access to at least the current and previous speed/volume profiles existing in the CableCo customer base.

Mobistar expects The CableCo to give all the details of the profiles available: up/down speed, monthly volume, quality of service (maximum delay, loss of packet, jitter, real-time, non-real time,...)...

Mobistar regrets strongly (notwithstanding the possibility to manage the DOCSIS configuration files) that there is no latitude left to request specific speed profiles. It must be possible for Mobistar to define a certain number of specific profiles independently. These profiles will not have a downlink speed higher than the maximum downlink speed profile used at any moment in the CableCo retail offer.

⁴¹ <http://www.numericable.be/fr/internet.aspx>

Mobistar proposes a similar solution as used in Belgacom's DSL BROBA/WBA reference offer where a set of common profiles are shared between OLO's and a number of specific profiles can be requested per OLO. More details are given in chapter 4.4.2.

The CableCo indicates that it can apply "Fair Use Policy" on Mobistar customers to secure the broadband customer experience. The definition of "bon père de famille" is vague. There is no objective reason to consider that a Mobistar customer will have a drastically different behavior compared to the CableCo Retail customers.

On one hand, Mobistar understands that some actions should be taken in some exceptional circumstances to avoid negative effects on the broadband experience. On the other hand, Mobistar fears that this statement can be discriminatory and applied in a non-transparent way. How can Mobistar be certain that CableCo retail customers will not be treated with a higher priority when a Fair use Policy is activated ? Mobistar asks for the regulators to define a clear governance and procedures to ensure that all customers are approached at the same level.

2.3.4.4 DOCSIS modem DOCSIS modem troubleshooting

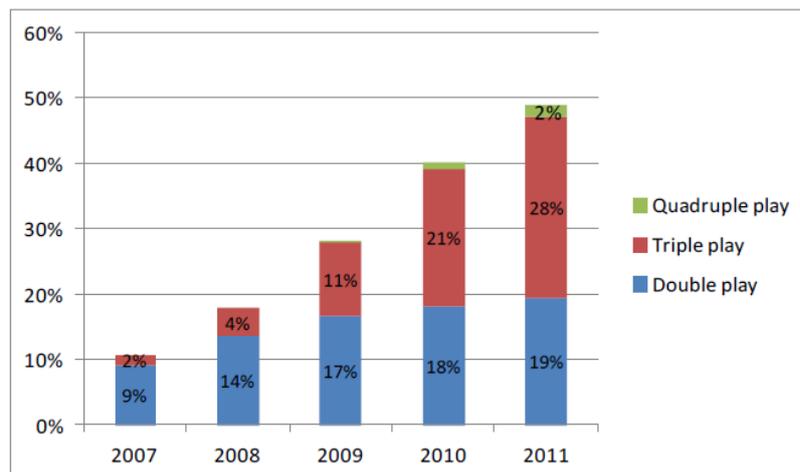
In Annex 3, § 11 there is more information on device monitoring and management.

Mobistar is wondering why the CableCo is referring to third party "TLN" ?

The CableCo requires to manage the modem, only the DOCSIS part (not WIFI & eRouter for instance) and is working on the possibility of In band management to permit Mobistar to control the rest of the box. We can agree on this as soon as the CableCo does not interfere with Mobistar Services. We cannot imagine that the CableCo would reset the Mobistar modem or perform any operations on Mobistar CPE's without requesting the formal Mobistar agreement as stipulated in §158.

2.3.4.5 Telephony service

Although not part of the broadcast market analysis, Mobistar regrets the absence of proposals in the reference offer to provide access to fixed telephony services. As stated by the regulators, telephony is one of the most important elements for multiplay pack offers on the Belgian market.



Source: Opérateurs (IBPT)

Figure 13: importance of multiplay packs

Mobistar invites the CableCo to provide access to fixed telephony EMTA or any other simple solution to provide fix voice telephony services.

It seems that such offer might in any case be conceivable technically, given the statement in chapter §2.3.4 of the main document :

“Coditel se réserve le droit de restreindre la fourniture du service ou de suspendre et/ou résilier le contrat en cas de congestion du réseau ou d'utilisation anormale du service de téléphonie fixe (comme quand l'utilisation mensuelle du service dépasse régulièrement cinq fois l'utilisation moyenne de tous les clients sur l'offre illimitée, ou quand le client appelle régulièrement plus de 250 correspondants différents par mois. »

2.3.4.6 IP addresses

CableCo requires that Mobistar must provide its own IP address ranges. Mobistar agrees to provide and manage the IP addresses for the end users. This should be done via Mobistar DHCP servers. Mobistar will communicate IP ranges to ensure correct traffic routing until the interconnection points.

Mobistar appreciates that the Cableco proposes to use a public static IP address (main body §2.3). However, this should remain an option and not be the default configuration.

Mobistar regrets that the CableCo did not give more information about the usage and/or the migration from IPV4 to IPV6.

2.3.4.7 Internet traffic routing & interco

.A unique point of interconnection is proposed by the CableCo (main document §2.3.8). Mobistar expects at least two different interconnections to ensure service redundancy.

Mobistar cannot identify in the CableCo document how the routing of Mobistar IP traffic is performed behind the CableCo. Mobistar assumes that the procedure is similar to Tecteo/Brutele with a VRF architecture. This simplifies the solution drastically (no layer 3 tunneling from DOCSIS modem till atunnel aggregator)

2.3.4.8 Legal intercept & fraud

CableCo specifies that all legal constraints regarding the delivery of internet access services to end customers are Mobistar's responsibility.

However, as written before, the CableCo does not give enough information on the technical solution for Broadband services that guarantees that Mobistar will be able to perform legal intercept as in most cases specific additional configurations have to be made on CMTS equipment for legal intercept (CALEA).

2.3.5 **Billing**

2.3.5.1 End user invoicing and billing

As requested for operator wholesale services, The CableCo will never invoice the Mobistar end user directly.

2.3.5.2 Information about user activities (IP, VoD,...)

A normal wholesale process imposes that Mobistar should have all the customer usage information to invoice its customers directly. Information on broadband traffic (monthly volume...), VoD usage, TV bouquet subscriptions, etc... are known by Mobistar as all traffic passes through the Mobistar network and subscriptions are managed by Mobistar.

However, and specifically for broadband access, Mobistar cannot confirm this statement as there is not enough information on the architecture and the configuration foreseen by The CableCo regarding the CMTS. More specifically for the traffic exchanged by two customers attached on the same CMTS. Is this traffic directly routed inside the CMTS or by the router inside Mobistar's network ?

2.3.5.3 Wholesale settlement

Mobistar recommends that the CableCo will invoice the service globally (no individual invoice) on a monthly basis to Mobistar, based on inventory exchanged between parties.

The wholesale billing as described in chapter 13 of Annex 3 refers to an Annex 5, which is not provided in the document. It just indicates that the Invoice will be sent on a 'regular basis', to a person acting as Single Point Of Contact (SPOC) using 'certified email'; this invoice being accompanied by an XML file supplied through a Web Application containing all necessary details.

Mobistar would like to understand better how the settlement will be organized and executed between The CableCo and Mobistar.

No details are given for:

- Monthly reporting for wholesale invoicing
- How will The CableCo deal with the pay per view usage such as VoD (IP traffic usage as explained in VoD chapter above) ?
- Refunding shall be in the form of a reduction of this global invoice. For example, specific mechanisms in case of VoD interruption due to CableCo must be foreseen.
- Agreement procedure in case of dispute ?
- How/where IP data volumes are counted ?
- Especially how will we know whether a VoD session went to its end/terminated well or if a problem occurred during the display ?
- What happens with customer upgrades in the middle of a month ?
- Etc...

2.3.6 Customer journey

2.3.6.1 Customer Eligibility

Mobistar is happy to read (main document chapter 4.2) that there will be a web service (SOAP) to query an online database about customer eligibility.

Mobistar requests to have the syntax and the technical details of this webservice.

Mobistar does not understand why the number of calls to the Webservice is limited by the Mobistar sales forecast. We cannot predict in advance how many prospects will enter in Mobistar Points of Sale or will come to the Mobistar Web Site. This constraint is therefore not acceptable.

We invite the regulators to capitalize on the practices and experience on systems and processes which have been developed in the frame of the M4/M5 markets.

2.3.6.2 Customer provisioning tools

Again, despite the large possibilities offered by the different standards DOCSIS and DVB simulcrypt, the CableCo has over-engineered the solution and makes it very complex and difficult to integrate. The CableCo wants to remain always as man-in-the-middle in the provisioning chain for each Mobistar action or request, which is not acceptable.

Mobistar expects all technical details required to interface correctly its systems to CableCo's network elements. Currently Mobistar does not know what kind of information to exchange with CableCo backends.

Unfortunately the CableCo provides very little information regarding the activation tools. Mobistar cannot judge the efficiency and estimate the technical and financial impacts of the proposed solution. Mobistar strongly insists that more detailed documentation is absolutely indispensable for the alternative operators to start analyzing the relevance of the offer and the absence of the necessary details will delay any possible competition. Furthermore the situation is even more complex than in case of BROBA/BRUO as alternative operators risk to need 3 interfaces/processes/tools to cover Belgium with a competitive offer. Therefore, Mobistar urges the regulator to align not only the reference offers, but also the underlying processes as much as possible and to facilitate the development of a common reference system for the different CableCo's.

Based on simplified solution architectures as described in chapter 4 (simulcrypt and usage of DOCSIS provisioning framework standards), the provisioning interfaces shall be reduced to the following minimum actions:

- Activation & deactivation of network access and analogue TV
- Pre-provisioning of DOCSIS modem DOCSIS modems in CableCo DHCP Common server (MAC Addresses list) or AO/OLO DHCP Server.
- Request of a Simple Network Adaptation (NIU,...)
- Request of a new customer installation

There should not be action required from the Cableco for the end user activation of the digital TV bouquet, nor speed upgrade/downgrade etc...

2.3.6.3 IT interface specifications

In main document body, chapter 4, the Cableco refers to:

« Coditel fournira des interfaces informatiques pour faciliter et automatiser les opérations courantes de la vie de l'abonné de l'OA:

- *Eligibilité*
- *Gestion des rendez-vous*
- *Commande, modification de commande, swap*
- *Incident unitaire, panne collective*
- *Facturation »*

And there is an unclear picture (Scheme 8) describing probably the interdependence between the different elements.

There are no details about the IT interface specifications, except that SOAP will be used.

Mobistar understands some XML files will be exchanged via FTP server for some other services, but syntax and details are unknown.

Mobistar will present in chapter 4 how important changes to the proposed solutions will simplify drastically the operational procedures, the IT interface complexity and the implementation.

2.3.6.4 Customer installation organisation

In main body §4.4, the CableCo puts forward:

*“Le but du service « Prise de rendez-vous » est de permettre au Client de façon automatisée de demander à l’OA de prendre un rendez-vous avec l’abonné pour poser/vérifier le NIU du logement. Le service rendez-vous est basé sur un Web Service avec une interface SOAP. Le webService permet à l’OA qui a vu sa commande acceptée par un Accusé de Réception, de demander la prise d’un rendez-vous avec son abonné. L’OA communique les éléments permettant de contacter l’abonné et quelques créneaux disponibles (dans une plage de temps contractuelle). Coditel contacte l’abonné et fixe un rendez-vous pour la pose/vérification du NIU. La date du rendez-vous Coditel pour poser/vérifier le NIU est remontée dans un CRI. L’OA peut alors prendre rendez-vous pour sa propre installation avec son abonné totalement indépendamment de Coditel.
«*

Mobistar cannot accept that there will be systematically a CableCo technician visit required to check the NIU. In most of the cases, this is totally useless as there is already a NIU installed. Furthermore, the eligibility tool must give the information regarding the customer line, to avoid such situations.

2.3.6.5 Unique installation visite with certified Technician

The customer journey will be totally ruined if two different technicians have to go to the customer for a complete installation. Mobistar would like to make use of the same technicians than the Cableco to achieve a completed customer installation. This will be explained in more into detail in chapter 4.6.1.6

A significant number of annex referenced in the document are not available yet (such as Annex 3.2 - staff certification, Annex 3.1 - specification for install and repair). So these cannot be commented on yet.

2.3.6.6 In-house installation

The CableCo stipulates that Mobistar will be responsible for all internal house cabling, behind the NIU. Mobistar is fine with this approach. However, Mobistar would like to understand what will happen if there is no NIU yet at the customer location. There are customers with interactive services (internet or TV) without NIU.

2.3.6.7 Customer installation not yet connected to cable network

Following the Cableco proposal (main body §2.1.7), a specific request can be made when an end customer is not yet connected to the CableCo network,. Mobistar should be able to already give concrete elements to the end customer at Mobistar Point of Sales (pricing, procedure, etc...). As for the other CableCo’s, it should also be possible to order a new installation directly to the CableCo. No specifications nor procedures are explained for such case.

2.3.6.8 Customer Move (same network)

The CableCo does not propose any specific process for a customer move within the same network. This should be possible without having to send a full customer cancellation and a new customer installation.

2.3.6.9 Customer cancellation & suspension

This will be passed via the IT order interface.

As we will explain in chapter 4, Mobistar will manage these customer activities directly. Mobistar will notify via inventory listing, every day, the different actions performed on the customer offer.

2.3.6.10 Customer upgrade/downgrade

According to Mobistar’s view (cfr. Simplified solutions as proposed by Mobistar in chapter 4), when the end customer requests a service upgrade/downgrade (extra bouquet, higher speed...), this should be completely transparent for the CableCo. Indeed, thanks to simulcrypt for the Bouquet management and thanks to the TFTP server managed by Mobistar, this is directly managed by Mobistar without the CableCo’s intervention.

Therefor the proposed procedure by the CableCo is too complex.

2.3.6.11 CPE's logistics

All the logistics will be managed by Mobistar, with eventually its installer partners.

2.3.7 Operations

2.3.7.1 Network supervision & monitoring

It is understood that the CableCo operates the HFC network 24h/day, 7days/week.

Mobistar insists again on the clear definition of limits of responsibilities, which are not well described in the document (interco, customer location)

Especially access to Cablecos site in case some Mobistar equipment would be located there (Video server, CAS system, etc...).

It should also be stated up to which equipment/network part is considered to be monitored and operated under these conditions and if monitoring involves customer equipment. CableCos must provide the necessary tools in a non-discriminatory way to OLOs.

2.3.7.2 SLAs & KPIs + penalties

The CableCo explains its SLA proposal in the document annex 4.

In few words, similar comments as to the SLAs proposed by the other CableCos apply: the proposed SLAs and penalties are not acceptable and are discriminatory.

Some of the not acceptable or missing elements regarding SLA & KPIs are :

- Unclear monthly reporting that will be made by the CableCo. A list of clear KPIs (SLA, usage, customer base,...) must be defined and reported upon every month to Mobistar and a regular follow-up must be organised as well.
 - SLAs are not applicable during the 6 first months. This means that Mobistar will not have any means towards a solution to have directly a good and fair customer experience in the activation and installation processes. Furthermore, if no SLA applies, it is impossible to follow up orders/repair tickets in good cooperation and with clear timers. This will lead to unnecessary manual follow up (calls/emails between operational teams) as both parties will have different opinions on normal delays. In order to facilitate a learning curve, SLAs should be applicable; while a limited startup period of 2 months could be accepted during which SLAs will be measured, but no penalties applied. This period should be used to ensure both parties set up the correct operational processes and KPI tracking. while there can be flexibility during a limited period to have no penalties.
 - SLAs are only defined on activation & resolution time. No SLAs are defined on service performance & availability.
- No penalties are foreseen in this SLA : a SLA where there is no single penalty can not be accepted as a SLA; especially not when this is combined with a burden of a binding forecast for the beneficiary of the reference offer.
- Crucial information is missing, e.g. on the way how the SLAs are measured and computed etc...
 - There are unacceptable values for confirmation time, activation time (90% activation in 5 weeks; 100% activation in 7 weeks)
 - Only activation time in case of no end user works (no customer visit required). Furthermore, it is unclear whether the activation timer is limited to the activation without end user visit; or whether absence of the end user (hence end user visit) is a reason for stopping the clock

- Failure resolution unacceptable (90% failures resolved in 7 open days), etc...

Regarding repair: a clear distinction should be made between service interruption and service degradation and between single end user issues and multiple end user issues (e.g. P1: service interruption in region; P2: service degradation in region; P3: service interruption single end user; P4: service degradation single end user)

Especially for repair : it should be possible to have resolutions for important incidents or in case of impact at regional level also outside business hours. Today, it is unclear what Coditel is offering to its own end users with respect to repair. This service should in any case be offered on non discriminatory terms.

The use of Force Majeure to exclude customers from SLAs is questionable : at least those Force Majeure exceptions should be clearly documented, auditable and communicated to OA (as mentioned in Annex 1 chapter 9.2)

No values are given for service availability and no SLA is provided for multiple customer outages (Network outage).

In order to sell the service, OA should be able to make proper offers based on End to End service availability. To that extend, it is required that Coditel gives all information needed for OA on the network part under this offer perimeter to make their own offers (service availability, ping value, RTT, packet jitter, time to repair network outage, etc ...).

In the current conditions it is almost impossible to anticipate if services such as VoIP can be proposed on the network.

Mobistar did some informal testing in different points of sale and by calling The CableCo Telesales to ask for the time required for a new customer to obtain the service. Most of the time, a customer can be activated for digital TV & broadband internet in less than two weeks. Mobistar also found this information from one CableCo reseller agent:

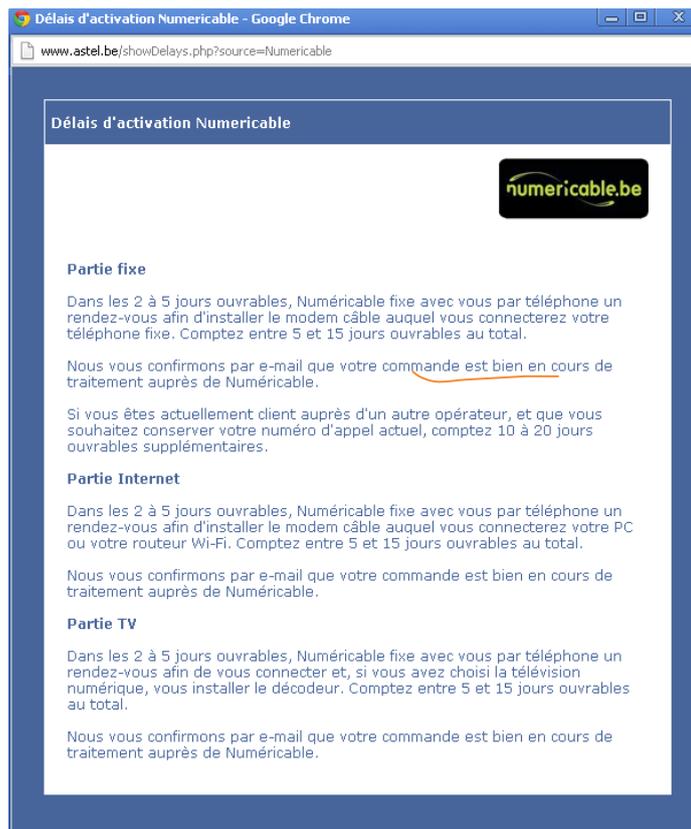


Figure 14: Coditel installation time

As all TV regulators have also reacted against this proposition and made new proposals, Mobistar will detail its position further in this document.

2.3.7.3 Governance

There is no detailed governance model proposed by The CableCo for the BUILD and the RUN. Only some references to single point of contact and statements of what can be considered as good intentions are mentioned.

Mobistar requests The CableCo to dedicate a wholesale team for this program, independent from the retail department with clear Chinese walls. Governance and rules for this activity should also be proposed.

2.3.7.4 Customer troubleshooting

Annex 3 - Chapter 11

As Mobistar will perform the first line support, we should have access to customer troubleshooting tools to make the problem resolution as easy as possible. For example, the Mobistar helpdesk should have a view via remote management console & status on :

- Signal levels (DVB and/or DOCSIS) at customer premises (via gateway & STB monitoring)
- Services parameters (service flow, speed,...)
- IP connectivity ("remote ping")
- ...

We appreciate that The CableCo allows modem monitoring. However, Mobistar would like to have more information on the tools and mechanisms that will be made available.

We want to insist that in no circumstance , the CableCo is authorised to reboot a modem from Mobsitar without prior authorization from Mobistar.

We also note that the CableCo does not give any detail on the trouble ticketing tool and its capabilities.

Coditel reserves the right to reboot, deactivate OA CPEs without proposing any report to the OA and qualification on this operation origin and motivation. In case of security breach (DoS attack) or if ever OA customer installation is not compliant and excess noise is present, then such information should be reported to the OA for qualification FrontOffice & Backoffice

Mobistar will manage first & second lines support.

2.3.7.5 Third line support

In case of technical issue at CableCo side, a ticket will be opened to CableCo technical support. If there is a more important regional failure, direct contact between NoC's should be allowed.

Third line organization should be detailed more in-depth, especially how tickets between beneficiary and CableCo are being sent, acknowledged, and processed through CableCos organisation with regular reporting on its progress toward final resolution. Opening of any ticket should be possible 24h/24; 7days/7. Resolution timers should be depending on the impact. As this should be common for the different CableCo's, Mobistar will go into more detail on repair timers in a later chapter.

2.3.7.6 Preventive maintenance

In case of preventive maintenance, The CableCo shall notify Mobistar in advance about the nature of the maintenance and impact on the services.

Mobistar must be able to notify its customers at the same time as The CableCo informs its retail customers.

Mobistar asks for The CableCo to be notified of preventive maintenance at least 5 open days before the CableCo will notify its own customers.

2.3.7.7 Change Management

Mobistar requests that any change in the regulated offers must be approved by the different regulators. This is not the way The CableCo details its regulated offers. Mobistar gives few comments on some possible (non-exhaustive) changes that can occur in the regulated offers.

Mobistar refers to its proposal in chapter 4.6.5 for change management procedure requirements.

2.3.7.8 Escalation process

Mobistar will be happy to fine tune this escalation process during the implementation phase.

The escalation process should also indicate clear timers and SLA and should not be limited to a process in case of trouble ticket. (not limited to repair)

2.3.7.9 Massive migration process & rush mode

There is no clear reference to massive migration process.

Mobistar requires that this is to be treated as a project. SLAs should be applied as for any other activations.

3 Comments on the regulators' draft decisions

In this chapter, we will answer the regulators' questions related to the different regulated services and highlight the Mobistar position towards the regulators' propositions. In their draft decisions the regulators have unfortunately not covered all elements required to enhance the CableCo's draft reference offers towards a complete workable reference offer.

We have decided to consolidate the feedback of all regulators into one unique chapter 3, as this is in our view the most efficient approach to deal with this.

In chapter 1.3 Mobistar details the inconsistencies, errors, missing elements, discriminatory position etc... for which we request the regulators to take the necessary corrective decisions in their final decision. In any event we consider that should there still be any element missing in the approved reference offers, this can be included upon justified request by a beneficiary after regulators' approval. Such corrections must be immediately enforceable in order to avoid any further delays.

In chapter **Error! Reference source not found.**4 Mobistar proposes simplifications which should simplify the technical implementation for both the cable operators and the beneficiary while fulfilling the cable operator's regulatory obligations.

Remark: Mobistar will make cross reference to the regulators' draft decision documents by using the following convention: in CSA chapter, "CSA Telenet §102" refers to paragraph §102 of CSA draft decision on Telenet proposition (page 39 in this example).

3.1 General comments

The different regulators recognise the lack of information for each CableCo regulated proposals:

- Reference to missing documents (VRM Telenet §33)
- Lack of detailed information describing the solution, the processes, the interfaces...
- Confusing & overly complex document structure that blocks the understanding of the solution (CSA Telenet §102, VRM Telenet section 4.10 §98-99)

As mentioned by Mobistar in its contribution to the draft Market Analysis Decisions⁴², the obligation to publish a reference offer is justified as it allows an alternative operator to develop a business case and its offer based on well-defined elements (technical and financial conditions, operational procedures, IT processes and interfaces, ...).

In addition Mobistar confirms that the reference offer should be detailed enough in order for the alternative operator to purchase only the required services. It should contain all the necessary information in relation with the service provided: service description, ordering information, price, SLA, related processes and procedures, etc...

The reference offer must evidently be kept up to date by the SMP operator and the regulators should be entitled to adapt the reference on their own initiative or on beneficiary's request. and approved by the regulator..

Mobistar deplores that the reference offers that have been provided by the different cable operators are not satisfying these requirements and it requests the regulators to enforce the necessary adaptations in order to satisfy the regulatory obligations.

⁴² Mobistar's comments on the Media regulator's - VRM, CSA, Medienrat, BIPT- draft decision concerning the Market analysis of the Broadcast Market dd 18/02/2011

We welcome VRM's requirement to provide elements which are missing (VRM Tecteo §31 & VRM Telenet §44). Mobistar refers to its comments concerning the different reference offers previously in chapter 2 for a detailed analysis of the incomplete or missing elements of the reference offers)

In alignment with the regulators, Mobistar deplores the absence of General Terms and Conditions in the Tecteo reference offer. We invite the regulators to enforce its inclusion (VRM Tecteo §90-96), while Telenet's position in relation with the transfer of end-users is clearly abusive and discriminatory (VRM Telenet §69-75).

3.2 Analogue & digital TV services

Regarding the Telenet split between Digital & Analogue access, Mobistar agrees with the regulators position. Mobistar insists that the analogue access TV costs should not be more expensive because of the Associated Digital channels that are included in the delivery of Analogue access. Mobistar also agrees with the regulators position regarding the very poor readability of Telenet's proposal regarding the technical solution for iDTV services. Mobistar requests better structured documents, in which all the missing elements and detailed information on the proposed solutions can be found in a readable way.

Mobistar flags that the regulators did not comment in their draft decision about some important elements which are raised by Mobistar in chapter 1.3 of the present document. Mobistar invites the regulators to complement their analysis and to take the necessary corrective decisions in their final decision.

Mobistar fully supports the regulators statement that the information available in the different CableCo documents is not sufficient to understand the proposed solutions.

In this chapter, we will mainly focus on the regulators analysis regarding the Conditional Access System as mentioned in the regulators's draft decisions.

CSA Tecteo/Brutélé §33 « La proposition de Tecteo et Coditel consiste à mettre en place un système CAS distinct (clone du système CAS existant) pour traiter tous les utilisateurs de tous les bénéficiaires. Cette solution s'avère plus simple que la proposition de Telenet, car elle requiert moins de suivi opérationnel et moins de connaissances dans le chef des bénéficiaires. L'exploitation d'un système CAS est complexe et nécessite du personnel qualifié qui n'est peut-être pas toujours facile à trouver. » & VRM's draft decisions §33

Mobistar agrees that the implementation of a **distinct CAS** will facilitate the management and the operations of future iDTV services. Mobistar's position is clear and repeated on multiple occasions (refer to chapter 4.3): we would like each alternative operator being able to use its own CAS for independency and neutrality reasons. However, Telenet proposes a real simulcrypt solution, unfortunately limited to only one other CAS (CSA Telenet §40, VRM Telenet §47 & 55). Telenet imposes additional restrictions that totally jeopardize the advantages of SimulCrypt. Mobistar is not in favour of this solution in case there are multiple alternative operators wishing to implement the Telenet Cable regulated offer.

Regarding Tecteo/Brutélé/Coditel, Mobistar does not share the view of the regulators. Distinct CAS does not mean for us the reuse of the CAS supplier. We refer to chapter 2.1.2.5 for in-depth analysis regarding the obligation to use the Nagra-Merlin CAS. The proposed solution is not easier for Mobistar from that point of view (VRMTecteo §33).

Independence is a key objective for Mobistar in the CAS selection as its implementation (BUILD) as well as the in-life management of TV services (platform, TV decoder and middleware, ...) highly depend on security certification, which is done by the CAS provider.

Mobistar would like to also mention that the operation of such CAS infrastructure is very often a commercial option that can be made by the CAS supplier. Nagra, Viaccess, Irdeto and all main CAS vendors propose also the operation of their platforms in ASP-Mode. For example, Mobistar is currently using Viaccess services successfully since 2010 for a small monthly costs. Viaccess manages the

Subscriber Database, rights renewal, TV bouquet managements with absolutely no impact on Mobistar resources.

CSA Tecteo/Brutélé §34 « L'avantage de l'architecture proposée par Tecteo réside également dans le fait que la responsabilité du fonctionnement du CAS conformément au planning imposé par la décision de la CRC repose entre les mains du câblo-opérateur contrairement à la solution avancée par Telenet où ce sont les OLO qui portent cette responsabilité. En outre, le fonctionnement du CAS de Tecteo se révèle moins dépendant d'une procédure de certification aux exigences de laquelle les OLO doivent satisfaire comme le prévoit le système Telenet. Le risque potentiel de ralentir la mise en oeuvre du service par une trop lourde procédure de certification est ainsi évité. »

Mobistar fails to understand the argument as this is exactly the reason why Mobistar asks the regulators to impose the use of a real simulcrypt solution: everyone should be responsible for their own affairs ! Mobistar will certainly NOT be less dependent on certification procedures as they are generally the same for any CAS provider. With Nagra-Merlin, Mobistar will have to pass through all certification processes in a similar way as if Mobistar would have chosen another CAS provider or would continue to work with Viaccess (test & certification of TV decoder hardware, each software release etc...). It is always easier to work with its own partner, instead of using a partner imposed by a third party.

CSA Tecteo/Brutélé §35 "Tecteo et Coditel affirment tous deux qu'il s'agit de la meilleure façon de garantir l'intégrité du réseau. Cette affirmation ne paraît pas tout à fait correcte, étant donné que le contenu ne peut nullement être menacé tant que l'installation répond aux normes en vigueur dans le secteur pour le système introduit par les bénéficiaires. »

We agree with the regulators point of view. Viaccess, Nagra, Irdeto, NDS... are worldwide used content protection solutions, adopted by all studio's and broadcasters. Nothing in The CableCo proposals proves that Nagra-Merlin is more secure than another CAS solution. See 4.3 for more information.

Regarding CSA Tecteo/Brutélé §36 & §37, Mobistar re-iterates that we would like to have the responsibility of selecting a CAS provider to have a better control on costs and timing. This is also the only solution for Mobistar to have a common solution across the country.

Finally it is unacceptable to be dependant on The CableCo for all these elements.

In CSA Tecteo/Brutélé §38 and CSA Telenet §58, the regulators are totally correct. Doing simulcrypt generally imposes to host at TV headend, in a secure and protected room, some CAS equipment. This is commonly achieved in the Satellite market, where Simulcrypt is broadly used. In each Uplinker location (TV headend emitting to satellite), each CAS vendor/TV distributor has some servers installed for the CAS integration. See 4.3 for more information.

Mobistar is happy to read that the regulators recognise the main advantages for the market to use a real Simulcrypt solution (CSA Tecteo/Brutélé §41 & §42).

Mobistar agrees with the regulators conclusion regarding the CAS approach (CSA Telenet §59, §60 and CSA Brutélé/Tecteo §43 , §44).

In CSA Tecteo/Brutélé §4.9.6/5, for example, the regulator forgets about the presence of a branded Barker channel inside the analogue TV Bouquet and does not comment the potential issue if the alternative operator cannot get the right for one single analogue TV channel (we refer to our comments in section 2.1.2.1), which could lead to a total failure to meet the objectives of the regulation.

3.3 Interactive services

Mobistar regrets that the only interactive TV services considered by the regulators are VoD services. There are no remarks regarding other services such as remote control, network PVR, companion device, TV widgets & application etc... Mobistar considers these services as key differentiators and would like the

regulators to confirm that these are to be made transparently available to Mobistar: CableCos may evidently not block the deployment of such services over their cable network.

The regulators state:

CSA Brutélé/Tecteo §83:” La solution proposée par Tecteo pour l’architecture VoD semble très complexe et trop onéreuse pour les objectifs d’un opérateur alternatif. En fait, selon la proposition, le bénéficiaire doit lui-même construire une importante partie d’un réseau et d’éléments VoD alors qu’il ne vise qu’une part de marché minime. En d’autres termes, les investissements nécessaires sont supérieurs aux revenus possibles » (cfr also CSA Telenet §84 & §85 and VRM Tecteo §82-89 which describes how The CableCo proposal is far too complex and too expensive for enabling the possibility for an alternative operator to propose VoD services towards its customers at a reasonable costs.) Mobistar has not found any comments on Telenet’s proposition mentioned in the document “CSA_20121220_Projet_Decision_OR_Telenet_sw.pdf” except some short statements in the Brutélé/Tecteo. document(CSA Tecteo/Brutélé §86, §87).

Mobistar agrees with the regulator which states that The CableCo proposition is too complex. Mobistar is even in favour of an alternative solution which is much easier to implement (we refer to our comments further in this document). Some elements where Mobistar’s opinion is not aligned with the CSA arguments and conclusions are :

- Video Streamers and resources managers are very common for companies delivering on demand content. A large offer exists on the market to deploy such infrastructure.
- Mobistar already owns a VoD architecture, based on disk storage, content rights, DRM protection and IP transport network. Streamers and resources managers are only required to perform real-time streaming services. They are not required in case of delivering VoD by progressive download, such as Mobistar is doing today.
- Mobistar does not understand the computation about required interconnection bandwidth and capacity. Assume there are 100.000 new TV users on The CableCo infrastructure (coming from cable competitors). Assume that maximum 4% of them are doing a VoD at the same time⁴³. This implies a maximum of 4000 concurrent streams. Video On Demand in H.264 consumes ~2.5Mbps. The arrival of H.265/HEVC⁴⁴ will even bring more efficiency in required bandwidth to transport SD/HD stream.

A single (two for redundancy) optical fiber with 10 Gigabit Ethernet will be enough for the interconnection. Content distribution Network equipment is generally already implemented to optimize these flows and very common with operators providing streaming or OTT services. All operators in Belgium are already interconnected in multiple optical nodes. Mobistar therefore fails to understand the issue.

- With the proposal made by Tecteo/Brutélé, Mobistar has some guarantee of independence in the technical implementation (selection of CODEC, Video profiles and compression level, DRM, own product roadmap, no dependence for maintenance / upgrade). Nevertheless other conditions must be imposed. Particularly the need for non-discriminatory allocation of Video slots by the CableCo’s resource managers between CableCo customers and Mobistar Customers raises concerns.

⁴³ Mobistar and Orange Group experience has demonstrated that in 2012, there were not more than 2.5% of total (active & non-active) TV customer base requesting an On Demand stream at the same time. Peak hours are in Belgium Saturday 20H-21H.

⁴⁴ http://en.wikipedia.org/wiki/High_Efficiency_Video_Coding

- Mobistar understands that the regulators are in favour of Telenet proposal (CSA Brutele/Tecteo §86, §87, VRM Tecteo §89) where Telenet shares its existing VoD platform (aka disk storage, streamers, resources managers, transport, content Management System...) with alternative operators. Mobistar regrets the lack of detailed information, and is therefore unable to assess the technical & operational impacts for Mobistar. Additionally, the technical challenges are shifted from a “pure IT integration” perspective in the Brutélé/Tectéo solution to a “STB + IT + CMS integration” in the Telenet scenario. Indeed, Mobistar would have to synchronise intimately with Telenet for STB integration and especially regarding DRM, CODECs/video profiles, the necessary signalling to request a video,... It is also unclear how Mobistar could manage its own content on Telenet VoD platform via Telenet CMS. Mobistar would also have to adapt its VoD metadata according to (unknown) Telenet specifications. Mobistar is therefore convinced that reusing the VoD platform from Telenet while keeping the Mobistar TV decoder will not simplify the solution contrary to the CSA’s statement in its draft decision.
- In CSA Tecteo/Brutélé §88 and VRM Tecteo §86 the regulators illustrate their statement with the example of TF1 and Numericable in France. Mobistar would like to highlight that TF1 is not in the same position than Mobistar. TF1 is a pure content provider and does have direct customers such as Mobistar. They don’t have to integrate and manage TV decoders or applications, invoice the customer, provide support, operate a helpdesk,...

In conclusion, Mobistar is definitely in favour of using VoD Over The Top. Should this solution not be mandated by the regulator, Mobistar believes that the Tecteo/Brutélé solution provides the most flexibility in the VoD implementation and autonomy compared to Telenet’s approach.

Concerning other aspects than the interactive services, Mobistar is surprised that the regulator has not commented on the fact that Telenet forbids on its network any other interactive services which are different from VoD or TV & Radio programs and EPG (cfr. Telenet “AIDTV V0 60.pdf” §5). This is of course unacceptable and limits Mobistar’s ability to develop differentiating services required to stimulate innovation and competition.

Mobistar is also aligned with the regulators regarding the number of interconnection points, which is unclear in Telenet’s proposal. Mobistar prefers to have only two different interconnection points for each CableCo. Having two interconnections simplifies the network design while maintaining the flexibility and independence and insuring the necessary redundancy (VRM Telenet §92).

Mobistar insists to have a full network service transparency.

CSA Tecteo/Brutélé § 155, Telenet §179:

“Le CSA souhaite également profiter de cette consultation nationale afin de demander au secteur de se prononcer sur la nécessité éventuelle d’une approche phasée pour la fonctionnalité Video on Demand.” (an analog request is in the VRM draft decision)

Mobistar does not understand why interactive TV services should be delayed (again). While the initial market analysis decisions have been published in July 2011 targeting an opening of the cable networks, 18 months later we are still missing a mature and complete regulated offer. VoD and interactive TV services are commonly adopted services.

Further delaying the access to VOD is detrimental as every semester the CableCos announce the increase of VoD usage with the associated growing revenues. As commented in the previous chapters, the proposed CableCo’s VoD approaches are indeed very complex. This is the reason why Mobistar proposes an alternative and simplified approach further in this document which will enable the beneficiaries to benefit of the VoD revenues from the beginning..

3.3.1 Broadband market

Mobistar fully agrees with the regulators who also recognise the lack of detailed technical information that is required to have a good in-depth understanding of the different offers.

Regarding the availability of broadband service profiles, Mobistar is aligned with the regulators' statements:

- CSA Brut el /Tect o §80, CSA Telenet §109, VRM Brut el /Tect o §81, VRM Telenet §106: Mobistar does not understand why it will be more difficult to manage the DOCSIS network if the number of profiles increases. The CableCo do not give any concrete element substantiating such position.
- CSA Brut el /Tect o §81, CSA Telenet §110: Mobistar agrees with the regulator's proposal to use a pool of common DOCSIS profiles shared between all operators (incl. CableCo) and a limited number of dedicated profiles for each alternative operator. Mobistar will give more concrete elements in chapter 4.4.2
- Mobistar notes that such approach is currently in use in the frame of the regulated bitstream broadband access. As it is the case for the wholesale BROBA/WBA broadband offer, Mobistar would like to have the possibility to manage 8 own specific profiles. This gives enough flexibility to manage old, existing and future marketing offers.
- Additionally we fail to understand why it will be more difficult to manage the DOCSIS network if the number of profiles increased, especially as The CableCo do not give any concrete element substantiating such position (VRM Tect o §78, VRM Telenet §105).
- Remark: Regarding this chapter, a service profile is the collection of all DOCSIS technical parameters defining the upstream and downstream quality of service (Max rate (rate Cap) downstream/upstream, Burst size capacity, min BW guarantee, priority). We are not referring to the DOCSIS modemDOCSIS modem configuration files, which will be more numerous as they will be specific for Mobistar customers. Configuration files contain not only speed profile etc... but also the gateway parameters for WIFI, VOIP, firewall, etc... which are Mobistar specific..

Mobistar does not share the regulators' position concerning Telenet §102 n 8 stating that Mobistar can not control directly its customer equipment (CableCo position labelled as "exager ment paternaliste" by the regulator). Mobistar does not understand why each request regarding Mobistar customers must be checked/validated by Telenet and pass through specific Proxies. This will add extra complexity, introduce new single point of failures, induce supplementary costs and increase implementation delays. Note that the TV decoder will be fully managed by Mobistar (via the specific IP return channels and the decoder embedded TV portal application).

For the other elements, Mobistar regrets that the regulator does not comment on the technical solutions proposed by the CableCo's for Broadband internet access. As Mobistar mentions in chapter 1.3, the proposed solution is an over-engineered technical solution, which is far too complex and discriminatory (GRE tunnels, proxy everywhere to control all Mobistar requests,....).

3.3.2 Operational aspects

3.3.2.1 Certification processes

Regarding the technicians:

VRM Tecteo §45-53, VRM Telenet §61-62, CSA Brut el /Tecteo §45-49, CSA Telenet §61-64: Mobistar agrees with the regulators' position and recommendations regarding the certification procedures imposed by the different CableCo's for the Mobistar technicians. Mobistar would like to add two major points:

- In order to simplify the customer journey, which is crucial for Mobistar, we must avoid two different technician visits to the customer. Mobistar understands that we would be able to deal with the same external technical third-parties performing currently customer installation and activation for CableCo's customers. In that sense, one unique technician will be able to manage the cable TV activation, eventual CableCo equipment (Simple Network Adaptation) as well as Mobistar in-house installation.
- However, the exact content of the certification must be described. Mobistar does not have a view about the level of know-how expected by the CableCo's for Mobistar Technicians. How will the certification procedure work ?

Regarding the equipment

Mobistar shares the regulator's comments regarding the certification of Mobistar Customer Premises Equipment's. (DOCSIS modem & TV decoder). These certifications are very important for the service quality and customer experience. A certification by an external company (such as Excentis for DOCSIS modems and the CAS Provider for the DVB part) must be sufficient as the used technologies are based on wellknown standards.

Contrary to what happened in the frame of the *OLO VDSL2 CPE* in fixed broadband, there is no need to execute long and expensive certification procedures defined by each CableCo as DVB-C and DOCSIS are well-known and mature standardized technologies.

Mobistar is surprised that the regulator seems to understand that additional tests might be required for equipment which is certified to be compliant with the standard (VRM Telenet §64). We confirm that there is absolutely no need to have additional tests performed by Telenet (VRM Telenet §65) and that such requirement from Telenet is unproductive and disproportional.

Mobistar is surprised that the regulator does not react more firmly against the certification procedures proposed by Telenet (eg TLN-WRO-TA-I-C-PIAA §4.9.4.2: Telenet even wants to test the PVR ?!).

Mobistar is convinced that if Excentis (or another recognised external company) and CAS providers validate the Mobistar DOCSIS modem & TV decoder, it can be considered as certified and that there will not be any perturbations to other CableCo customers in case of issues in Mobistar's equipment. Should this after all occur, then only the OLO customers may suffer from the issue which in any case will then be handled by Mobistar and its own suppliers with highest priority.

We invite the regulators to ensure the absence of discrimination (VRM Tecteo §53). We invite the regulators to make explicit references to the non-discrimination obligation in the Telenet decision (VRM Telenet §68).

3.3.2.2 Installation process

CSA Tecteo/Brut  l   §50-§53, VRM Tecteo §48-§51: Mobistar fully agrees with the regulators who also pinpoint the discriminatory process proposed by the CableCo. For example, it is not acceptable to have the visit of a CableCo technician for only a sanity check. The eligibility tool must be accurate enough to identify clearly the use cases where a Simple Network Adaptation is required (NIU install etc...).

Mobistar highlights also that the NIU is sometimes shared between different customers in apartments. This should be foreseen in the procedures.

It seems that the regulator did not comment on the installation process proposed by Telenet. Mobistar invites the regulator to comment chapter 2.2.6.4. (among others).

3.3.2.3 Massive migration process

The regulator proposes a specific procedure for massive customer migration from an alternative operator towards regulated offers (VRM Tecteo §71-75, VRM Telenet §88-90).

Mobistar agrees on the importance of such procedure to facilitate the arrival of newcomers.

This batch migration process has been implemented in the BROBA wholesale Belgacom regulated offer.. Mobistar invites the regulators to implement similar procedures in the frame of the current reference offers.

Taking into account the low experience in wholesale, Mobistar considers that 200 activations per day per CableCo is a fair proposal.

3.3.2.4 KPI/SLA & penalties

General comments

As Mobistar has to rely on the CableCo service as input for its processes it is important and justified for the beneficiary to have SLAs that are at least equivalent or better than those offered to the CableCo retail customers. We also refer to chapter 2.

In summary, Mobistar stresses the need to standardize the different SLAs offered by the CableCo's. The draft decisions are a first step in this direction and Mobistar invites the regulators to continue to pursue in that direction so that more elements of the cable regulation get standardized across the different CableCos.

Mobistar acknowledges the need for SLAs to ensure efficient operational follow-up between parties. However, SLAs only on provisioning and repair processes are just a limited (however indispensable) part of a full SLA and these elements alone will not enable an alternative operator to offer competitive end user services based on the regulated cable offers. Before commenting on the draft proposal of the regulator, Mobistar first want to stress the elements we do consider key part of a SLA.

Also for KPIs, SLAs and penalties Mobistar stresses the importance to have a common approach for all CableCos. Experience with BRXX shows the complexity of SLAs and the limited possibilities alternative operators have to enforce such SLAs in case there is only one single reference offer.

The SLA should enable the alternative operators to truly compete; hence an independent body such as the regulator has to ensure implementation in a non discriminatory way of the services of the CableCos. We strongly insist that the regulator not only imposes SLAs, but evaluates the operational/service performance of CableCos retail offers compared with the regulated offers; based on regular, publicly available statistics.

The CableCos should be given incentives to comply with SLA commitments, through penalties which are :

- Covering all volumes out of SLA (no minimal volumes; SLA level up to 100%)
- Easy to calculate
- Sufficiently high to trigger improvement at CableCo side
- Sufficiently high to cover business loss/operational costs at OLO side.

Mobistar strongly insists to have QoS monitoring/SLA in the following domains :

- SLA on IT :
 - availability of tools of 99.5 % (or a maximum global outage of 4 working hours per month for all tools together)
 - response times of tools (especially on the eligibility tool)
- SLA on provisioning
 - Confirmation receipt of the order (ACK/NACK): to ensure the provisioning flow is working well at both sides, an automated acknowledgment should be exchanged. Depending on IT solutions, an appropriate measure should be defined.
 - Validate : see comments on draft decision below
 - Total activation time : see comments on draft decision below

- Respect of wished activation date: Mobistar accepts to foresee an acceptable wished date (eg. Min at the 95% of SLA TTA), but this wished activation date is key to ensure low missed appointments or rescheduling of appointments
- Respect of appointment date (incl. time slot)
- Information on appointment time slot
- Respect of initial due date (CableCo 'fault') : CableCo should have incentives to schedule related works adequately. Mobistar recognizes the CableCo can not be held responsible eg when customer absent or not ready for the service.
- SLA on information in eligibility tool (99% correct info on network situation - eg SNA needed)
- SLA on repair : for more details see comments on draft decision below
 - Split in degraded service/service interruption
 - Split in single end user/multiple end user impact
- General QoS
- SLA on Escalation

Without having sufficient level of detail on the specific processes, tools,... we can only insist to have SLAs in a non discriminatory way, compared with CableCos own retail services. There is no clear indication on the CableCos own network, but at least following seems to be offered by CableCos:

- Activation delays as indicated before (eg. 2-5 working days for being contacted ("validate"), 5-15 working days for activation)
- Appointments for installation on Saturday
- Time slots (AM/PM or even more detailed)
- Availability of help desk (at least opening of trouble ticket)

Related to SLAs, Mobistar proposes a different interpretation on days / working days (installation) / working days (provisioning timers):

- All tools should be available 24h/24; 7d/7.
- Installations should be possible on working days, incl. Saturday
- Provisioning delay could be counted in standard working day (Mon-Fr)
- Repair on multiple end users (P1) and incident management should be possible 24h/24; 7d/7

Comments on the draft decisions

Regarding the validation order SLA

CSA Tecteo/Brutele §111, CSA Telenet §126, VRM Tecteo §108, VRM Telenet §121:

SLA « validation commande » Pourcentage de commandes qui ont été approuvées dans le délai de validation convenu.	
Objectifs niveau de service	Timers
50%	30 minutes
95%	2 jours ouvrables
99%	5 jours ouvrables

Mobistar agrees with the regulators proposal. However, Mobistar wants to add the following comments:

- Business hours / open days must include Saturday.

- Mobistar expects an answer to every order (100%) within 8 working days
- Mobistar regrets that there are no penalties associated to this KPI and invites the regulator to integrate this KPI in the penalty mechanism

Regarding the activation time SLA

In CSA Tecteo/Brutéle §117, CSA Telenet §134, VRM Tecteo §113, VRM Telenet §129, the regulators propose the following Service Levels for the activation time:

SLA « exécution commande » Pourcentage des commandes réalisées dans le <i>timer</i> d'exécution correspondant		
Objectifs niveau de service	Timers	
Engagement	Sur place	À distance
80%	15 jours ouvrables	10 jours ouvrables
95%	20 jours ouvrables	14 jours ouvrables
99%	30 jours ouvrables	20 jours ouvrables
100%	42 jours ouvrables	30 jours ouvrables

Even if Mobistar recognises the effort made by the regulators to propose improved SLAs compared to those proposed by the CableCos, Mobistar invites the regulators to assess these values compared to those provided for retail services. As illustrated in chapters 2.2.7.2 and 2.3.7.2, the different CableCos generally propose a shorter activation time to their own customers.

For the 100% SLA, Mobistar is very surprised to see that the regulators extend the commitments proposed by The CableCo (for example 35 wd vs. 42 wd for Tecteo).

Mobistar proposes the following objectives in order to reach a minimal satisfactory customer experience as the regulator states in CSA Brutéle/Tecteo §114 and CSA Telenet §131:

Activation objective	Time	With Customer visit	Remote activation
95%		10 working days	8 working days
99%		20 working days	15 working days
100%		35 working days	25 working days

A clear definition of the start time and end time for the different periods of KPIs and SLAs must be defined for the different services (analogue / Digital TV and Broadband internet).

Regarding the Repair Time SLA

The regulator asks to comment on what the different CableCos are proposing:

	CSA Brutéle/Tecteo §118 VRM Tecteo §115,	CSA Telenet §135 VRM Telenet §131
--	---	--

Objectives	Complete failure of one end user	Service degradation of one end user	Failure
80%	3 open days	5 open days	3 open days
90%	6 open days	7 open days	5 open days
100%	15 open days	18 open days	20 open days

Mobistar proposes to have 4 different levels of priorities depending on the impact :

- P1 : service interruption for multiple users
- P2 : service degradation for multiple users
- P3 : service interruption for 1 user
- P4 : service degradation for 1 user

As no data are publicly available for the end users of the CableCo's, we can only trust the regulator to ensure non discrimination versus the retail services of the CableCos. Based on our experience with similar services, we do however think that the following levels are more conform market conditions for network operators:

Objectives	Resolution time for service interruption for multiple customers in same region	Resolution time for service degradation for multiple customers in same region	Resolution time for service interruption for one customer	Resolution time for service degradation for one customer
80 %	4H	8H	4WH*	1WD*
90%	6H	12H	8WH*	2WD*
95 %	8H	16H	1WD*	3WD*
100%	12H	24H	2WD*	4WD*

* Working Hours (HW) /Working Days (WD) to be defined in line with opening hours of retail services helpdesk eg. 8-21 mon-fr; 9-21 sat, sun, holidays

Aside from this basic SLA, Mobistar would like to stress the importance of a ISLA (improved SLA) – which OLO should be able to order for selective customers.

In case of ISLA, repair timers for a specific end user connection should be not limited to working days but rather to hours and calendar days. Under ISLA, it should be possible not only to open trouble tickets 24h/24, 7d/7, but have resolution during this time frame :

Objectives ISLA	Resolution time for service interruption for one customer	Resolution time for service degradation for one customer

80%	4H	8H
95%	8H	16H
100%	12H	24H

Regarding the penalties Mobistar welcomes the arguments of the regulators (oa.VRM Telenet §146-147)

No maximum amount on the penalty : if a case is not resolved after X days, it is not normal that this would not lead to additional penalties. Otherwise, there would be no incentive to treat difficult cases.

- No min. volume : we fully agree with the regulator that an operator who does not (yet) have a certain number of lines installed/repair tickets should have exactly the same possibility to ask for compensations. Furthermore, it is not up to the CableCo to assess what should be the minimal size of an alternative operator. It should be very well possible for an OLO to decide to only have a limited number of end users on one of the regulated offers, and hence such an operator can not be penalized for this choice.
- Penalties should at least compensate for the losses : hence a daily penalty higher than the rental fee is a minimum. We welcome this reasoning, however, we truly believe the loss for an alternative operator is more than the 5% (provisioning) or 7.5 % (repair) : not only do we have the loss of (retail) rental; but also the additional operational cost when an SLA is not respected (eg. escalation and manual follow up) and – possibly the most important – loss of credibility in the market. As no prices are defined right now, it is difficult to evaluate what this will mean in reality. In order to simplify and align between the different CableCos, it seems relevant to have a fixed amount per day, or at least have the same calculation (in the draft decisions we notice 150% of daily rental for the Tecteo doc; while 7.5% in Telenet doc).
- In case multiple end users are impacted, penalties should compensate all impacted customers

Mobistar furthermore strongly insists that the worst cases must not be excluded from any compensation rule.

Whereas we do understand today single end user issues are treated mainly in working days (SLA in working days-working day defined in line with the business hours of the CableCo's retail help desk); penalties should not be limited to working days : a customer who has no service out of working days is impacted these days (at least) as heavily as during working days.

Regarding the Stop-clock principles

Although Mobistar understands that the usage of stop-clocks is justified in case of an action which is not CableCo's responsibility, the usage of stop-clocks must be justified. We invite the regulators to remove following items from the reasons justifying a stop-clock as these are too vague and do not provide sufficient guarantees that the causes are not within the CableCo's responsibilities: (i) Installation is not possible, (ii) repair is not possible. Additionally we invite the VRM to further detail following reasons: (i) contact-details incomplete or incorrect (it should be avoided that The CableCo abuses the stop-clock in case the name is misspelled), (ii) repairs because the installation was not conform (it should be avoided that any reason is misused in order to use a stop-clock).

For example if The CableCo uses a stop-clock in case the end-user is absent, the Cable-Co must provide the necessary elements in order to demonstrate the absence of the end-user, and the respect of the appointment date (and time). In absence of such limitations, the stop-clocks can be abused by the CableCo. Furthermore, the alternative operators do need to have the possibility to monitor any stop clock:

this information should be made available in an automated and easy to monitor way. In absence of such information, stop clock can not be introduced in any calculation of SLA/penalties.

Regarding SLA Reporting

Mobistar welcomes the fact that the regulators want to have a reporting on SLA/KPI on a regular basis. We strongly encourage the regulators to ensure non discrimination; however, this analysis should be publicly available. Furthermore, we notice the CableCos need to report towards the regulator. We do not understand why the CableCos can ask a fee to the operators to obtain their relevant reports: as the report must exist for the regulator, what would be a reasonable price to electronically forward the relevant part to the alternative operators ?

As mentioned by Mobistar in its contribution to the Broadcast market analysis, the publication of reporting is important.

Regarding others missing elements in SLA

As mentioned before, we deplore the limitations of the SLA. Not only are there only limited parts of the provisioning chain under SLA, but there is simply no SLA for Service availability (per service: Analogue, Digital, Broadband, interactive => 95% ?) or on key IT Interfaces (eligibility tool and provisioning tools).

Regarding learning curve

We do understand the difficulties CableCos might experience during a learning period. However, this should not be used to postpone any implementation of SLAs. The goal of a SLA should be to give incentives to the CableCos to implement the necessary tools and to deliver the adequate quality of service in order to allow others to build a business upon this service. In case Mobistar does not know the 'normal' delays in provisioning or repair, or any other defined quality of service parameter, this will lead to additional manual interactions between operational teams as they will not be able to judge when escalation would be appropriate. Furthermore, SLAs will ensure that all parties can start to have a common understanding of the defined SLAs : based on BRXX experience, we indeed agree with the comments made on the complexity of the calculations. We are however willing to accept that during a specific, limited period, there would be no penalties.

Mobistar furthermore remarks that a learning curve should be rather a 'market' learning curve, starting at the first launch of the service and not when any new operator would start offering services based on the relevant reference offer.

3.3.2.5 Notification period

Mobistar is answering this question raised by the Cableco in chapter 4.6.5.

3.3.2.6 Forecast

Mobistar fully agrees with the regulators (VRM Tecteo §57) that the forecasts imposed by Tecteo are abusive and contrary to the non-discrimination and access obligation. Although we acknowledge that forecasts can be useful in order for The CableCo to plan the necessary workforce, such forecasts must remain reasonable and justified. We also refer to our comments in section 4.

We note that Telenet's proposal concerning the forecasts is also not reasonable nor justified as correctly mentioned by the regulators (VRM Telenet §79).

Concerning the regulators' proposal not to impose a forecast when the beneficiary is ordering less than 50 orders per area, we believe that this number can be increased to 100 orders per area taking the relatively small impact of the approximately 600 orders in comparison to the CableCo's retail orders (VRM Tecteo §59-61, VRM Telenet §80-82) into account.

3.3.2.7 LOA

Mobistar fully supports the regulators' position in the draft decision (VRM Tecteo §4.9.1 element 1) concerning the LOA. The obligation to have a LOA is to avoid slamming.

Mobistar considers that a signed contract is enough in order to fulfil the LOA obligations. Telenet's & Brutélé/Tecteo's proposal is indeed abusive and discriminatory. No supplementary documents should be needed.

3.3.3 Implementation planning

Mobistar agrees that there is indeed a need to have clear timeframes for the development and implementation of the IT interfaces. On the other hand Mobistar fails to understand the need to finance the IT developments as required by Tecteo/Telenet, a position which seems to be approved by the regulators (VRM Tecteo §68-69, VRM Telenet §164-165).

3.3.4 Other elements

Mobistar fully supports the VRM position concerning the need to have back-up systems and an effective trouble reporting in case of issues with the provisioning system (VRM Tecteo §4.9.1 element 2). Similarly, in case of planned works, these must be duly notified to the alternative operators (VRM Telenet §4.9.1 element 4).

Telenet's proposal to impose that all modifications of the cable network are asked by the end-user is clearly abusive. We fully support the VRM's analysis and conclusions on this (VRM Telenet §4.9.1 element 1).

4 Proposals for simplifications

4.1 General comments

As described in the previous sections, Mobistar proposes possible simplifications for the operational implementation of the different access obligations as mandated by the CRC Broadcast market analysis.

The proposals are aiming at a drastic simplification for both the CableCos as for the eventual Beneficiary, while providing the necessary independence of the different parties in order to develop differentiating services towards the end-users. Mobistar is of course ready and even suggests to have joined meetings with the regulators, the CableCo and eventual other interested parties in order to further develop and discuss the elements listed in this section.

The proposals are evidently based on the existing standards and are field-proven. Mobistar is willing to participate to technical workshops, jointly with the regulators and the different CableCos to discuss these simplifications and possible alternatives.

4.2 Content

4.2.1 Linear TV

Mobistar would like to underline the difficulty to acquire the rights linked to the distribution of TV channels in an analogue or digital cable TV offer. Mobistar knows from previous experiences that little commercial rules are applicable in terms of content acquisition pricing. Moreover, the access to content has been proven to be very expensive, resulting in an overall TV business case that may not be profitable, nor in the short term, nor in the long term.

The situation even becomes blocking when it comes to the analogue re-distribution of TV channels. While for digital distribution the TV operator can block the access to a TV channel via its Conditional Access System (CAS), the ability for a TV operator to block the access of one specific TV channel in the analogue bouquet is practically impossible. In other words, the analogue operator is obliged to acquire the rights of all TV channels of the analogue bouquet and is fully depending on the content acquisition pricing set by the owners of these TV channels. Needless to say, that this is going to be used by the TV broadcasters has a bargaining power.

Furthermore, Mobistar would like to highlight another limiting situation. Must carry rules are applicable on both public as on certain commercial TV channels. In Belgian public channels (i.e. VRT and RTBF) are distributed through unencrypted means of DVB-T. Anyone taking the technical measures to intercept these unencrypted signals can benefit without subscription, and therefor for free, all the public channels. Also here, Mobistar knows from experience that an operator entering the TV distribution market faces a content acquisition pricing set by public broadcasters that is not in accordance with the same business case for everyone willing to enter the TV market. So a new operator not only has to offer these channels, it also has the obligation to accept the price set by the public broadcasters, and this while the public broadcasters offer their channels for free through DVB-T to the widest possible audience.

Mobistar suggest taking inspiration from the French market where operators have the obligation to re-distribute public and commercial broadcasters linked to must carry rules set on the French territory, but do not have to remunerate these TV channels for their re-distribution efforts and costs. And to be complete, public and commercial TV channels are available without premium subscription through DVB-T (TNT).

On one hand; we support the regulators initiative to regulate the access to “technical transport services” (analogue TV, Digital TV, VoD, internet access...via the cable opening regulation) to force the CableCo to offer to the market fair retail-minus pricings. On the other hand, these efforts can be easily ruined if the TV content acquisition costs are remaining excessively high and unregulated.

In conclusion, Mobistar would welcome the possibility to include the TV content rights at a fair price within the frame of the broadcast regulation. Without this, it may become very difficult (if not impossible) for a new operator to enter the TV market and develop it with a chance to become profitable in the long term.

4.2.2 Catch-up TV

Catch-up TV is one of the most important non linear services used today on interactive Digital Television. It enables the possibility to watch a past show or watch again the programme without having used the Personal Video Recorder functionality. This service requires direct exchanges between all the TV broadcasters and the TV operators and the setup of contracts between parties.

Similarly to what we mentioned above, Mobistar would welcome the possibility to include the TV content rights or to share existing rights with CableCo at a fair price within the frame of the broadcast regulation for on demand content.

The sharing of the existing TV on-demand rights will avoid implementing a specific interconnection with all broadcasters for each TV operator in order to obtain the same source files and metadata.

Regarding Catch-up TV, Mobistar highlights the fact there could be a regulated mechanism & procedure to get easier access to TV broadcasters' content storage. Indeed, today, each TV operator needs to deploy a specific infrastructure & interconnection (leased lines, encoder, metadata....) to each TV broadcaster sites, which is very redundant and complex for both TV broadcasters & TV operators. Mobistar proposes to the regulator to facilitate the creation of a common interface to distribute the TV broadcaster's contents in a more standardized format. Of course, the exchanged content will depend on the existing agreements between broadcasters and operators.

As an illustration, in the scope of the cable regulation, as described in the schemes below, the alternative operator (TV Operator 3), using CableCo infrastructure (TV operator 1), could receive catch-up TV content without having a direct connection with TV broadcasters.

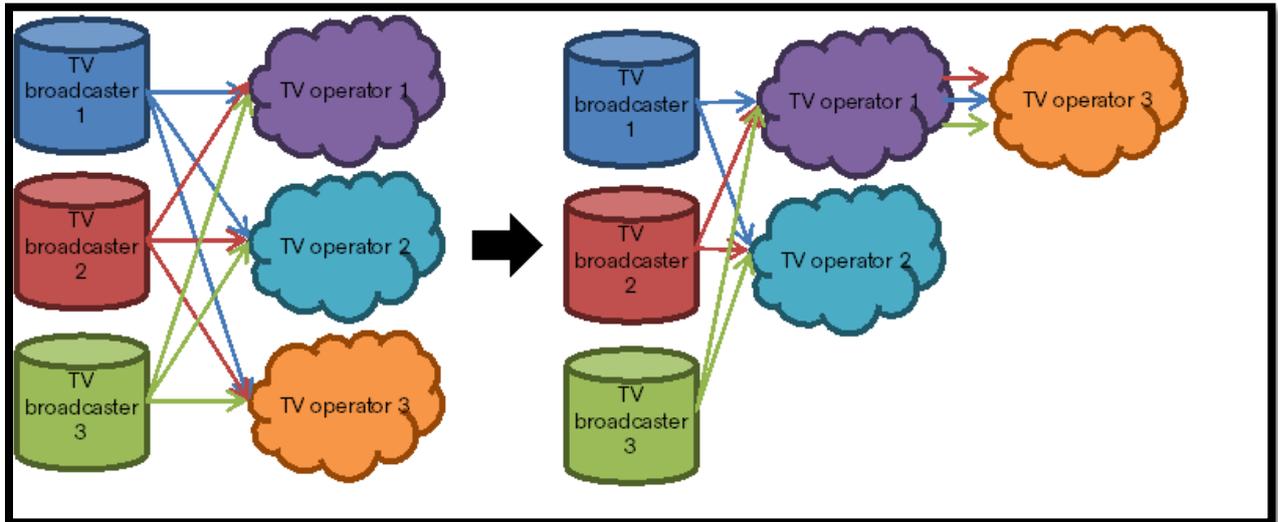


Figure 15: Current Catch-up TV model and proposed evolution

The BIPT, in its decision (§72-§74) about the IPTV Multicast alternative⁴⁵ (04/10/2012), is in favour of this nesting approach

4.3 Broadcast – Conditional Access System

We have seen in chapters §2 that most of CableCo's are proposing different CAS solutions, for which none are satisfactory to enable a simple, quick time to market and cost effective implementation. These solutions are not leveraging on true Simulcrypt solutions that enable perfect flexibility, maintain independence of actors, decrease the customer processes, IT complexity and smooth planning control.

However, what we observe in the different proposals is the possibility to use an extra CAS outside of the CableCo infrastructure based upon a Simulcrypt standard model.

Most of the proposals include a provisioning interface of the new subscribers (SMS – like XML protocol) and a complete management and integration with the current CableCo infrastructure. Some of the CableCo's are already involved in a Multi-CAS environment.

What we propose as simplification is to apply a Bottom-Up approach rather than a Top-Down-approach.

In a Top-Down approach, as described by the figure below, Mobistar should adapt to each API from CableCo's CAS and develop a TV decoder accordingly for each HFC network and follow each and every evolution of any of the 3 operators (this would translate into permanent mandatory evolution to follow the pace of updates/upgrades changes).

In a Bottom-Up approach, Mobistar will integrate on low levels interfaces like Simulcrypt standard. Interfacing with each CableCo APIs means for Mobistar to use three different procedures, develop and operate three different IT solutions with very specific solutions for each.

⁴⁵

http://www.bipt.be/en/71/ShowDoc/3861/Access_cluster_/Decision_concerning_the_reference_offer_of_the_alt.aspx

The proposal is a tremendous simplification as illustrated below :

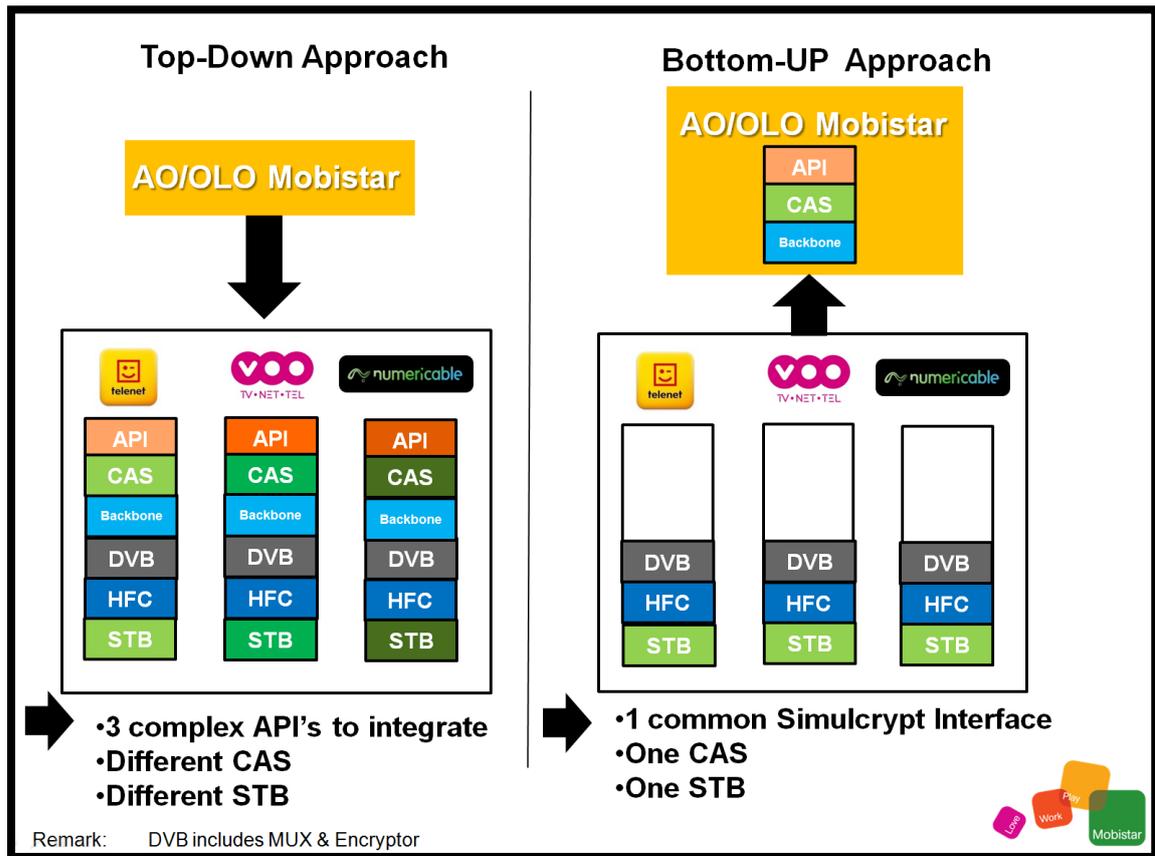


Figure 16: CAS simplification with bottom-up approach.

There is a lot of complexity behind API's integration where the OLO/AO is fully dependant on the Cableco in terms of definitions and field-proven functionalities of proprietary interfaces. The national territory coverage would require 3 different integration processes with 3 different STBs. as stipulated on the following picture:



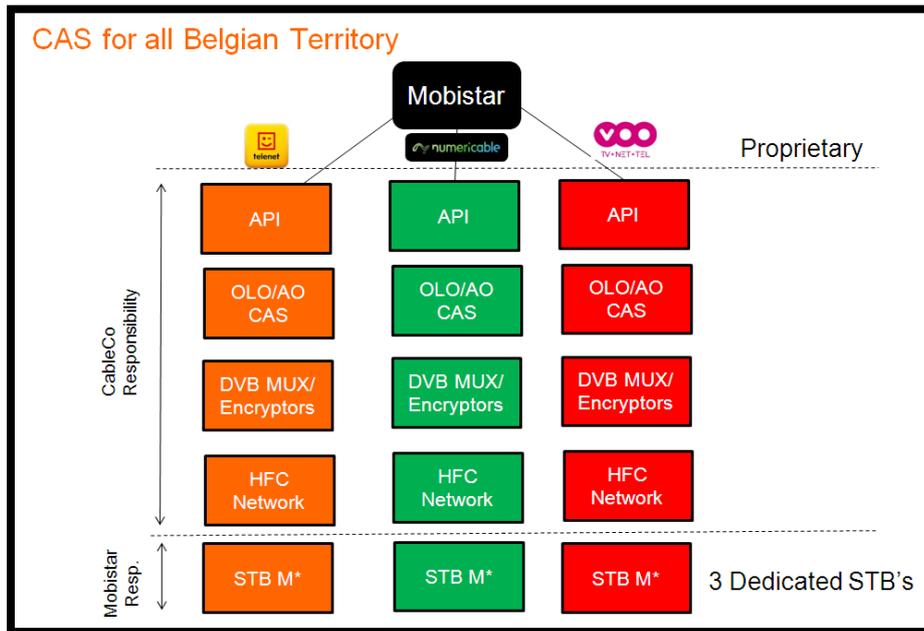


Figure 17: 3 different CAS = more complex, more expensive + less flexible

Mobistar has already explained in details the drawbacks and risks associated with such approach in chapter 2.1.2.5 for example.

Mobistar would like to use its own CAS to permit full freedom of capabilities. CableCo imposing a specific CAS or defining a common CAS for all OLO's is discriminatory on different aspects.

There is a big advantage to permit Mobistar to mutualise its own CAS all over the belgian territory to create a real competitive environment.

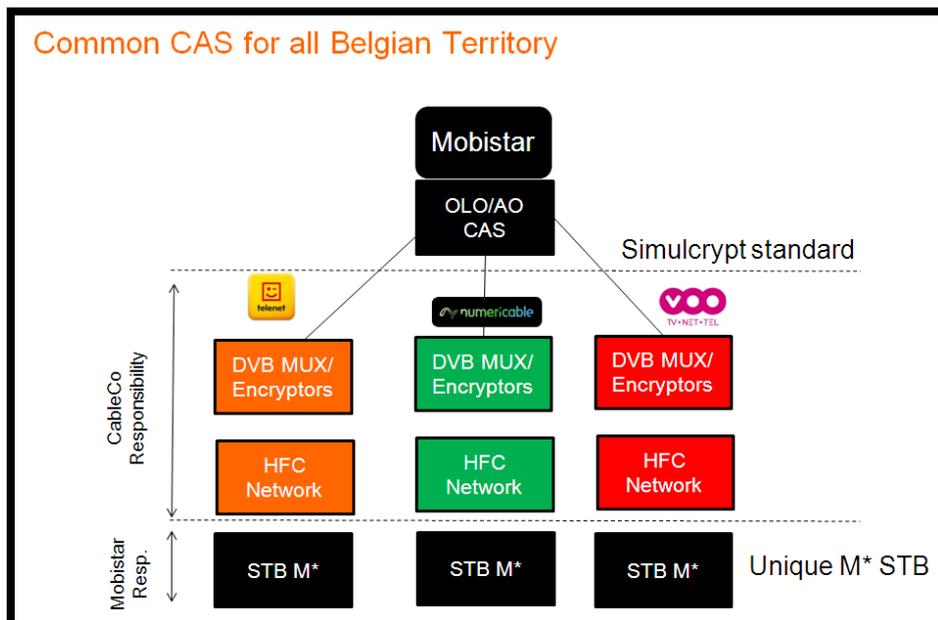


Figure 18: Full Simulcrypt simplifies implementation for all parties

Using a common standard interface for all the operators over the national territory and the same STB will dramatically decrease the integration and deployment costs.

Many aspects of competitiveness are linked to the CAS: STB cost, STB certification, implementation planning, Middleware integration, Bug fixing, new features development, User data base, bouquet definition, messaging to the subscribers, Parental control, Smart card logistic, Software Evolution, New HW STB definition, STB installation, Special promotion....

Hereafter we describe two standardized approaches to implement simulcrypt in an easy way.

Important remark:

We will explain below in more detail how simulcrypt standard is implemented worldwide by many TV operators over multiple countries, an approach that can be reused for the Cable regulation. The perception for the reader of this chapter, who is maybe not familiar with DVB standards, could be negative as perceived as complex (specific acronyms mechanisms,...). This is not the case. Indeed, the proposal is based on pure and standardized (=interoperable) norms broadly available on the market from all different CAS and DVB vendors. Details will be given confirming there are no technical or implementation barriers that could endanger the implementation of such standard.

4.3.1 DVB-Simulcrypt

4.3.1.1 Description of the solution

Simulcrypt is born to deliver to the subscribers a common encryption key and their specific privileges whatever is the conditional access system used and the DVB access network used (Satellite, Terrestrial or Cable).

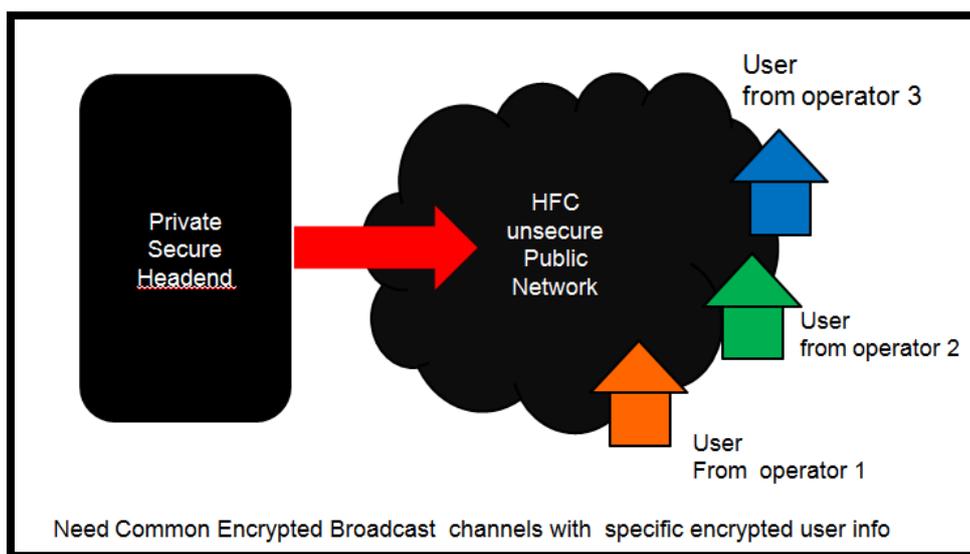


Figure 19: simulcrypt principle

The necessary functions of the Simulcrypt, that are very standardized by DVB forum, are defined below:

Remark: At the end of each line of the description is a number which is reflected in the next figure.

- Announce a new CAS present on the public network (SI/PSI tables)= 1
- Define Access Criteria for each channel (AC)=2

- Protect & transport the encryption key to the set top box with regular update (ECM) per channel or group of channels = 3
- Protect & transport privileges (AC) per subscriber to each set top box (EMM broadcast) =4
- Send some additional proprietary info associated to the CAS: versioning, upgrade... (Private data) =5

Scheduler will start encryption (EIS).

This is shown in the figure below:

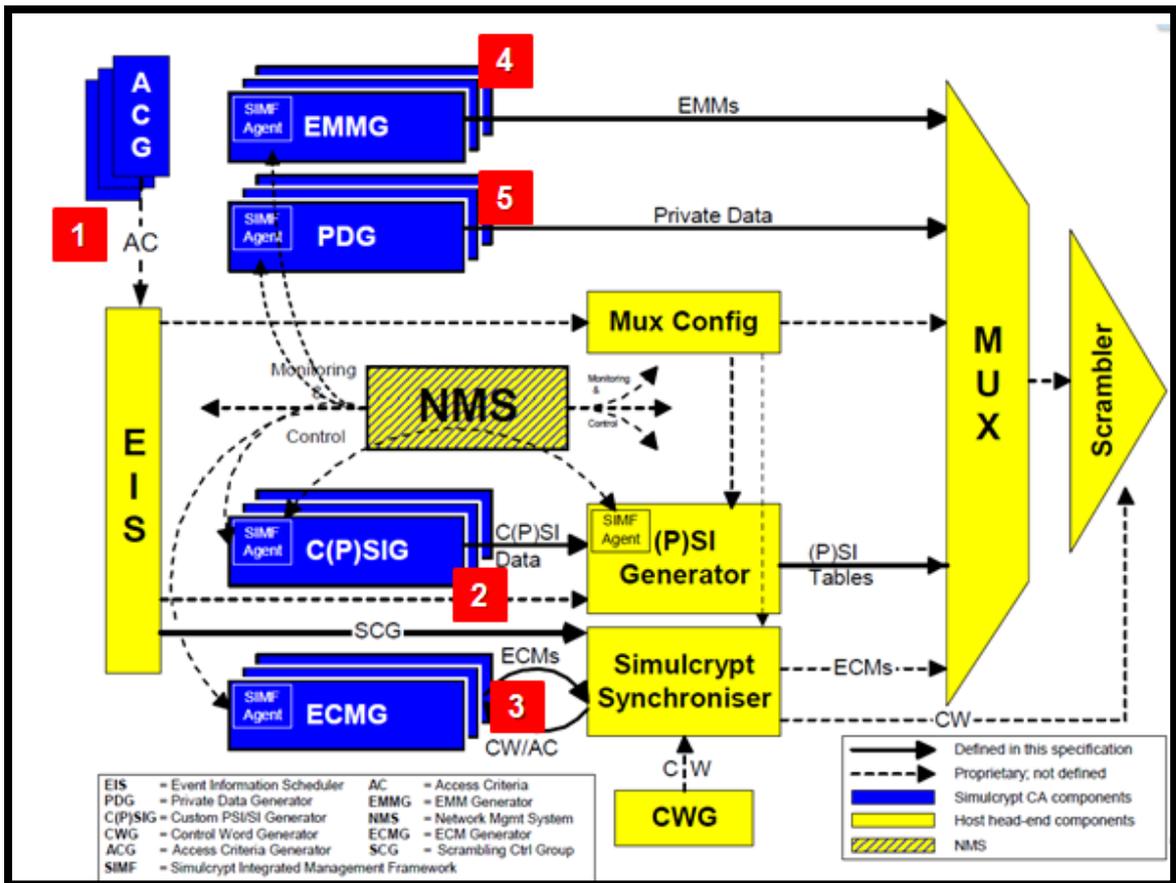


Figure 20: DVB-Simulcrypt standard model

We summarize the concept in the cable environment as follows:

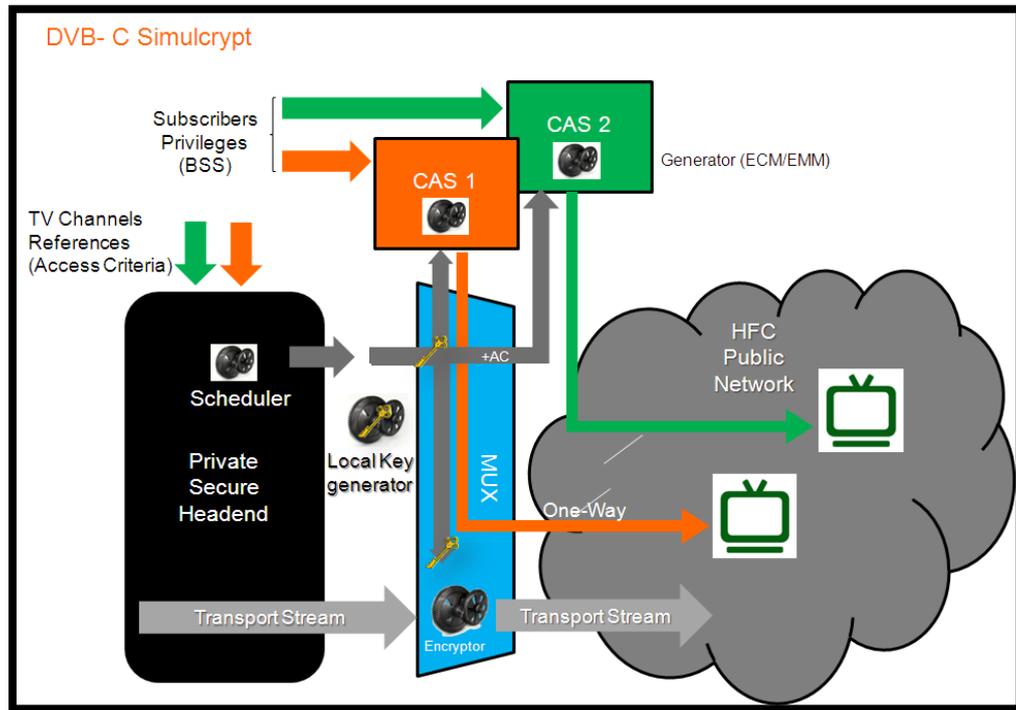


Figure 21: Simulcrypt in Cable environment

For the sake of clarity, we have shown 2 CAS on one encryptor.

Each operator will own its user data base (Subscriber Management System) with respective privileges (Entitlement) and will inform the video headend encryptor scheduler (EIS) about the presence of their respective access criteria to connect to the right channel or bouquet of channels.

EIS will start encryption and encryptor will generate at regular period (crypto period) a common key of encryption for all the operators (Control Word=CW)

While the Encryptor is encrypting with current control word key, it will generate a new Key that will be sent to each CAS system (ECMG) to be encrypted in a secure way by each CAS system and sent to the respective subscriber STB's from each operator.

In the mean time, privileges per subscriber from each operator will be encrypted and sent to the respective subscriber STBs from each operator.

The STB will receive both the next control word (encrypted of course) and privileges to permit to decode the respective channel according to the privileges of the subscriber.

As we see, the model is highly scalable and permits each operator a "ship in the night" processing independent from each other, similar to a "Chinese wall".

As a matter of fact, we expect multiple CAS from different AO/OLO operators to connect all the MUX-encryptors of each CableCo's (Telenet, Numericable & Voo) over all the Belgian territory.

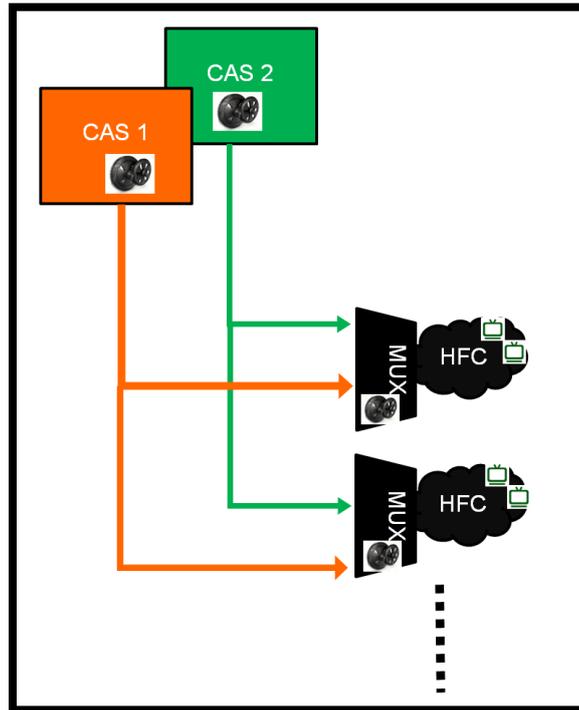


Figure 22: DVB simulcrypt implementation

As soon as all the DVB MUX-encryptors from one CableCo are interconnected by a secure CAS VLAN, it is easy for an alternative operator to connect to all the DVB MUX encryptors using VPN technology (Lan-to-Lan) to send its secrets to each CableCo DVB Mux Encryptor trough the CAS VLAN defined.

By scaling up the architecture, we arrive to interconnect in a same way different CAS to all the Belgian CableCo's based upon standard Simulcrypt interfaces.

The VPN between Mobistar and each Cableco will interconnect each VLAN CAS (connected to all the DVB MUX encryptors as written above). It will transport all the EMM (see N°4 on figure below) & Private Data (see N°5 on figure below) streams (Multicast would be easier) and ECM-Control Word exchange between ECMG and each encryptor (TCP/IP Unicast session between each encryptor and the ECMG). (See N°3 on figure below).

Mobistar will also deliver the necessary info via standard DVB interface such as Access Criteria (See N°1 on figure below) and incremental PSI/SI information (See N°2 on figure below). Mobistar will also update each CableCo on the inventory in order to permit to calibrate the EMM pipe, which is a linear function of the number of subscribers per CAS. (See N°1 on figure below).

All the monitoring of the DVB Simulcrypt equipment stays under control of each CableCo.

Remark: MSO = Multi System Operator = CableCo

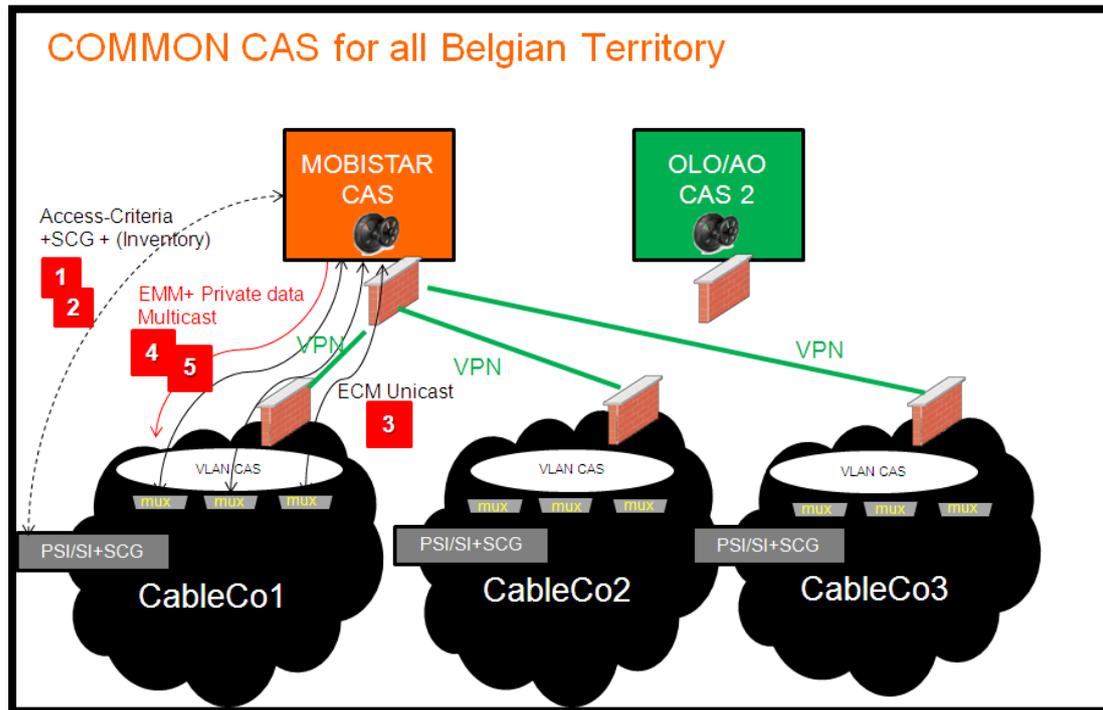


Figure 23: Simulcrypt: LAN-to-LAN via VPN between Mobistar and CableCo's

What are the impacts in the technical design and network infrastructure of a CableCo ? The DVB port interface will be defined as follows per area.

In few words, Management port connectivity is needed to insert EIS and PSI/SI and a VLAN CAS port to insert EMM, Private Data and permit ECM insertion after Control Word reception by ECMG.

In case of 2 or more areas (this is often the case when the CableCo has multiple headend with different TV offers per region - for example Tecteo in Brussels does not have the same offer as Tecteo in Liège), the CableCo will duplicate such port allocation using VLAN connectivity. Telenet mentions a country code to insert into the STB to get the specific channel line-up per regional area.

We observe that we keep the existing connectivity to insert PSI/SI and control the start of the encryption process (EIS-SCG).

We define a CAS VLAN that will connect all the CAS port of each DVB Mux encryptor, where we inject EMM & CAS specific private data by multicast to all them.

In the same VLAN CAS, we permit each DVB Mux encryptor to send the control word to dedicated specific CAS ECM generator to be encrypted and returned back to the DVB Mux encryptor to pass them into the DVB streams under the form of ECM messages per channel.

In summary we should define 5 Logical Interfaces⁴⁶ to each MUX/scrambler per CAS:

- 3 common to all the Mux per area (EIS, EMM, Private Data)
- 1 dedicated for Channel encryption Key exchange (ECM)
- 1 existing for PSI/SI CAS info delta

In other words, we ask simply the possibility to use a CAS vlan to connect each CAS port of each DVB MUX Encryptor in each area. **This work shall be done in any case by the CableCo when implementing a new (unique) CAS as proposed in the different proposals.**

We will see in the following chapter the advantages of such approach.

4.3.1.2 Pros & Cons of DVB-Simulcrypt

DVB-simulcrypt brings a lot of advantages in the architecture and the solution

Simulcrypt interfaces with N-CAS scenario

CAS 1					
EIS 1: Region 1	AC 1-SCG	PSI/SI Delta	EMM 1	Private Data 1	ECM 1
	Mgmt port		VLAN CAS port		
MUX 1	1 (common EIS)	1 (TCP-IP) existing	1 (multicast)	1(multicast)	1 (TCP-IP)
MUX 2	1 (common EIS)	2 (TCP-IP) existing	1(multicast)	1(multicast)	2 (TCP-IP)
EIS 2: Region 2	AC 1-SCG	PSI/SI Delta	EMM 1	Private Data 1	ECM 1
	Mgmt port		VLAN CAS port		
MUX 1	1 (common EIS)	1 (TCP-IP) existing	1 (multicast)	1(multicast)	1 (TCP-IP)
MUX 2	1 (common EIS)	2 (TCP-IP) existing	1(multicast)	1(multicast)	2 (TCP-IP)

46

	PRO'S	CON'S
For CableCo	<ul style="list-style-type: none"> • Easy implementation and very interoperable. • Lower Cost • No extra responsibility • Lower risk of piracy (if one CAS is hacked, the other customers with other CAS are not impacted) • No impact on CableCo TV decoder and services thanks to compatible simulcrypt decoder. • Highly simplified IT / Provisioning - Only inventory to transfer to calibrate the EMM channel accordingly 	<ul style="list-style-type: none"> • Connection required to each DVB-Mux (required anyway already for one supplementary CAS in their proposal) • Requires 20-25 kbps extra bandwidth per OLO per channel for ECM's broadcasting. Note this bandwidth is anyway needed if the CableCo install a new CAS dedicated to its wholesales customers. • Require few kbps for EMM's for the overall Mobistar customer bases that would be similar in case of CableCo customer expansion.
For OLO	<ul style="list-style-type: none"> • Easy interfacing of a common CAS for all the Belgian territory based upon Simulcrypt standard ==> Unique Mobistar TV decoder accross 3 different CableCo's • Time To Market (impact of certification procedure) • Full subscriber independency / chinese wall • Independence for Bouquet definition • Highly simplified IT / Provisioning - Only inventory to transfer to calibrate the EMM channel accordingly • Lower risk of piracy (if one CAS is hacked, the other customers with other CAS are not impacted) • Lower cost as reusing current CAS solution is possible. • Independence in selection and commercial negotiation with CAS Supplier 	<ul style="list-style-type: none"> • Requires a VPN connection to the CAS VLAN of each MSO operator to the common CAS from new OLO operator.

Today, with the implementation of control-word protection (see previous chapter) and chipset pairing (Mobistar TV decoder runs correctly only if a valid Mobistar TV SmartCard is used, and vice-versa, Mobistar TV smartcard works only in a Mobistar TV decoder) the risk of piracy has been drastically reduced and is very rare. These are some of the technologies Mobistar is already using today with Mobistar TV.

DVB-Simulcrypt is a perfect solution for Digital Television only offers, as no other signaling channels are required (no DOCSIS, etc...). The working of Digital Television is not influenced by the availability of other services.

Of course, Mobistar recommends the usage of well known DVB CAS suppliers, having good track records in term of market base, reactivity against piracy, recognition by content rights owners, features and pricing such as Viaccess, NDS, Irdeto, Conax, Nagra,...

4.3.2 DOCSIS Set-Top Gateway

The second proposal, to be discussed together with regulators and CableCos is based on the standard DOCSIS Set-Top Gateway (DSG). This standard is already in use by different CableCo's in USA.

What we propose as simplification is to apply also a bottom-up approach instead of a Top-Down-approach.

In a Top-Down approach, Mobistar should adapt to each API (and thus their respective customer journey processes) from CableCos, CAS and develop a STB according to each HFC network while in Bottom-Up approach, Mobistar will integrate low levels interfaces like Simulcrypt combined with DSG standard.

This is a tremendous simplification as illustrated below:

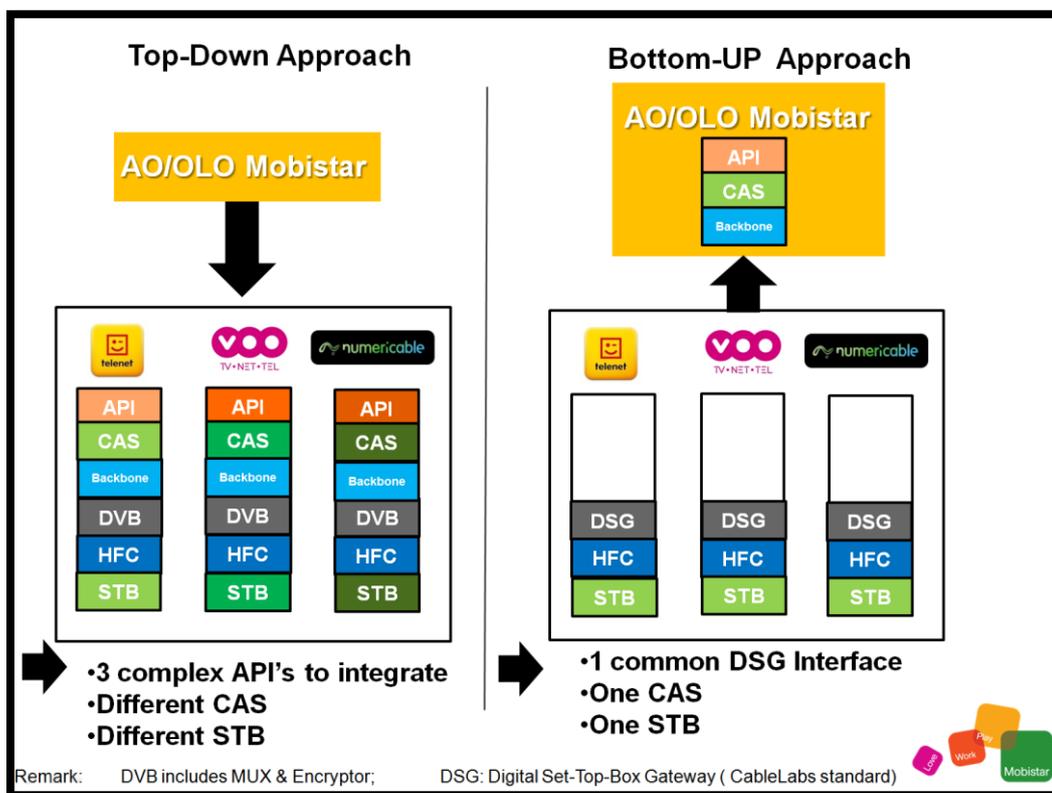


Figure 24: Bottom-up approach with DSG instead of CableCo proposal

4.3.2.1 Description of the solution

Instead of using DVB MUX to insert PSI/SI delta info, privileges (EMM, Entitlement) and Channel Encryption to the TV decoder (ECM), we would use the Broadband IP access over DOCSIS (via CMTS HeadEnd concentrator) to forward the necessary info to the STB using a pure hybrid model taking content from DVB channels and using IP over DOCSIS to get the DVB signalling.

In other words, we would decouple the DVB signalling from the DVB TV content using the DOCSIS as an IP MUX, as shown in the figure below (out of band signaling) :



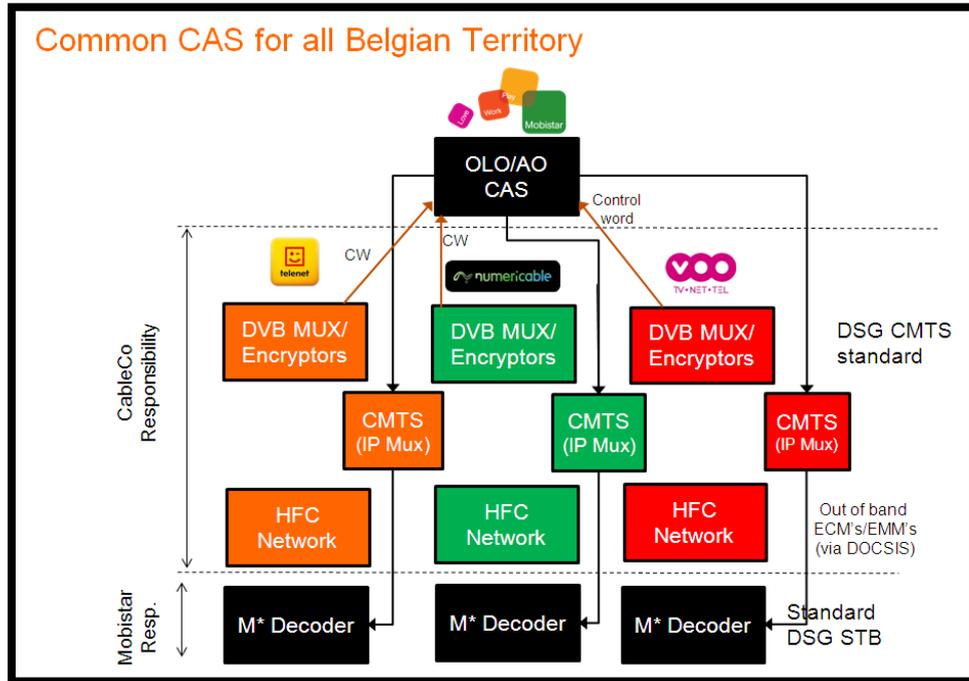


Figure 25: DOCSIS Set Top Gateway

This approach is based upon DOCSIS Set-Top Gateway Standard (DSG) from CableLabs: **CM-SP-DSG-I22-121113**

This approach enables the use of an **IP DOCSIS link to the TV decoder in a secure way totally independant from the upstream DOCSIS registration and connectivity** similar to DVB ECM or EMM channel.

Of course such technology can permit to progagate also EPG and other infos (all private payloads that were transported on DVB-SSU in DVB-simulcrypt standards such as firmware upgrades, Fast Scan Table) as necessary emulating a one-way Broadcast system.

See below a description from the DSG standard:



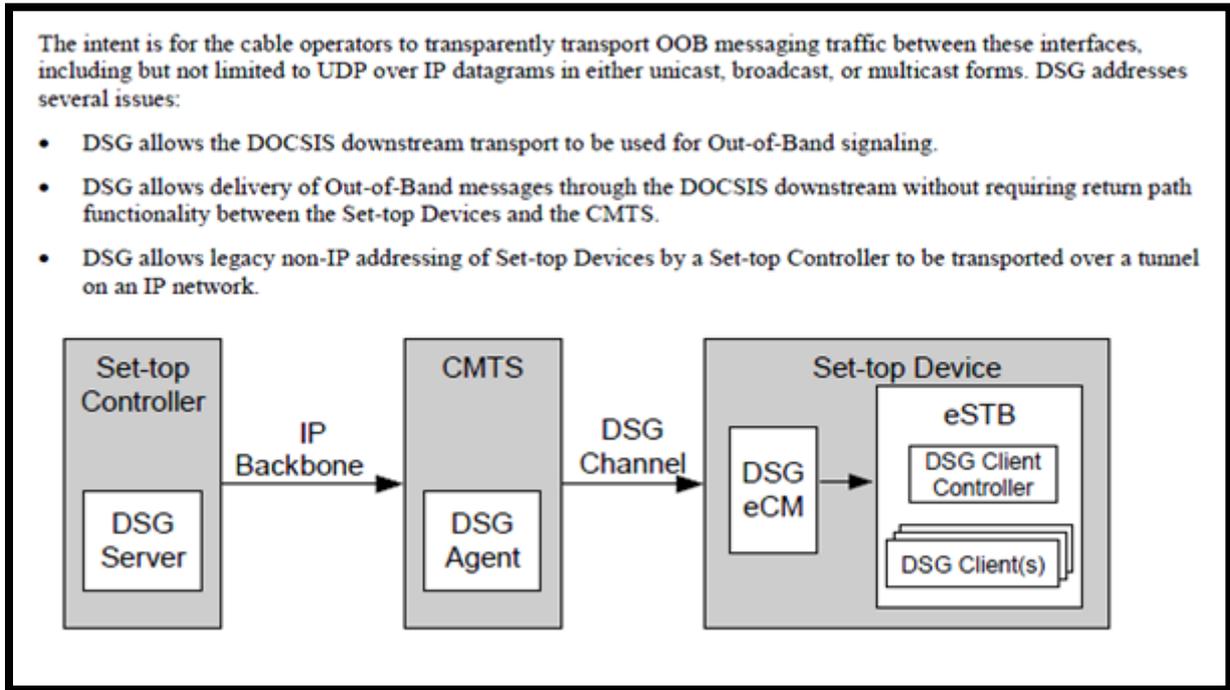


Figure 26: DOCSIS SetTop Gateway standard⁴⁷

The DSG server is the Mobistar CAS server. This is how this works (from DSG standard):

- DSG Advanced Mode Tunnels use a DOCSIS MAC management message called the Downstream Channel Descriptor (DCD), which provides dynamic provisioning of DSG Tunnels.
- The DSG protocol does not require two-way communication and thus does not require the DSG Set-top embedded cable modem (eCM) to perform DOCSIS registration if the client application does not need two-way service. A modified initialization/registration state machine has been defined for the DSG eCM to take one-way operation into account.
- In p 22-23 of the DSG standard: In the case of a failure in the upstream path, the DOCSIS 3.0 DSG CM operating in Multiple Transmit Channel (MTC) Mode enters one-way mode when the CM loses all of the upstream channels on which the primary upstream service flow is assigned (this includes the case in which the DOCSIS 3.0 DSG eCM maintains upstream connectivity with one or more upstream channels not associated with the primary upstream service flow).
- If a failure occurs in the upstream path that causes it to switch from an operational state to one-way mode, the DOCSIS 3.0 DSG eCM in MTC Mode periodically attempts to restart the upstream ambiguity resolution process after the expiration of the Tdsg3 timer

4.3.2.2 Pro's & Con's

	PRO'S	CON'S
For	<ul style="list-style-type: none"> • Very easy implementation – No impact on 	<ul style="list-style-type: none"> • Connection required between

⁴⁷ OOB = Out Of Band



<p>CableCo</p>	<p>DVB platform (Mux).</p> <ul style="list-style-type: none"> • Lower Cost • No extra responsibility • Lower risk of piracy (if one CAS is hacked, the other customers with other CAS are not impacted) • No impact on CableCo TV decoder and services • Highly simplified IT / Provisioning • No need for dedicated 25 kbps DVB for Mobistar ECMs for each channel 	<p>CableCo CAS and Mobistar CAS to capture CableCo ControlWord to generate ECM (required anyway already for one supplementary CAS in their proposal)</p>
<p>For OLO</p>	<ul style="list-style-type: none"> • DSG is using DOCSIS as a one-way similar to DVB. If DOCSIS fails, no impact on TV (still keeps receiving ECM and EMMs). This is not depending on upstream channel quality. • Easy interfacing of a common CAS for all the Belgian territory based upon Simulcrypt standard => Unique Mobistar TV decoder across 3 different CableCos using Hybrid technology DVB-C tuner for content and IP DSG for Downstream DVB Signalling and others. • Time To Market (impact of certification procedure) • Full subscriber independency / chinese wall • Fully Independent Bouquet definition and CableCo DVB MUX decoupling. • Highly simplified IT / Provisioning - Only inventory to transfer to calibrate the EMM channel accordingly • Lower risk of piracy (if one CAS is hacked, the other customers with other CAS are not impacted) • Lower cost as reusing current CAS solution is possible. • Independence in selection and commercial negotiation with CAS Supplier 	

4.4 Broadband – DOCSIS architecture

In summary, the same approach than the CAS has been chosen: we prefer a simplification to enable broadband services over the entire national territory using “Over The Top” CableCo HFC networks”.

The CableCo can decently share the CMTS throughput in the same way Belgacom shares DSLAM.



We put some comparison below. New DSLAM sharing use VLAN association to run multiple ISPs over the same DSLAM delivering triple-play services. BRAS PPOE/A sessions are managed by each operator independently.

In the same way, multiple CAS can share the same DVB MUX/Encrytor based upon DVB Simulcrypt standard.

In the same way, using virtual router concept (VRF), it is possible to aggregate traffic from different operators using the same CMTS equipment as common aggregation point but maintaining “ship in the night process” (Chinese wall) and routing independencies. In France, Bouygues using Numericable HFC network illustrates this possibility⁴⁸.

This is shown in the figure below:

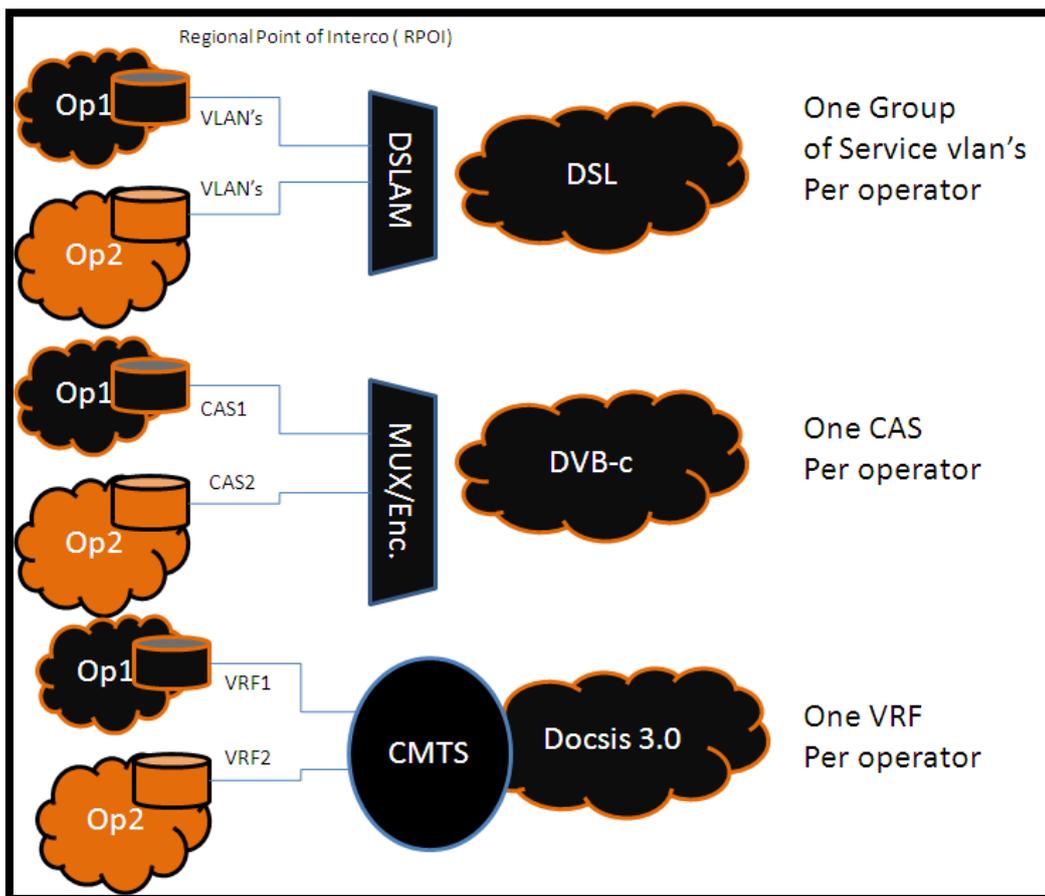


Figure 27: analogies DOCSIS/CAS/ADSL

Most of the wholesale proposals by the CableCos address this topic from a Top-Down approach. This would require automatically a multiplication of integration efforts and an explosion of costs and timing.

⁴⁸ <http://lafibre.info/bbox-fibre/architecture-du-reseau-numericable/msg35046/#msg35046>

We propose a Bottom-Up approach using low-level standard interfaces defined by the DOCSIS standard from Cablelabs.

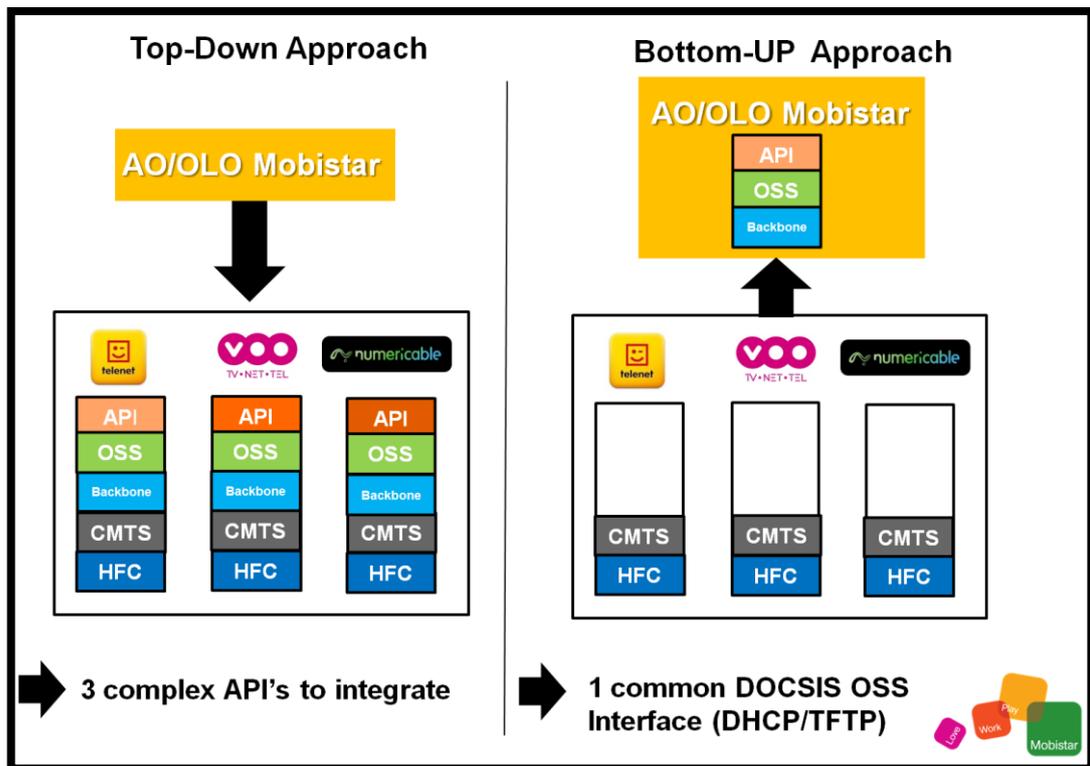


Figure 28: Bottom-up approach for DOCSIS CMTS Sharing

We distinguish the following functions:

1. Auto-Addressing (Modem and Subscriber CPE's)
2. Auto-Configuration of the modem (with QoS profiles)
3. Transport/routing of the AO/OLO user traffic
4. Monitoring of the modem.

The 2 first functions are part of "DOCSIS provisioning".

4.4.1.1 Description of the solution

DOCSIS 3.0 specifications propose very simple interfaces to permit gateway provisioning using standard basic protocols like DHCP (with option 122), ToD (Ex-time Server), TFTP (File transfer), Syslog (to get event), SNMP (to permit monitoring).

The provisioning principle is quite simple for the activation of a DOCSIS modem:

1. Modem scans the RF cable spectrum to find a DOCSIS downstream channel
2. By listening to this downstream channel, the DOCSIS modem acquires the upstream frequency to contact the CMTS
3. The modem sends its MAC address to the CMTS via the Upstream channel (DHCP Discover)
4. The CMTS relays the modem DHCP discover to the private DHCP server. The DHCP Server answers by sending back all required parameters (IP DOCSIS management address, etc... and TFTP server address + modem configuration file)
5. The Modem receives its own private management IP address and now contacts the OLO TFTP server to get its configuration file from Mobistar BackOffice.

6. The TFTP server sends the configuration file to the modem. This file defines all modem parameters: service flow and speed profiles, and some extra such as WIFI configuration, firewall, etc.
7. Now starts the public CPE auto-configuration by similar DHCP process with Mobistar DHCP server offering Mobistar public IP addresses.

Mobistar believes that remarkable simplifications can be achieved by implementing such standard DOCSIS OSS provisioning service (DHCP & TFTP server) at Mobistar side.

The solution consists in 4 steps to get a user up and running:

- 1 Private DHCP IP addressing of the Modem
2. Modem Auto-association to VRF instance
3. TFTP configuration File Download
4. Public DHCP IP addressing of the users

We will illustrate each step in the figures below.

Even during the modem initial attachment, all the responsibilities can be offloaded to Mobistar. Mobistar will perform modem auto-provisioning. In fact, all the AO/OLO private IP address DHCP servers from their respective back-offices shall be connected to each CableCo's CMTS. Each CableCo CMTS will duplicate the DHCP request during the relay to both the CableCo DHCP servers and all the AO/OLO DHCP servers. All the DHCP servers are sync all together using black-list/white-list⁴⁹. Only the relevant DHCP server will answer the DHCP request. This answer will confirm the modem membership to one of the cable operators: CableCo or AO/OLO.

This will also facilitate the possible filtering for the monitoring, troubleshooting by authorizing Mobistar to look-up to the CableCo Cable Modem monitoring system only using specific private IP address ranges dedicated to Mobistar modems.

⁴⁹ Communicated on a regular basis by all OLOs to each CableCo. Simple manual process to check no duplicate shall be achieved.

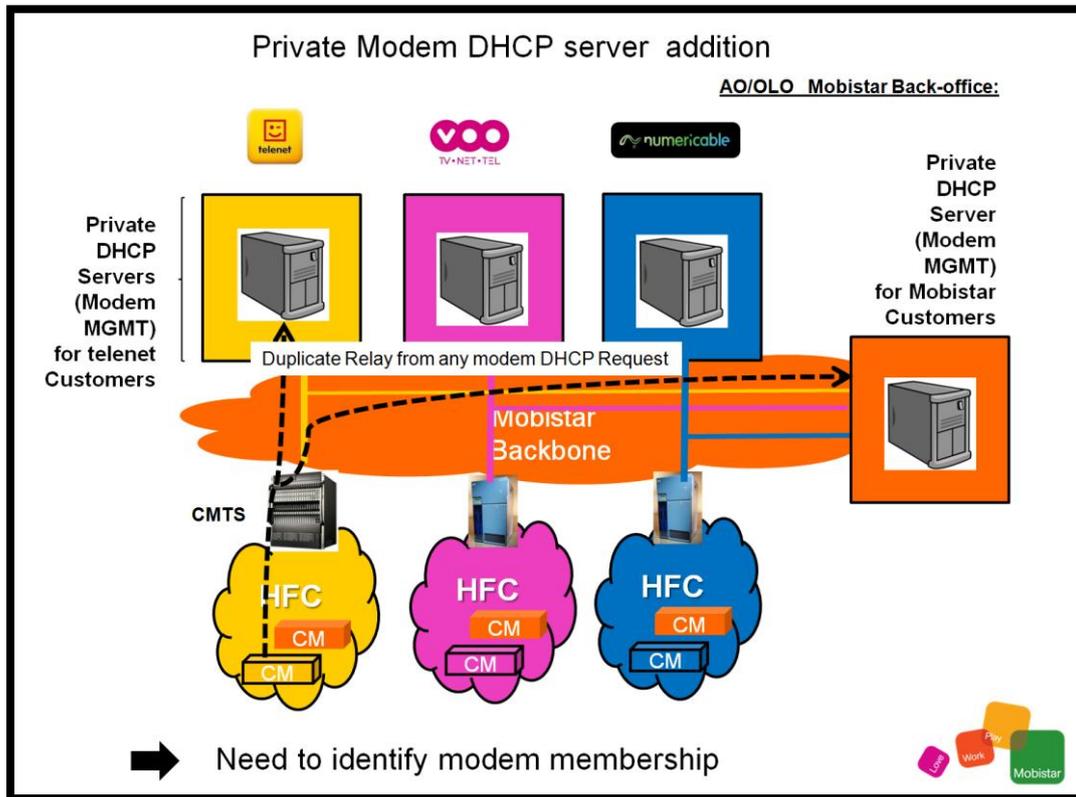


Figure 29: DHCP discover transmitted to DHCP servers in the same CableCo domain

In order to guarantee full compatibility between the DHCP private IP address spaces and IP address use of each back office (CableCo & AO/OLO's), it will be worth to share updated white lists and/or black lists of each cable modems on the HFC network so that all the DHCP servers will be in sync and will respond accordingly.

Each DHCP server is responsible to alert about IP addressing space consumption and when a new addressing space extension is needed on the CMTS.

After modem operator membership identification by one of the appropriate private DHCP server. The modem will be associated automatically to a logical sub-interface of the CMTS that is part of the specific AO/OLO pre-configured VRF⁵⁰ on the CMTS.

⁵⁰ VRF : Virtual Router Forwarding (instance)



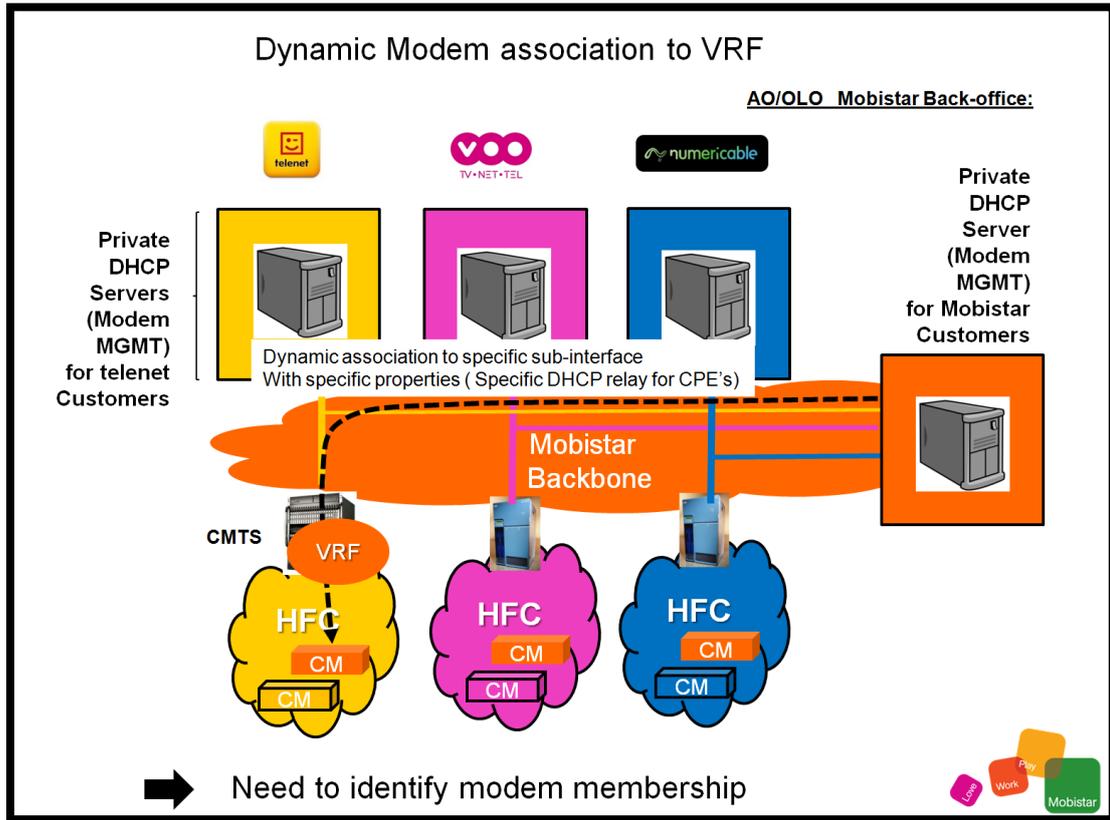


Figure 30: Modem is attached to the right OLO VRF

This concept is very powerful and illustrated below. It will permit to isolate DHCP relay properties (pecific to cable modem, STB or end users) and independent routing tables and processes.

This allows sharing automatically a CMTS among multiple operators without any specific development for the CableCo.

Afterwards, the modem will continue the DOCSIS auto-provisioning according to the standard, and will request its configuration file directly from the TFTP Mobistar server. There is no need anymore for any CableCo intervention. Mobistar can take care of the modem configuration. This removes the complexity of the implementation with specific APIs between TFTP server and Mobistar Backoffice from the CableCo.

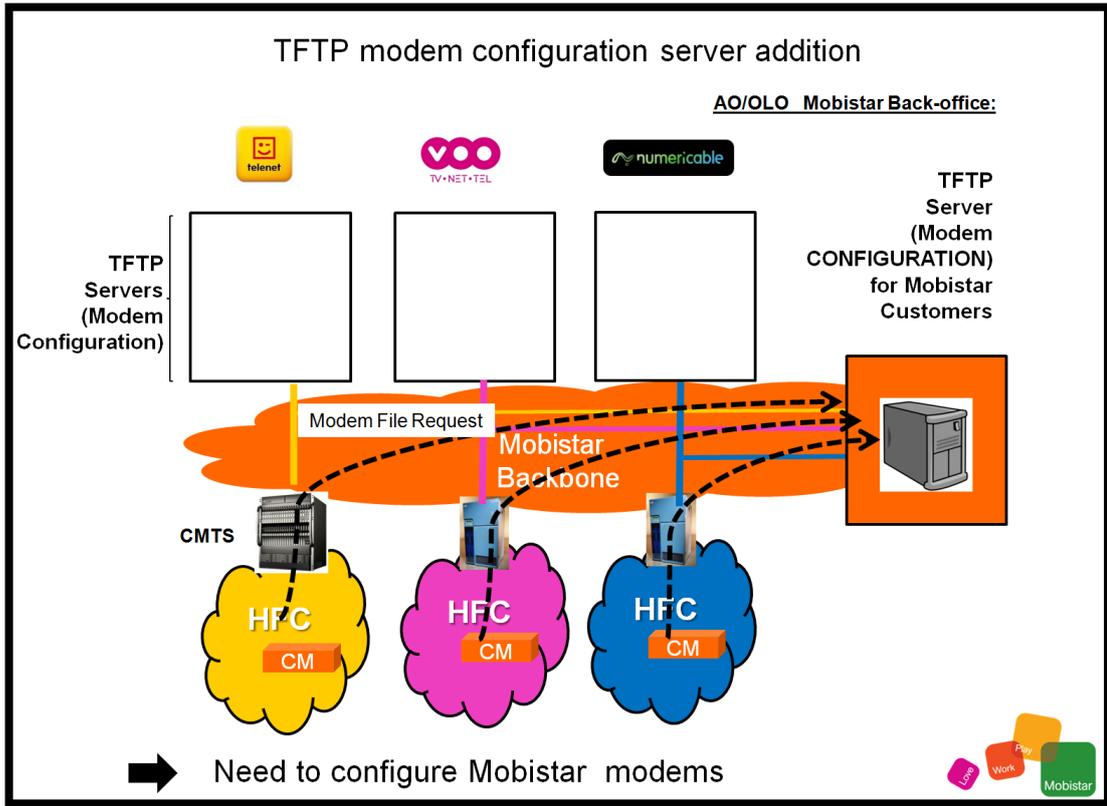


Figure 31: Mobistar TFTP server delivers configuration files to M* modem

After cable modem registration, the modem is associated to the VRF with the right quality of service and will be ready for internet broadband access service.

The end user part of the modem will then initiate a request for a public IP address (IPv4 and/or IPv6) and the CMTS will relay the request to the public DHCP server of the AO/OLO operator. Again, no need anymore for the CableCo’s assistance nor IT specific requests between parties.

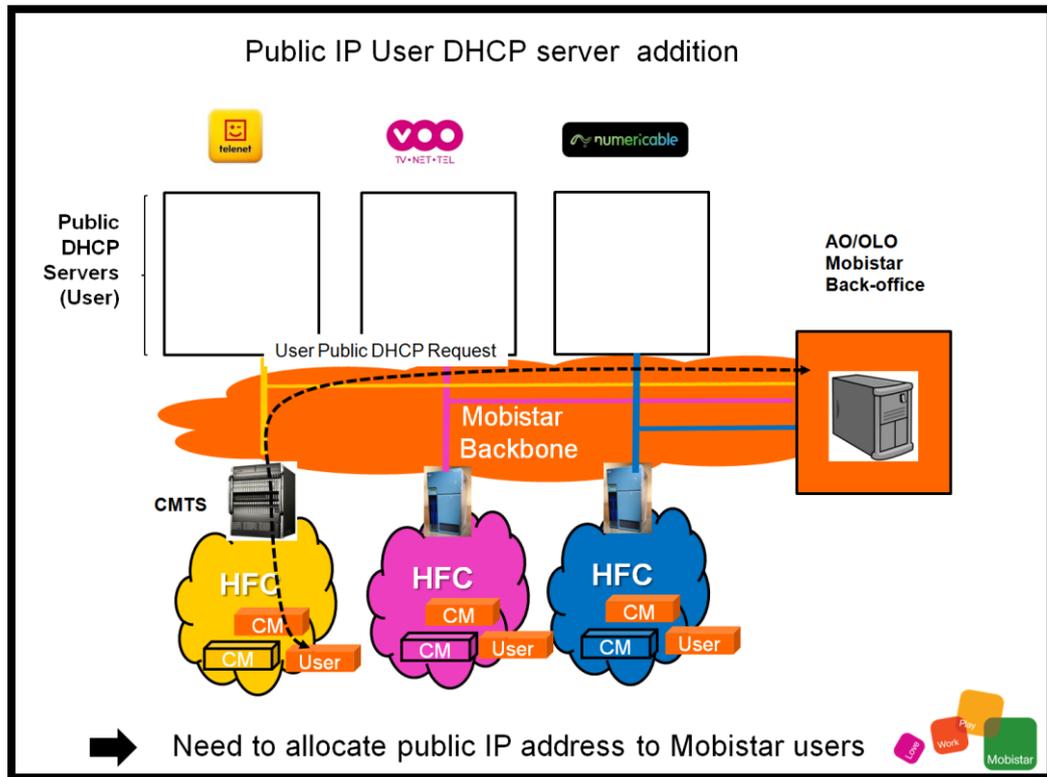


Figure 32: public IP address allocation to Wifi Router

It is upon Mobistar’s responsibility (Backoffice) to ensure the correct information on its DHCP and TFTP servers.

4.4.1.2 Pro’s & Con’s

	PRO’S	CON’S
CableCo	<ul style="list-style-type: none"> • Easy connectivity, light IT implementation • Keep control of the modem on the HFC network as shared medium, also via CMTS management console 	<ul style="list-style-type: none"> • Need to set-up configuration in each CMTS but very limited. Anyway this would be the case for any other solution to reflect the new AO/OLO addressing space.
OLO	<ul style="list-style-type: none"> • Full independence • Easy connectivity, easy IT implementation • Time to market 	<ul style="list-style-type: none"> • Need OLO to assume addressing and configuration responsibility. Mobistar is ok with this .

4.4.2 Speed Profile management

As seen in chapter 2, most of the CableCos proposed a very limited number of Broadband profiles for wholesale reselling services. Sometimes the proposed profiles are even not equivalent to the CableCo’s own retail services.

In the DOCSIS standard, the downlink/uplink speeds (=speed profiles + quality of service) are part of the DOCSIS configuration file, dedicated for each DOCSIS modem. This file, sent by the TFTP server (see provisioning chapter), contains all technical elements for the CMTS and DOCSIS modem to configure the



required traffic speed in both directions and it contains other broadband service parameters as well (firewall, WIFI,...)

Technically, in DOCSIS standard, there is no limitation in the number of configuration file variants (and therefor speed profiles) that can be configured and used in a DOCSIS network. The CableCos do not bring real arguments explaining that too many profiles would bring extra complexity in the network management.

As addressed in chapter 4.4.1.1 and in section 4.6.4 below, Mobistar is willing to manage the TFTP server. So there is no impact at this stage on this matter for the CableCo.

Mobistar agrees that the configuration file template must be validated by the CableCo before being used on field production. A clear process with strict timeline must be defined. Mobistar propose that a new configuration file template (common parameters for a unique offer for multiple gateways) shall be validated by the CableCo in maximum 5 open days. A rush procedure (validation in 24 hours) should be foreseen for exceptional reasons (incident, service issue,...). The CableCo should detail clearly the eventual financial impacts of applying such procedure.

Mobistar fully supports the regulators proposal (cf BIPT decision §81) to have access to all existing speed profiles (former ones and existing ones on the retail market) and a limited number of specific profiles for Mobistar.

Mobistar considers that to have 8 different speed profiles should be enough. This would mean 4 speed profiles for offers available on the market and 4 profiles for previous offers.

4.4.3 Traffic routing

This chapter addresses how internet traffic from/to Mobistar broadband customers will be handled.

4.4.3.1 Description of the solution

The picture below specifies 3 possibilities for IP traffic routing from DOCSIS network towards internet.

At the left side (1), there is the Telenet proposal using a GRE tunneling solution and requiring a premium DOCSIS modem and tunnel concentrator. As already explained in chapter §2.2, Mobistar does not accept this solution which is clearly over-engineered. This solution is also discriminatory since it requires a premium DOCSIS modem capable of managing GRE tunnels and to support the additional workload. Furthermore Telenet is not using this architecture for its own retail customers.

In the middle (2), both the Tectéo/Brutélé/Voo & Numericable proposals concentrate a standard DOCSIS modem into a Virtual routing instance (VRF) that will route the traffic to the AO/OLO point of interconnection. Mobistar is basically in favor of such solution.

Mobistar is ready to discuss another optional step of simplification (3):

A full simplification would be the possibility to use Mobistar public addressing on the current CMTS using the existing routing from the CableCo and the internet from the CableCo. In such case, the CableCo also manages the routing of the Mobistar internet Broadband customers towards internet via CableCo peering agreements. The traffic related to the Mobistar service (VoD over IP, EPG over IP,...) will be routed towards Mobistar (private network at first glance). CableCo will have to provide information about volume usage & legal intercept on behalf of Mobistar.

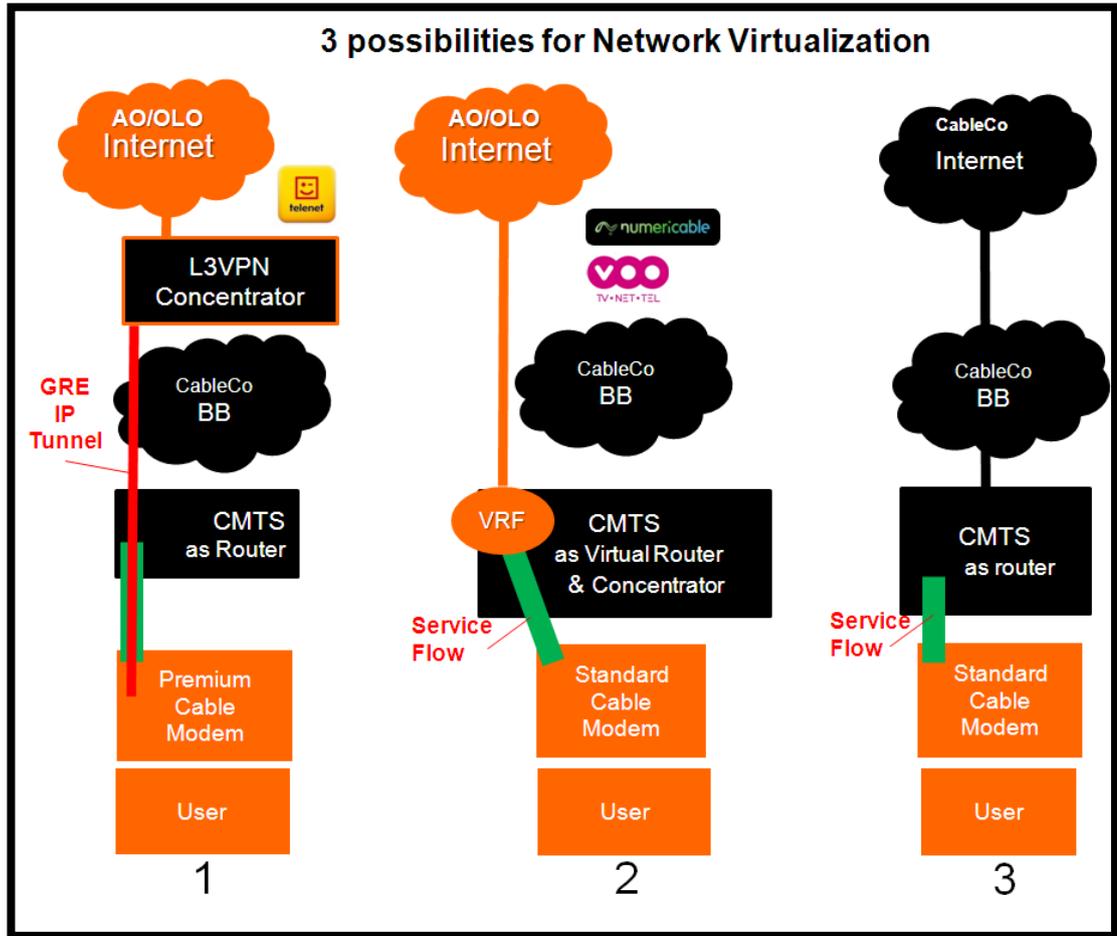


Figure 33: Broadband Internet Traffic routing

4.4.3.2 Pro's & Con's

Mobistar is expecting to have at least the solution (2) implemented (VRF) and to have internet transit/peering by the CableCo as an optional service.

	Pro's	Con's
CableCo	<ul style="list-style-type: none"> Public IP addressing decoupling between CableCo and OLO networks by VRF⁵¹ No complex design architecture and extra costs due to GRE tunneling etc... 	<ul style="list-style-type: none"> Limited impact on CMTS configuration Third solution imposes CableCo to perform traffic reporting and legal intercept for Mobistar
OLO	<ul style="list-style-type: none"> Regular DOCSIS modem No concentrator (second and third solution) Easy implementation (second and third solution) Can deploy redundancy on the CableCo backbone 	<ul style="list-style-type: none"> First solution is depending on tunnel concentrator prone to congestion Last solution is fully dependent of internet peering contract from CableCo.

4.5 Video On Demand services

As mentioned in chapter 2, most of the CableCos propose very complex solutions to let the OLO offer Video On Demand Services. Most of the time, these solutions are based on the sharing of EDGE QAM resources. This implies a lot of integration with Resources Managers, Streamers, encryption solutions etc... Other (Telenet) propose to share their Video Server and to reuse their VoD storage, streamers and portal what leads to other difficulties enumerated in previous chapters (CMS integration with the STB, trick-play, ...).

Mobistar is convinced that this is too complex for offering On Demand services.

Coditel has taken care of this complexity in its offer by enabling the possibility to offer Video services over Broadband IP via DOCSIS 3.0 (Over The Top Services).

4.5.1.1 Description of the solution

Mobistar is in favour of using Over The Top Video technologies for interactive services such as Video On Demand , Catchup-TV etc...

There will be absolutely no impact on existing Cableco VoD solutions, nor IT interfaces, nor DVB, nor CableCo decoder.

The Mobistar Videos will be transmitted via the internet broadband DOCSIS 3.0 access with progressive download technologies. Mobistar is already using this approach with a successful customer experience today.

The principle is quite simple: the customer orders a movie on the Mobistar VoD portal available over the Internet. The Mobistar TV decoder starts downloading the movie from Mobistar video file servers (https download) via DOCSIS Broadband internet link. As soon as the TV decoder has loaded enough movie data in its memory, it will start playing the movie on the customer TV screen. When watching the movie, the movie download continues in the background. From a customer experience point of view, more than 80% of the customer has to wait maximum 20_seconds before the start of their movie.

⁵¹ VRF : Virtual Router Forwarding (instance)

We are clearly in favour of doing VoD over Internet broadband access over DOCSIS .3.0

Mobistar is convinced that the impact on the CableCo DOCSIS network will be very limited..

Telenet announced in its last investor communication that on each optical node, there are on average 740 homes passed (=connectable households), among 550 are active Digital TV Telenet customers and 350 customers have an active Broadband connection.

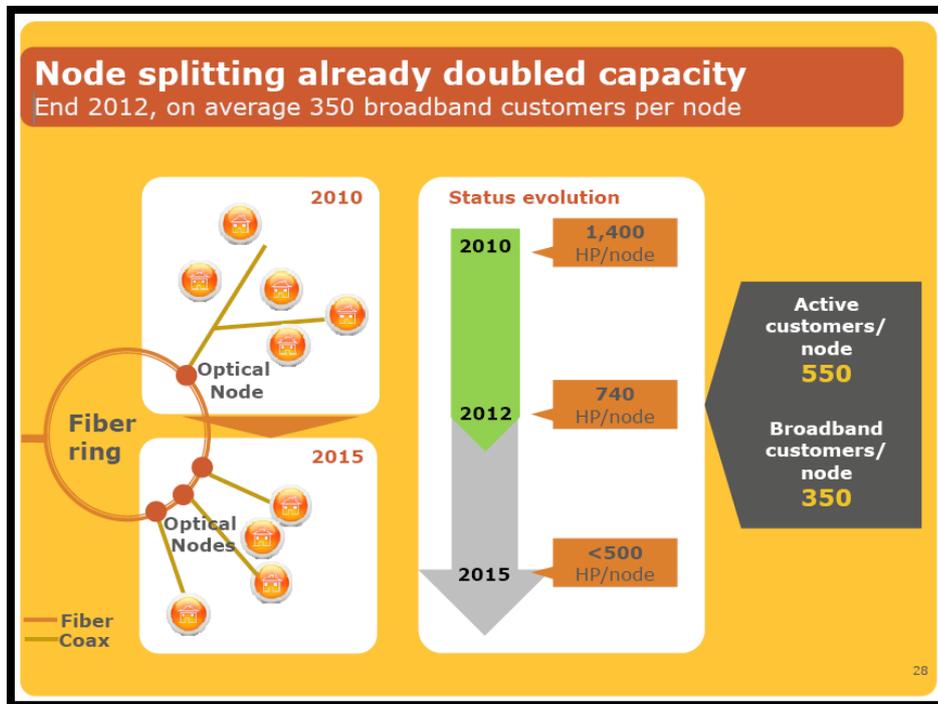


Figure 34: Telenet network design evolution

All CableCo in Belgium are already offering internet broadband connections at 100 Mbps speed downstream. This means that most of them have already allocated at least 4 RF channels to downstream (min. 200Mbps channel bonding) as Telenet indicates in its presentation. Thus 350 active broadband users are sharing minimum 200 Mbps.

Assuming Mobistar could get maximum 20% of the market from the cable competitors, this implies there will be $20\% * 550 = 110$ new Digital TV customers.

Market figures have shown⁵² that maximum 5% of the total Digital TV customer base are doing Video On Demand service at the same time (generally Saturday night 20h-21h). That means there will be statistically maximum 6 extra VoD sessions at the same time on one Optical Node on the DOCSIS broadband IP network.

⁵² Orange France & Mobistar have a peak ratio today around 3% of total Digital TV customer base. This on-peak figure should not be mixed with the VoD active customer average ratio that is 15-20% on total customer base today.



A typical VoD content is encrypted with H.264 Standard Definition with 2.5Mbps speed profile, which generates a maximum total of 16 Mbps on this Optical Node (if simultaneous watch). These 16 Mbps are to be compared with the minimum 200 Mbps already available for the overall traffic, which is almost not significant (8% of total traffic). Progressive download will acts as a bursty traffic and not a constant streaming traffic easier to manage.

Mobistar also highlights that 1) the market encoding standards are rapidly evolving towards better efficiency and 2) the bandwidth allocated per Optical Node will increase overtime (when Internet offer of 200+Mbps will be proposed) thus lowering even more the OTT VoD impact. New Codec H.265 aka HEVC is just standardized and promises to reduce again the network requirements (Equivalent quality H.264 2.5Mbps video encoded with HEVC will require 1.5 Mbps).

In case of temporary network congestion, the progressive download mechanism will ensure the VoD service continuity and will not affect the customers on the optical node.

Mobistar is willing to share its VoD forecasts to support CableCos DOCSIS traffic engineering.

For Modular CMTS, the market today is offering very competitive pricing. The cost to transport 50 Mbps Video On Demand payload data over IP DOCSIS is cheaper than the costs to transport 50 Mbps Video Oon Demand over EDGE QAM + Streamers + Resource Managers.

The volume used for VoD (MegaBytes) cannot be counted as general Internet customer traffic and must be invoiced separately as it should be done if EDGE-QAM technology would be used. We remind that in this specific case the volume is not important but the EDGE-QAM resource is a static allocation of bandwidth during the movie duration. It is easy to identify clearly the Mobistar VoD traffic based on server IP addresses and therefor not to take this traffic into account in the invoicing.

4.5.1.2 Pro's & Con's

	PRO'S	CON'S
CableCo	<ul style="list-style-type: none"> No specific implementation required. 	<ul style="list-style-type: none">
OLO	<ul style="list-style-type: none"> Time To Market Totally independent from CableCo architecture: DRM, VoD portal, resource management,... 	<ul style="list-style-type: none"> No real quality of service. In case of strong Broadband IP network congestion, the customer will have to wait for a longer time (progressive download)

4.6 Operational aspects

4.6.1 Installation processes

4.6.1.1 General Principles

As a general, overruling principle, Mobistar insists on the need to have one **unique installer, certified by the CableCos, doing the entire work** We remind the reader that the certified Technicien shall be able to manage Simple Network Adaptation that covers most (at least 95%) of the user installation cases (install a new NIU, adapt the SNR, etc...). There will remain some cases where coordination between the CableCo and the Mobistar certified technician are needed. In this aspect we also would like to stress the importance of unifying the way that information is going to be exchanged between installer and The CableCo.



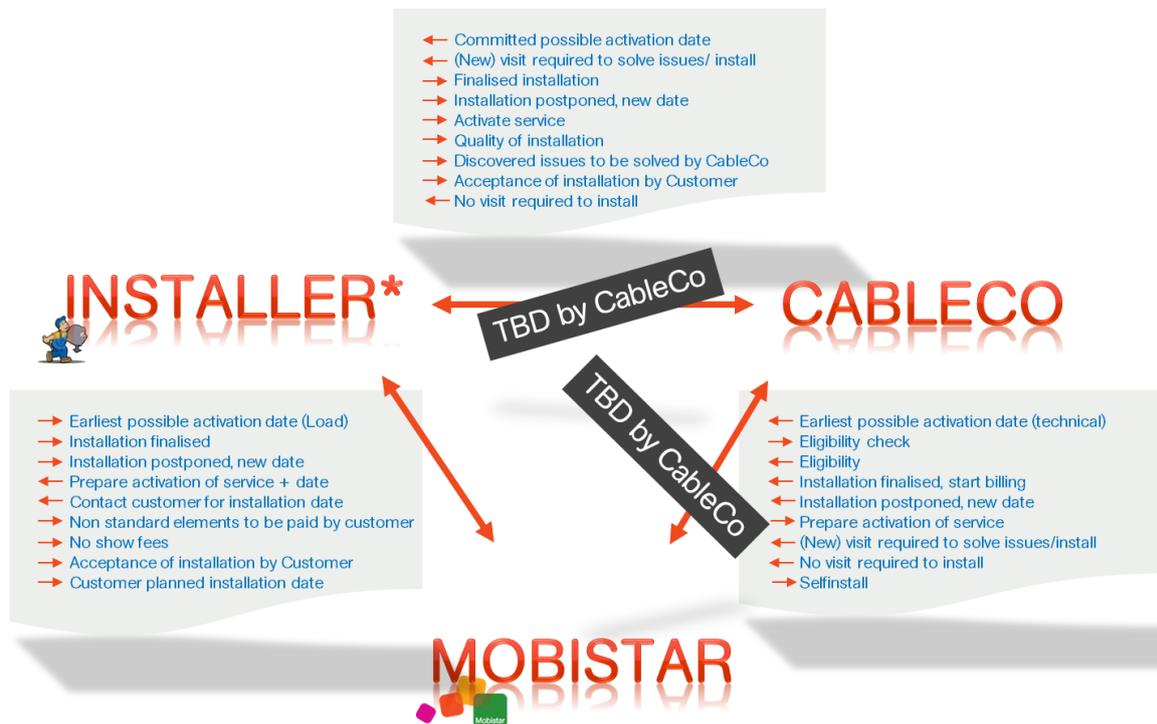


Figure 35: Installation process

4.6.1.2 Visit of an installer needed/ required

Based on the actual situation of the customer, Mobistar needs to receive the appropriate information from the CableCo to make sure that Mobistar can offer a “selfinstall” option to Mobistar’s customers. “Selfinstall” should be evident in case the customer is already enjoying a similar offer from The CableCo. “Selfinstall” on the other hand might not be allowed if the NIU needs to be absolutely installed by The CableCo.

The CableCo should be able, via eligibility tool, to give this information (Simple Network Adaptation is sufficient, or bigger Network Adaptation requiring coordination) based on information that can be provided by the beneficiary customer in an easy manner:

- First name, last name
- Address
- Phonenumber
- Current or known latest active TV provider
- Current or known latest active Internet provider

The order-in-take module receives information from the Installer allowing the definition of an installation appointment directly in the shop. This information will typically be a combination of technical leadtimes and installer’s load. Technical leadtimes should be provided by the CableCo and installer’s load by the installer. If the customer does not have all information at hand to propose a date, the Installer will contact the customer at the latest 2 working days after the order intake to make the appointment.

In case an installer is needed but if this was not foreseen at order intake, the Installer contacts the customer to make an appointment.

In case an installer is no longer needed, the installer contacts the customer at the latest 3 working days before the planned installation date to confirm or not the installation date.

The notification of those changes and the confirmation/deletion of the appointments are sent via an automated interface to Mobistar and the installer. This interface needs to be further detailed by TheCableCo. The planning of the installer needs to be done by the installer.

The installer needs tools to :

- troubleshoot the installation at customersite and CableCo network (to be provided by CableCo)
- finalise the installation at customersite and CableCo network (to be provided by CableCo)
- define a feasible installation date based on it's own load and efforts needed at CableCO network (to be provided by CableCo)

4.6.1.3 Change of appointment date by the customer

If the customer needs to change the appointment date, the customer can contact Mobistar installer to replan the date. Those changes are to be communicated to Mobistar via an automated interface (see 4.6.1.1).

4.6.1.4 Change of appointment date by the installer

If the installer needs to change the appointment date, the installer contacts the customer at the latest 3 working days on beforehand to replan the installation date. These changes are communicated to Mobistar via an automated interface (see 4.6.1.1).

4.6.1.5 Installation at Appointment date

This is the Mobistar installer that will manage the customer installation end-to-end even in case of Small Network Adaptation etc... (NIU install etc...)

The Mobistar installer sends a reminder SMS/email 2 days before the installation.

30 minutes before installation the installer contacts the customer via phone.

4.6.1.6 The installation

The installer performs a "standard" installation. This standard installation includes all works that are "reasonably" required to make the service work. Under "reasonably", Mobistar understands all works till the NIU (NIU included), , on the beneficiary's site, 10 meter of coax with x amount of wholes, including 10 meter of network cable. Mobistar does not consider powerplugs, wallplugs, ... as being part of "reasonably" . The installer needs to define in detail what a "standard" installation comprises and what needs to be paid for all the extra's that a Mobistar customer can require.

If the customer requires other non standard elements, the customer is informed upfront about the related charges by the installer and signs upfront for agreement.

At the end of the installation :

- the quality parameters needed to define a good installation are filled in by the installer in a tool. The quality parameters and their values need to be defined by the CableCo. Those parameters need to be communicated towards Mobistar via an automated interface interface and towards the CableCo using their tools.
- The installer confirms the installation in a tool. The information that the installation is properly finished by the installer is also sent to Mobistar via an automated interface.
- The customer confirms acceptance of the installation by a written signature, which is also transmitted to Mobistar via an automated interface (which needs to be defined by The CableCo).

- Extra elements (non “standard”) are approved by the customer and sent via an automated interface to Mobistar.
- The installer activates the service and gives a quick start introduction.

4.6.1.7 Issues during installation

If the installer cannot finalise the installation, the installer informs Mobistar about the reason of non termination of the installation + the proposed solution date via an automated interface.

If the solution does not require a further visit to the customer premises, Mobistar is informed specifically about this. If the CableCo solved the issue, Mobistar is informed via the automated IT interface (to be defined by CableCo)..

If the solution requires a further visit to the customer premises the next appointment is made immediately on the spot, and Mobistar is specifically informed about this. At the next appointment the installation should be finalized.

4.6.2 Forecasting

4.6.2.1 The level of detail of the forecast

Although Mobistar understands the need for The CableCo to have some information on the beneficiary’s forecast, such information may not be misused as a way to hamper the beneficiary’s commercial activities. Such abusive use of forecasts was made in the past by Belgacom in the frame of the provision of Belgacom’s regulated wholesale products⁵³ and should not be repeated in this matter.

The type of forecast and level of detail required must be comparable to what the CableCo’s retail arm is providing and must be justified from an operational point of view.

We invite the regulators to carefully assess the justification of the forecasts to be provided.

4.6.2.2 The variation of forecast

The variation allowed between two rolling forecasts must be enough in order to allow the beneficiary to adapt its forecast based on the changing market situation. In the context of broadband services overly strict variation rules have led to the absurd situation in which the initial forecasts of some OLO were totally wrong and where the OLO could not correct these forecast afterwards as these corrections were beyond the allowed variations.

In addition, the automatic correction mechanism of the SLAs⁵⁴ applied by Belgacom in case of incorrect forecasting was leading to a situation in which there was no SLA obligation anymore which annulled the utility of the SLAs in the first place.

Again, we ask the regulators to apply the lessons learned in the frame of the operational difficulties encountered in the validation of the forecast mechanisms in the context of the regulation of Belgacom.

⁵³ We also refer to Section 6 *Annex B: Abuses* of the forecast mechanism where we describe the difference of level required details while the OLO has to provide figures compared to when the information had to be provided by Belgacom and validated by the OLO.

⁵⁴ We refer to the so-called “*under-runs*” and “*over-runs*”.

4.6.3 Eligibility tool

The first step of the sales process is to evaluate the customer eligibility as the operator has to verify if he can offer the fixed package to a specific customer.

We underline that it is critical that the answer provided to the customer by Mobistar's point of sale is correct and accurate regarding the feasibility to activate the end-user at his address. In order to do this, a real-time eligibility tool is required. Mobistar therefore must have online access to the CableCo's database for customer eligibility for any service that can be offered.

Mobistar's sales-staff must be able to know which services are available at the customer location. Mobistar should be able to determine what eventual technical adaptations (Small Network Adaptation) are required for the customer installation in order to be able to correctly inform the customer on the available services and eventual costs.

Evidently, the eligibility tool must be accurate enough to avoid erroneous sales and it must be available 24h/d, 7d/week in order to make it available for web sales. Strict SLAs and penalties are mandated to guarantee the necessary availability.

In order to ensure a good customer experience and reliability, Mobistar is expecting as a minimum to receive, besides all products & services available for the end user:

- analogue TV access,
- DVB-C available channels,
- DOCSIS upstream & downstream speed availability,
- NIU presence
- ...

In the case there is an existing DOCSIS modem already in place, the following information regarding the RF line quality is also required:

- Modem Tx Upstream, Rx Downstream
- Downstream SNR and Upstream SNR (Signal to Noise Ratio)
- Time Offset (round trip delay)

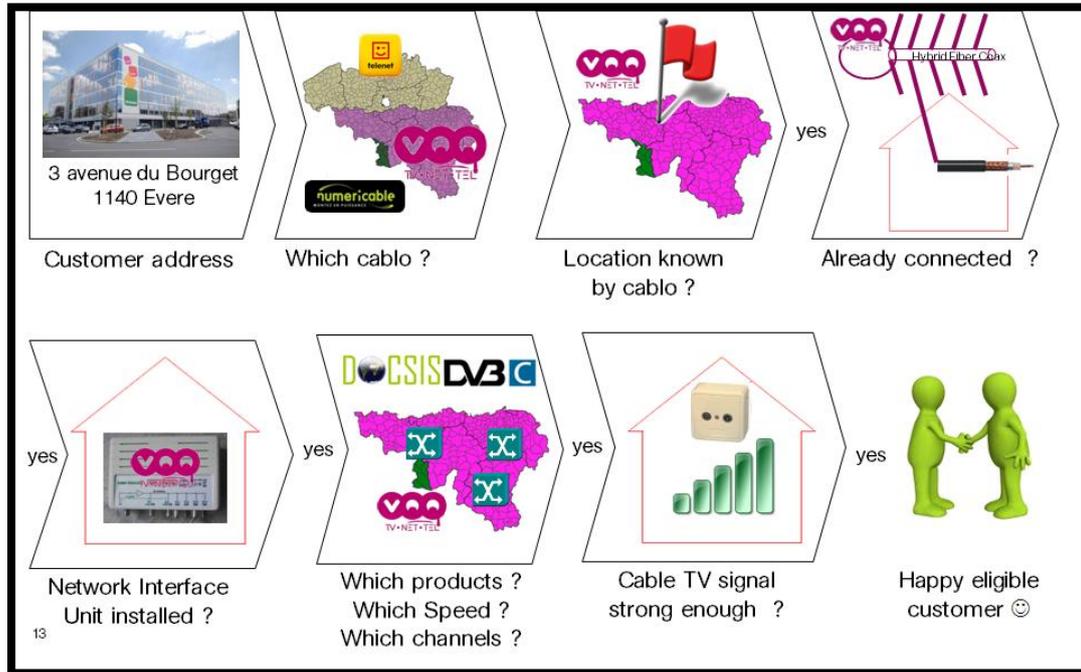


Figure 36: Customer eligibility

A common interface for all CableCo should be defined which can be used by Mobistar to obtain all technical information on the feasibility to activate a service for a customer based on the customer’s home address.

4.6.4 IT Interface & provisioning flows

Most of the cableCo proposals are CableCo centric where multiple AO/ALO will have to connect to.

National Coverage will impose AO/OLO to interconnect to all the CableCo operators present in Belgium.

Referring to earlier comments, low-level interfacing with clear demarcation points are easily possible because these are clearly defined in standards like Simulcrypt and DOCSIS.

This allows to avoid complex proprietary API interfaces defined by the CableCos and allows a better Time To Market and cheaper solutions.

The proposed solution is illustrated below. The Mobistar Backoffice (CRM / BSS / OSS) owns all Mobistar customer contractual information. This Mobistar backoffice manages the Mobistar CAS server for TV bouquet on one side, and Mobistar DOCSIS provisioning server on the other side.



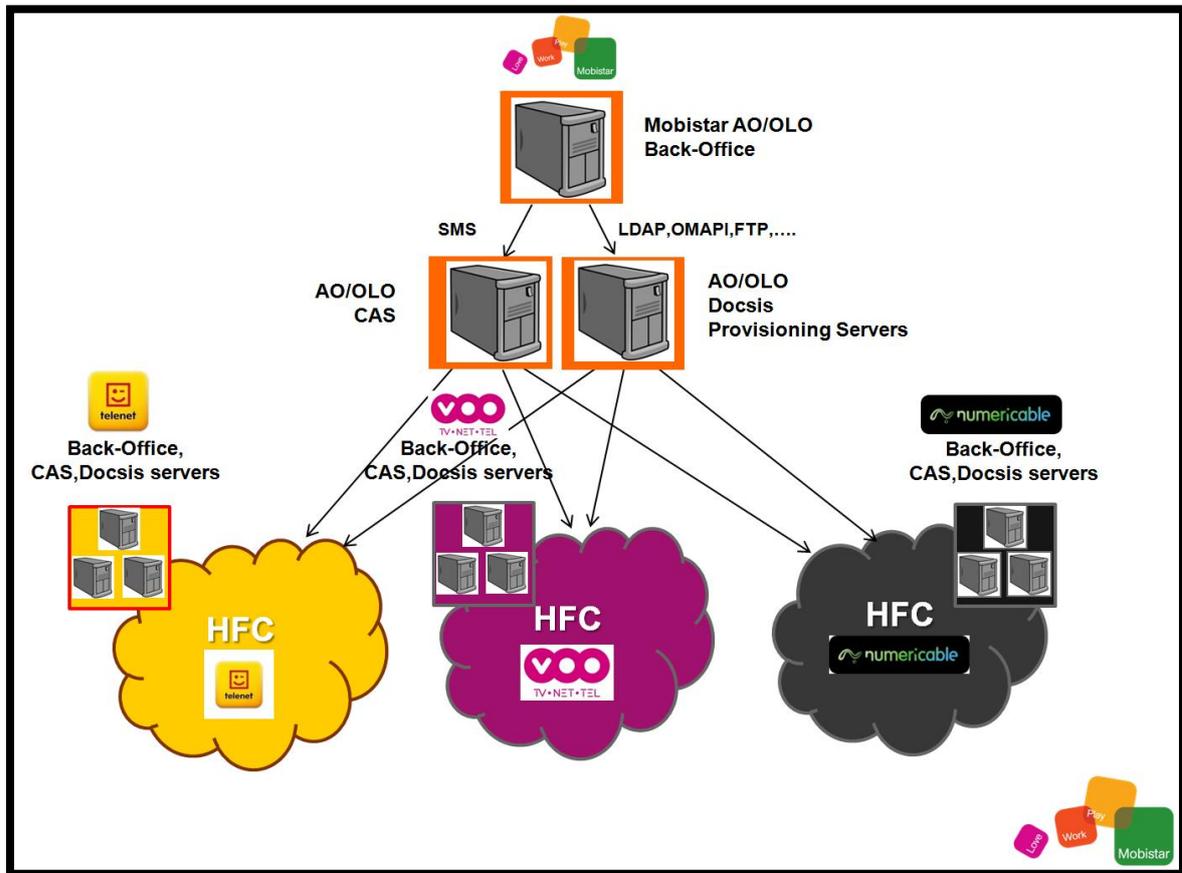


Figure 37: General Backoffice systems

It is clear that:

- Point of Sales tools and ordering are under Mobistar responsibility
- Provisioning is under Mobistar responsibility (TV CAS & Broadband DOCSIS Services)
- Wholesale billing is under CableCo responsibility with Mobistar check-up
- DOCSIS modem monitoring is under CableCo responsibility, with the possibility for a Mobistar view for troubleshooting.
- Troubleshooting with Mobistar customers is under Mobistar responsibility.
- Third level troubleshooting is under CableCo responsibility.
- Technical troubleshooting is under CableCo responsibility and subordinated to Troubleshooting from Mobistar
- Population synchronizing (Customer offers inventory) & Forecasting to CableCo is under Mobistar responsibility
- Network capacity planning is under CableCo responsibility with Mobistar check-up

Mobistar is willing to discuss further details of the simplification process that are not in this document.

We suggest that the few following principles should apply :

- Back-Office independence

- Independent auto-addressing and auto-configuration of the modems
- Synchronisation of DOCSIS Modem Private IP address DHCP servers (White list becomes blacklist of the other DHCP Servers)
- CMTS delta configurations
- Virtual routing per preference
- Standard low-cost DOCSIS modem (no premium device with tunneling etc...)
- Eligibility tools transparency
- Troubleshooting easy interfaces
- Troubleshooting easy reporting
- Monitoring by CableCo

Some further detail regarding some of these points :

Independent Back-offices :

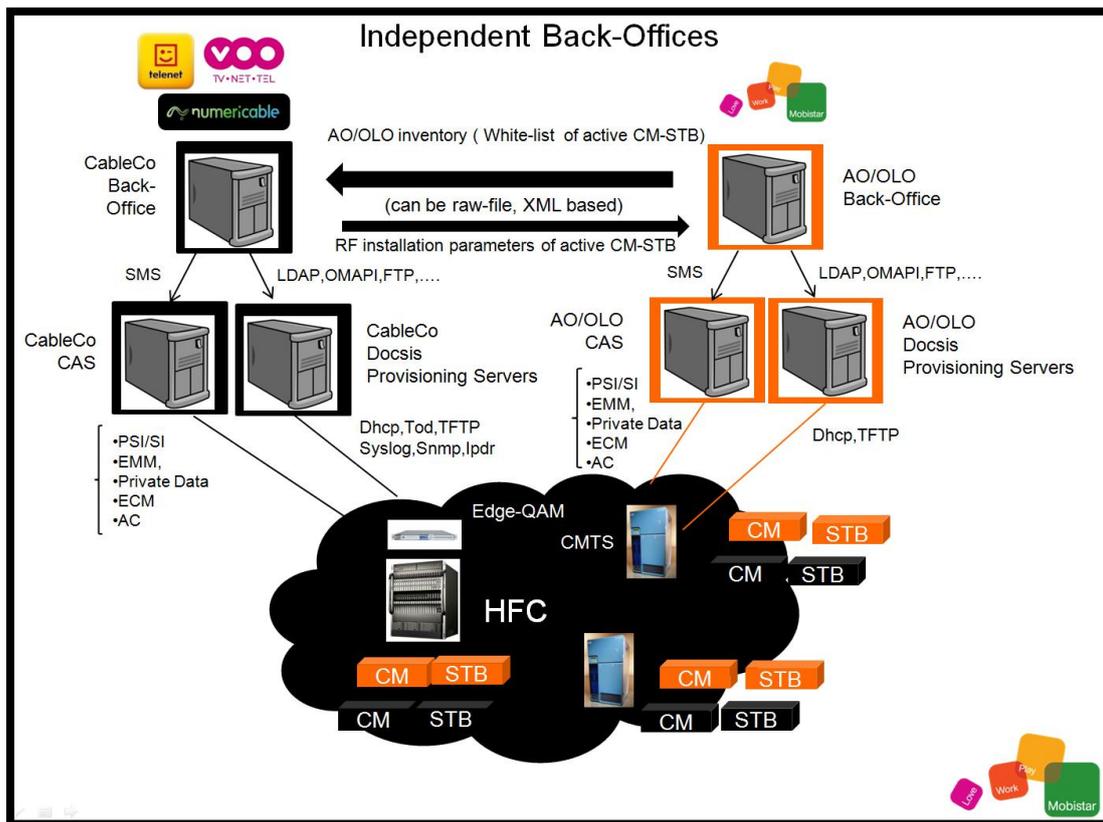


Figure 38

Each CableCo has its own back-office to manage both its TV and Broadband customers.

Mobistar Back-office will be an Add-on on the existing HFC network connecting via VLAN all the CMTS and all the CAS MUX/encryptor in real-time.



Limited extra-info to be exchanged at the start of operations, such as:

- CAS presence announcement (PSI/SI) and channel definition (Access Criteria)
- DOCSIS IP subnets on the HFC side and Uplink to the AO/ALO Point Of Presence (POP)

Mobistar will inform at high level all the new pending activations and will receive confirmation of the availability and line quality after checking the eligibility.

Troubleshooting by Mobistar, CableCo troubleshooting subordination

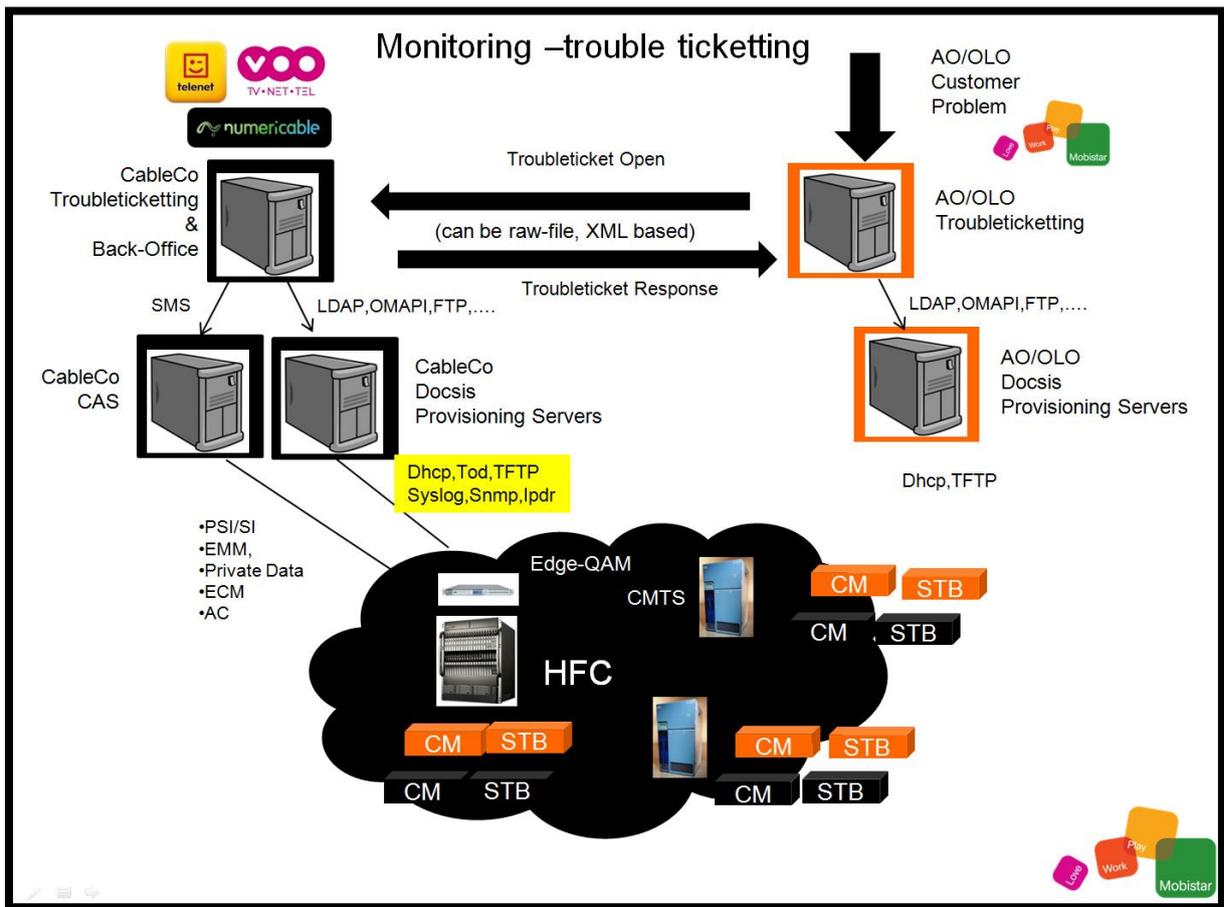


Figure 39: customer monitoring & trouble ticketing

In case of problems, Mobistar is the first party to receive the complaint. Mobistar should be able to check quickly the modem status via the monitoring tool from the CableCo (can be a regular Web interface with restrictions to Mobistar modem IP address) and get an history of the modem activity and problems (Flapping list, RF parameters evolution ...).

Mobistar will open a ticket to the CableCo waiting for an acknowledgement and a status of the troubleshooting.

A summary of what Mobistar expects as a minimum info exchange for the troubleshooting is below (to be discussed): this can be simple raw file format (CSV, XML format)

Remark:



- RTD= Round Trip Delay; special measure by DOCSIS CMTS during Ranging process.
- SNR= Signal To Noise Ratio
- US= Upstream
- DS= Downstream
- Tx/Rx= Transmit/Receive

Transfer of info

Eligibility tool:

- DVB CAS services: MUX & E-QAM ID, Line Quality
- BB Services: CMTS ID, Line Quality (Tx/Rx, SNR US/DS, RTD)

New User activation: White list (for DHCP Server Sync, Monitoring & Wholesale Billing)

- Modem Mac Address
- IP Address
- Services Class
- CMTS ID
- Start Date/Stop Date

TroubleTicketing:

- Modem Mac Address
- IP Address- Services
- Class-CMTS ID
- Start Date/Stop Date-
- Mobistar Customer ID
- Mobistar Ticket ID
- Initial RF levels at the installation (Tx/Rx, SNR US/DS, RTD)



We believe that workshops must be organized, without further delaying the start of the implementation, in order to agree -based on standards- on the best way to implement the proposed simplifications.

4.6.5 Change management

Mobistar confirms the requirement that any change in the regulated offers must be approved by the different regulators before being effective. Similar to what has been done in the frame of the regulated alternative to multicast⁵⁵, a list of all potential changes that can occur in the offers with their respective notification period should be foreseen.

⁵⁵ BIPT Multicast decision 04/10/2012, §13.4 –& §13.5



The CableCo must also plan the necessary testing and validation period before the implementation on the field of changes that can affect the beneficiaries.

We hereafter give a non-exhaustive list of changes that must be documented:

Related to TV

The CableCo should describe the timing for notifying the changes regarding the content of TV bouquets:

- Addition of a new Analogue TV channel. Mobistar requests at least 3 months in order to complete the rights negotiations with the new channel. Please refer to chapter 4.2.1 for Mobistar's proposal regarding analogue TV regulated bouquet.
- Removal of an existing Analogue or Digital TV channel: 1 month notification before CableCo notifies its own customer is enough for Mobistar to prepare the communication towards its own end customers.
- Stopping all analogue TV services: Minimum 24 months are required to prepare the full migration to Digital TV.
- Any new TV channels available in DVB multiplex should be communicated to Mobistar as soon The CableCo decision to add the channel is taken.
- Change in the DVB multiplexing or Audio/Video CODEC: at least 6 months in order to eventually update & prepare the Mobistar TV decoder.

Related to DOCSIS

All details about any change inside the internet broadband access offer: addition, change or removal of speed profiles, change in the DOCSIS infrastructure, standards (e.g. migration to DOCSIS 3.1.), etc... must be notified to Mobistar as soon the decision is taken by The CableCo and at least 3 to 12 months in advance depending on the impact of the changes.

Related to IT interfaces & processes

Any change on the IT interfaces, processes and provisioning tool must be communicated between 3 to 12 months in advance to Mobistar depending on the impact of the changes.

Exactly as it was detailed for the Regulated Wholesale IPTV Multicast offer, Mobistar requests, from each CableCo, a detailed table with all potential changes/update that can occur on the regulated offers including severity, potential impacts and notification period.

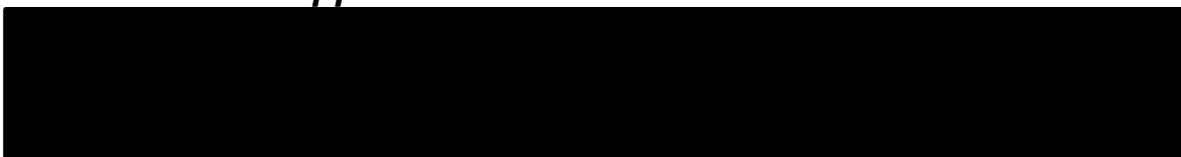
4.6.6 KPIs , SLAs & Penalties

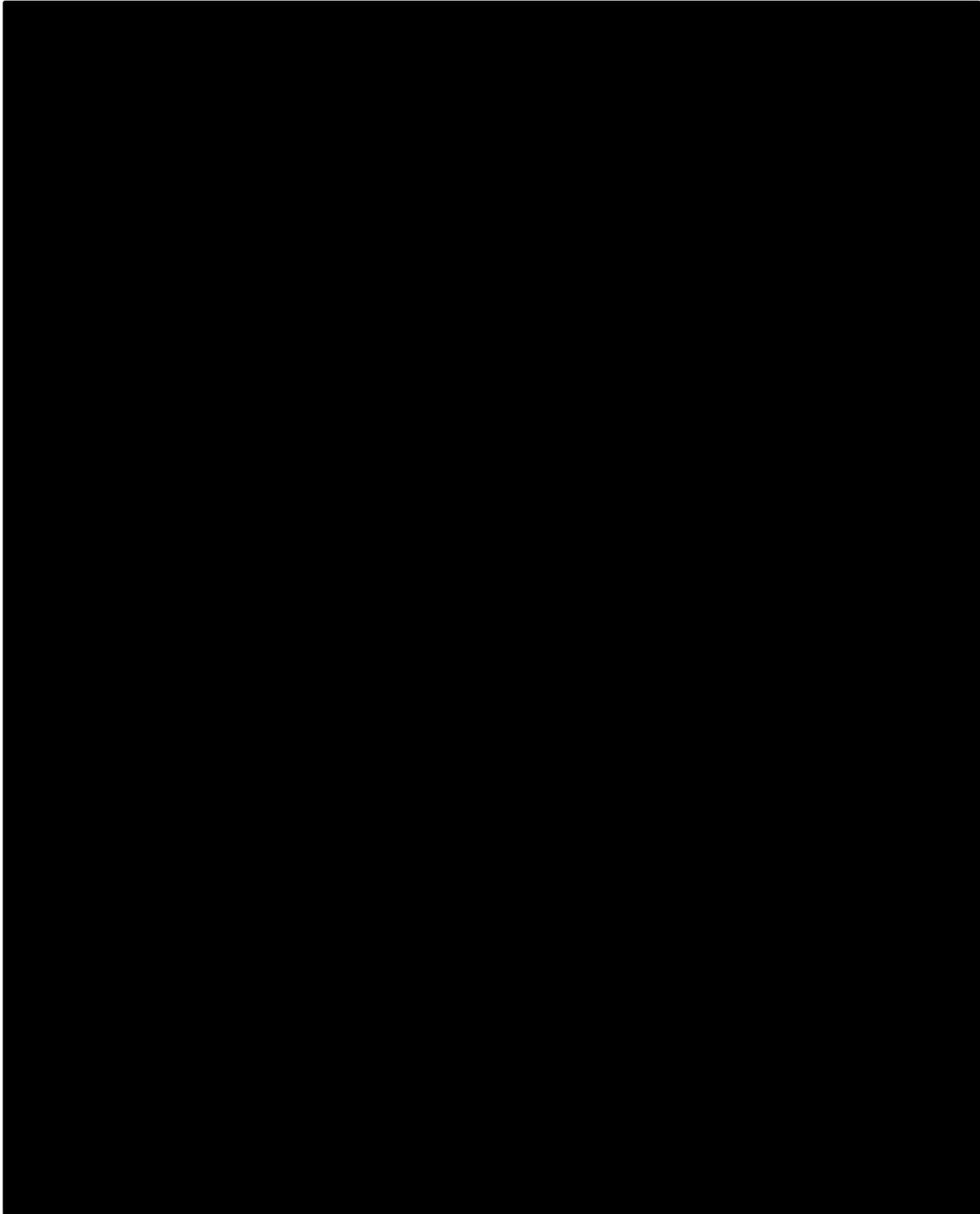
Mobistar first stresses fact that a SLA should cover much more than (a part of) the provisioning process and repair. See section 3.3.2.4. for this discussion.

In light of above simplifications however, the CableCo's SLA for provisioning will need to be reviewed completely with a strong focus on the eligibility tool (availability and quality of information) and the provisioning in case of 'BNA' (Big Network Adaptations at the side of the CableCo's).

SLA requirements (incl. KPI and penalties) for repair, IT, QoS and escalation will remain as discussed before.

4.7 Alternative approach





5 Annex A: Overview of the necessary elements for a reference offer.

Hereafter is the list of elements Mobistar considers to be required in order to have a complete reference offer. Some elements listed hereafter need to be further detailed. These additional elements are mainly consisting of the planning and governance aspects.

Introduction		
	General information provided, respect of wholesale principle	
Price		
	Regulated wholesale pricing	We should know all pricing details
Planning, availability & wholesale conditions		
	Preliminary conditions for contract	Wholesale conditions must be approved by regulators. There must not have others exotic constrains
	Contract procedure	Must be fair and realistic
	Time To Market	Must respect regulatory planning (T0+6months)
	Responsibility boundaries	Cablo is fully responsible of its own HFC network from Mobistar inteco's until Network Interface Unit (NIU - when there is one) installed at customer premises. Mobistar is responsible for valude added services servers & clients, including internal house cabling, decoder, modems,...
	Implementation testing & Validation	A clear process of implementation with required validation testing and phases must be described and should be non discriminant
	Security	Chinese wall seperation between wholesale & retail departments is mandatory in cablo organisation
Commercial		
	Customer onwership	Mobistar has the full customer ownership
	Order entry & Point of Sales tools	Mobistar uses its own ordering entry tool in Mobistar shops.
	Multiplay package definition	Mobistar defines its own multi play pakcages
	Customer acquisition & contract	Mobistar contract one stop shopping

	Customer offer pricing	Mobistar defines its own packages pricing
	Network access eligibility tool	Mobistar must have online access to Cabo's database for customer eligibility for any services offered by the cabo. Mobistar salesman must be able to know which services are available for the customer location. Mobistar should see what eventual technical adaptations (Small Network Adaption or Big Network Adaptation) are required for the customer installation and at which costs to answer correctly the customer. Eligibility tool must be accurate enough to avoid bad sales
	Non discriminant offer	Same service, same SLA's, same footprint, same quality...
	Volume forecasts	Mobistar will share on quaterly basis its volume forecasts to cabo for each product line (analogue, Digital TV & Broadband) for each CableCo
Content		
	Analogue TV rights	Mobistar agrees to manage the TV rights. However, Mobistar is willing to have also access to regulated TV content package.
	Digital TV rights	Mobistar agrees to manage the TV rights. However, Mobistar is willing to have also access to regulated TV content package.
	On Demand TV rights	Mobistar agrees to manage the TV rights. However, Mobistar is willing to have also access to regulated TV content package.
	Author rights & taxes	Mobistar manages Sabam, Auvel, contribution etc...
	Access to Analogue TV channels	Mobistar can reuse existing analogue TV channels in its offers delivered by cabo
	Access to Digital TV channels	Mobistar can reuse existing digital TV channels in its offers delivered by cabo
	Digital TV encryption	Mobistar must be able to use its own conditional Access (incl. smartcard) with Simulcrypt standard. Cabo retransmits Mobistar CAS keys (EMM's & ECM's) transparently. Mobistar can deploy minimal CAS infrastructure in Cabo headend's (collocation)
	TV Bouquet definition	Mobistar defines its own bouquet & channel ordering
	TV Service plan	Cabo broadcasts Mobistar service plan on DVB-C (via Private DVB payload)

	TV channels encoding & broadcasting	Cablo sources TV channels, encodes signals (MPEG2/4), prepares DVB multiplexing and manage completely DVB-C broadcasting
	Teletext, EPG EIT, audio dubbing & subtitles	Mobistar can reuse these extra data when available in DVB-C multiplexes. Cablo's must provided them when legally mandatory
	Parental control	Parental control mechanism should prevent access to some channels without a PIN. Must be managed in CAS
	Extra Mobistar specific TV channel	Mobistar should request cablo to transport a reasonable number of Mobistar specific TV channels
	On Demand content selection	Mobistar is free to select its own VoD/Catch-up content and make them available to their customers decoder via cablo operator network
Products & Services TV		
	TV Decoder, UI & branding	Mobistar uses its own TV decoder (could be certified by external parties) with Mobistar UI.
	Interactive TV platform	Mobistar reuses its existing TV platforms: EPG, Mobistar widget, VoD portal, search...
	Companion device	Mobistar proposes its own companion device / multiscreen experience (remote recording etc...)
	TV return path	TV Interactivity traffic and on demand content go over DOCSIS IP Broadband network and internet service flow dedicated to Mobistar: -Via TV decoder having internal DOCSIS cable gateway (preferred) -Or Via external DOCSIS cable gateway (more complex install)
	Video On demand	Mobistar can streams its on demand content via IP DOCSIS and progressive download. MPEG-4 files will be even smaller than MPEG-2 files as used today by cable operators on EDGE QAM. (increase efficiency).
	Switched Digital Video	Mobistar has access to cablo Switched Digital Video platform (EDGE QAM) if used by cablo's long tail TV channels via IT & streaming interface.
Products & Services Broadband		
	Access to Broadband IP network	Cablo's shares its DOCSIS network infrastructure with Mobistar and aggregates all Mobistar users IP traffic and send it to Mobistar interco.
	DOCSIS modem	Mobistar uses its own DOCSIS modem (certified by Eurodocsis)

	Broadband management customer	Customer Authorization/Authentication/Accounting are controlled by M*
	DOCSIS modem provisioning & configuration	Cable modems are auto-configured based on DOCSIS standards. DOCSIS provisioning server framework standard should be followed. DHCP, TFTP servers shall be managed by Mobistar, user information should come from Mobistar. Configuration files are managed by Mobistar and validated with CableCo. CableCo has always the possibility to check and see what's happening on network on its management platform.
	Broadband market offer definition	Mobistar defined its broadband offer based on existing cabo's speed profiles downstream/upstream and data volume offer.
	Specific Mobistar DOCSIS profiles	Mobistar can request cabo to create some reasonable specific Mobistar DOCSIS profiles
	DOCSIS modem trouble shooting	Mobistar has a view on its DOCSIS modems installed base and status (SNMP...) for supervision, monitoring and customer troubleshooting
	Telephony service	Telephony service is managed by Mobistar "Over The Top", including all legal and technical obligations (interco, itnercept,...)
	IP addresses	Mobistar customers use Mobistar public IP address
	Internet traffic routing & interco	Mobistar routes its customer traffic to internet, including legal interception etc... Optionally, the Cableco proposes to manage internet peering and traffic.
Billing		
	Information about user activities (IP, VoD,...)	Mobistar and Cabo exchange every day records & inventory user base for wholesale billing
	End user invoicing and billing	Mobistar manages the customer billing and invoicing (one stop shopping)
	Wholesale settlement	Cabo sends monthly invoices to Mobistar for wholesale service with all details
Customer journey		
	Customer provisioning tools	Mobistar uses its own ordering tools, provisioning & activation database. They are connected with Cabo's IT system for access & activation
	IT interface	IT interface based on XML standard is used to exchange cable access orders, status etc... Ideally, ther should be a

		common IT Interfaces for all cabo's
	Customer installation organisation	Mobistar manages the installation process & direct communication with end customer (visit agenda, ...). There is no direct contact between cabo's and end user without clear notification to Mobistar
	Unique installation visite with certified Technician	Mobistar should be able to make a commercial deal with companies already working for cable user installation to also support Mobistar customer installation. Thus, if Small Network Adaptation us required, only one technician visit can manage everything, including CPE's installation and configuration
	In-house installation	This is the responsibility of Mobistar technician. The technician could be certified by cabo with clear procedure, cost & details. Cabo can recommends best practice usage for house cabling, including some technical references for in-house coaxial network extension
	Customer installation for house already connected to cable	Installation is possible by Mobistar certified technician if coax cable is already in household and known by cabo. Cabo must not impose a visit in this case.
	Customer installation not yet connected to cable network	In case of Simple Network Adaptation, Mobistar certified technician first installs new coax cable upon end user request before activate Mobistar cable process, in coordination with CableCo.
	Customer Move (same network)	Managed by Mobistar with certified technicians (deactivation old address + activation new address)
	Customer cancellation	Managed by Mobistar with certified technicians
	Customer upgrade	Managed by Mobistar with certified technicians
	Customer transfert	Seamless migration between operators (cfr. Water/gas/Electricity)
	CPE's logistics	Certified Mobistar technicians brings all required CPE's to customer.
	TV service (De)activation	Mobistar (de)activates the smartcard into M* CAS system
	BB service (De)activation	Mobistar (de)enables the modem gateway in Mobistar backoffice
Operations		
	Network supervision & monitoring	Cabo monitors and operates its HFC network, infra & services from Mobistar interfaces until all customers NIU

		24h/24 7d/week.
	SLA's & KPI's + penalties	KPI's are measured and followed. Monthly reporting are sent to Mobistar. Penalties are defined.
	Gouvernance	Regular Operational Steering committee Mobistar + Cabo
	Customer trouble shooting	Mobistar will do customer trouble shooting for value added service. For broadband service, only basic connectivity tests would be achieved by Mobistar. Trouble ticketing process & tools will be organised with cabo.
	FrontOffice	Mobistar manages First Line support (admin & technical questions / issues)
	BackOffice	Mobistar manages Second line support
	Third line support	Mobistar can open and manage trouble ticket for cable related issue (DOCSIS service quality, TV signal quality,...)
	Preventive maintenance	Cabo notifies Mobistar 2 weeks in advance for preventive maintenance that will disturb cable services.
	Change Management	Cabo notifies Mobistar 3 months in advance any change in the TV channels list or broadband profiles adaptation. Cableco shall define the different level of changes that can occur on field.
	Escalation process	Escalation procedure will be defined between parties
	Masasive migration process	Cabo should foreseen massive migration process to support the arrival of existing OLO's customers . Could be in batch

6 Annex B: Abuses of the forecast mechanism

This annex provides a comparison of the level of detail when the OLOs had to provide the forecast and since Belgacom provides a forecast for approval by the OLO.

It is striking that when to OLOs had to provide the details of the forecasts, they had – until the end of 2009 - to provide 984⁵⁶ different values. After a first simplification this astronomic number was reduced to “only” the 504 values required for the customer operations forecast (cfr also images below).

⁵⁶ Sum of values required in “Planning & Field Operations forecast” and “Customer Operations forecast”

Planning & Field operations forecast: 40 telephone zones x 6 months x 2 (ADSL/ADSL2+) = 480

Customer operations forecast: 7 areas x 12 months x 3 (BROBA ADSL, BROBA ADSL2+, BRUO) x 2 (with/without visit) = 504

Forecasting Template for Broba II and BRUO Orders

Customer reference :													
Reception date :													
Month M _j :													
Edition :													
2. "Customer Operations" Forecast													
Service :		BROBA ADSL (wv + wov)											
	Telephone Zone	M _{t+1}	M _{t+2}	M _{t+3}	M _{t+4}	M _{t+5}	M _{t+6}	M _{t+7}	M _{t+8}	M _{t+9}	M _{t+10}	M _{t+11}	M _{t+12}
Customer Visit	Sub-area 1.1												
	Sub-area 1.2												
	Sub-area 2.1												
	Sub-area 2.2												
	Area 3												
	Area 4												
	Area 5												
	TOTAL	-	-	-	-	-	-	-	-	-	-	-	-
No Customer Visit	Sub-area 1.1												
	Sub-area 1.2												
	Sub-area 2.1												
	Sub-area 2.2												
	Area 3												
	Area 4												
	Area 5												
	TOTAL	-	-	-	-	-	-	-	-	-	-	-	-
Service :		BROBA ADSL2+ (wv + wov)											
	Telephone Zone	M _{t+1}	M _{t+2}	M _{t+3}	M _{t+4}	M _{t+5}	M _{t+6}	M _{t+7}	M _{t+8}	M _{t+9}	M _{t+10}	M _{t+11}	M _{t+12}
Customer Visit	Sub-area 1.1												
	Sub-area 1.2												
	Sub-area 2.1												
	Sub-area 2.2												
	Area 3												
	Area 4												
	Area 5												
	TOTAL	-	-	-	-	-	-	-	-	-	-	-	-
No Customer Visit	Sub-area 1.1												
	Sub-area 1.2												
	Sub-area 2.1												
	Sub-area 2.2												
	Area 3												
	Area 4												
	Area 5												
	TOTAL	-	-	-	-	-	-	-	-	-	-	-	-
Service :		BRUO (Raw Copper + Shared Pair)											
	Telephone Zone	M _{t+1}	M _{t+2}	M _{t+3}	M _{t+4}	M _{t+5}	M _{t+6}	M _{t+7}	M _{t+8}	M _{t+9}	M _{t+10}	M _{t+11}	M _{t+12}
Customer Visit	Sub-area 1.1												
	Sub-area 1.2												
	Sub-area 2.1												
	Sub-area 2.2												
	Area 3												
	Area 4												
	Area 5												
	TOTAL	-	-	-	-	-	-	-	-	-	-	-	-
No Customer Visit	Sub-area 1.1												
	Sub-area 1.2												
	Sub-area 2.1												
	Sub-area 2.2												
	Area 3												
	Area 4												
	Area 5												
	TOTAL	-	-	-	-	-	-	-	-	-	-	-	-

Figure 40: Template for Customer Operations forecast

Forecasting Template for Broba II Orders

Customer reference :	
Reception date :	
Month M_i :	
Edition :	

1. "Planning & Field Operations" Forecast

Service :	BROBA ADSL (wv + wov)					
Telephone Zone	M_{i+1}	M_{i+2}	M_{i+3}	M_{i+4}	M_{i+5}	M_{i+6}
050						
051						
056						
057						
058						
059						
09						
052						
053						
054						
055						
03						
015						
011						
012						
013						
014						
016						
089						
02						
010						
060						
064						
065						
067						
068						
069						
071						
081						
04						
019						
061						
063						
080						
082						
083						
084						
085						
086						
087						
<i>TOTAL</i>	-	-	-	-	-	-

Figure 41: Template for Planning & Field Operations forecast (note only BROBA ADSL is represented)



Since Belgacom provides a forecast⁵⁷ which is validated or amended by the OLOs, only 84⁵⁸ different values are required (cfr. images below).

Forecasting Template for BRXX and WBA Orders										
Customer reference:										
Edition:										
Split: With or Without customer visit										
Reception date:										
Telephone Zone	M ₁	M ₂	M ₃	M ₄	M ₅	M ₆	M ₇	M ₈	...	M ₁₂
Sub-area 1.1										
Sub-area 1.2										
Sub-area 2.1										
Sub-area 2.2										
Area 3										
Area 4										
Area 5										

Figure 42: Forecasting Template for BRxx and WBA Orders

It is striking to note that the level of detail is now much lower than before. Taking into account Belgacom's attitude with *overruns* and *underruns* and the fact the figures provided for the *Planning & Field operations forecast* and the *Customer operations template* were checked against each other to verify that there was no discrepancy at all (cfr Figure 43), we wonder to which extent such obligation was not (at least) disproportionate for the OLOs and to which extent this might be considered as a form of operational discrimination between the alternative operators and Belgacom's retail arm.

⁵⁷ We also refer to Belgacom's Flash message dd 08/10/2010 14:37 – Subject: 5018PROJECT&PROCESS - BROBA/BRUO/WBA/CARRIER DSL/Launch of the "Open Calendar" project.

⁵⁸ Forecasting template for BRxx and WBA Orders: 7 areas x 12 months



Differences between

1. "Planning & Field Operations" Forecast
- and
2. "Customer Operations" Forecast

Service :	BROBA ADSL (wv + wov)					
Telephone Zone	Mi+1	Mi+2	Mi+3	Mi+4	Mi+5	Mi+6
Sub-area 1.1	-	-	-	-	-	-
Sub-area 1.2	-	-	-	-	-	-
Sub-area 2.1	-	-	-	-	-	-
Sub-area 2.2	-	-	-	-	-	-
Area 3	-	-	-	-	-	-
Area 4	-	-	-	-	-	-
Area 5	-	-	-	-	-	-
TOTAL	-	-	-	-	-	-

Service :	BROBA ADSL2+ (wv + wov)					
Telephone Zone	Mi+1	Mi+2	Mi+3	Mi+4	Mi+5	Mi+6
Sub-area 1.1	-	-	-	-	-	-
Sub-area 1.2	-	-	-	-	-	-
Sub-area 2.1	-	-	-	-	-	-
Sub-area 2.2	-	-	-	-	-	-
Area 3	-	-	-	-	-	-
Area 4	-	-	-	-	-	-
Area 5	-	-	-	-	-	-
TOTAL	-	-	-	-	-	-

Figure 43: Coherency check between Planning & Field operations forecast and Customer operations forecast