



PÓST- OG FJARSKIPTASTOFNUN

Decision no. nn/2018

**Míla conditions for IPTV over Access
Option 3 (Market 5/2008)**

nn April 2018

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1 Introduction

Míla ehf. (Míla) terms and conditions for IPTV on Access Option 3 and amendments to conditions of Míla reference offer for bitstream access related to the service here under discussion, are based on those obligations imposed on the company with the Post and Telecom Administration Decision no. 21/2014 on designation of an undertaking with significant market power and on the imposition of obligations on the wholesale market for access to local loops and bitstream, dated 13 August 2014.

The Míla draft of additions to the reference offer for bitstream access for IPTV service on Access Option 3 was submitted for national consultation last 13 December and this consultation lasted until last 5 January. No material objections were received, but Vodafone requested further explanations on specific technical issues. Míla replies were sent to Vodafone for comment, and the company considered them to be adequate. The explanations in question have now been included in the conditions of the reference offer.

A draft of this Decision was sent to ESA and to other regulatory bodies in the EEA for consultation on last xx.zz, see provisions of Paragraph 1 of Article 7 of Act no. 69/2003 on the Post and Telecom Administration and Article 7 of the EU Framework Directive. The consultation ended last xx.zz and the PTA has received the ESA opinion which is included in Appendix II to this Decision.

The following Sections cover the legal grounds, methodology and calculations that led to the PTA conclusion.

1.1 PTA Decision no. 21/2014

With the PTA Decision no. 21/2014, dated 13 August 2014, the PTA designated Míla as an undertaking with significant market power on the market for wholesale network infrastructure access at a fixed location (Market 4/2008) and on the market for wholesale broadband access (Market 5/2008).

With the authority in Article 28 of the Electronic Communications Act the PTA imposed an access obligation on Míla with respect to bitstream access. Míla was obliged, among other things to offer bitstream access with specific quality definitions, including access which uses significant bandwidth and which made high demands on quality for TV distribution over IP (IPTV).

With the authority of Article 29 of the Electronic Communications Act the PTA imposed an obligation on Míla to maintain transparency in wholesale sales of access to bitstream. Míla was obliged to publish a reference offer for bitstream access, among other things with technical descriptions and tariff, and to maintain and update them as required.

With the authority in Article 32 of the Electronic Communications Act the PTA intends to impose an obligation on Míla for price control for bitstream access with DSL technology (such as according to VDSL and ADSL standards). Míla was to submit its wholesale tariff for access to bitstream at various locations on the network in accordance with specified access options to the Administration for endorsement, where variations in bandwidth and quality are also taken into consideration.

In the Decision it was stated that it was to be ensured at any given time that the Míla tariff included all the wholesale bitstream service on offer from Míla to related companies, including multicast that enables IPTV service. Furthermore, Míla was obliged to review the product offer

in its tariff in step with market requirements at any given time and if reasonable requests were received in accordance with the access obligation. All additions and amendments to the tariff were to be endorsed in advance by the PTA and were not to come into force until such endorsement had been given.

In the main, the following structure for Mila bitstream service should be applied:

- a) Access with large bandwidth without quality definitions (Best Effort) for general Internet service.
- b) Access with large bandwidth with high quality requirements (QoS) for IP television distribution (IPTV) with multicast technology.
- c) Access to large bandwidth with high quality requirements (QoS) for IP video rental (VoD) with interactive bitstream transmission.
- d) Access that uses little bandwidth but makes high-quality requirements for IP fixed telephony service (VoIP).

The above delivery of bitstream through copper local loops (DSL technology) with varying quality control and performance should be on offer at different locations on the network in accordance with Access Options 1-3 in the following manner:

1. In DSLAM or equivalent equipment at the place where the copper local loops connect to the telephone exchange distribution frame, street cabinet or other equipment space (Option 1).
2. By ATM/IP transmission in the Síminn trunk network, i.e. transmission of signals from DSLAM to the connection point of another electronic communications company with the ATM/IP trunk line network (Option 2).
3. After transmission with ATM/IP on the Síminn trunk network to the connection point of another electronic communications company with the previously mentioned network (Option 3).

This Decision covers access for items b) and c) on Access Option 3.

Other decisions that have been taken in connection with the decision on market analysis and SMP designation on markets 4 and 5, no. 21/2014 are:

- 29/2014 – Amendments to the Reference Offer for bitstream, introduction of vectoring (19. November 2014) - ESA case no. 76297
- 41/2014 – Tariff and conditions for VDSL+ for corporate connections and domain and ports for interconnection (23. December 2014) - ESA case no. 76462
- 18/2015 – Modification of reference offer for bitstream access with regard to tariffs and conditions for ADSL+ and SHDSL+ at Access Option 1 (14. July 2015) - ESA case no. 77546
- 9/2016 – Wholesale market access to local loops in Iceland, Reference Offer (9. August 2016) - ESA case no. 79335
- 5/2017 – Review of the Mila wholesale tariff for copper local loops (30. May 2017) - ESA case no. 80606

- 6/2017 – Review of the Mila wholesale tariff for bitstream access (30. May 2017) - ESA case no. 80608
- 10/2017 – Review of the Mila reference offer for wholesale bitstream access (3. July 2017) - ESA case no. 80773
- 24/2017 – Review of the Mila wholesale tariff for fibre optic to street cabinets and fibre optic in the access network (15. November 2017) - ESA case no. 81255
- 27/2017 – Conditions and wholesale tariff for Mila's IP telephony service provided at a fixed location at Access Option 3 (22. December 2017) - ESA case no. 81373

1.2 Facts of the case

With an email dated 29 November 2016, the PTA sent Mila questions about technical solutions in providing IPTV on Access Option 3. The following day, 13 November 2016, Mila replies were received where it was stated that matters to be resolved were significant and among other things, largely involved bandwidth and the cost of transit of large data volumes across the country, for example as a result of the enlarging of trunk line connections that this entailed.

During the review of the Mila reference offer for bitstream access during the first half of 2017, Mila and the PTA agreed that the work on elaborating conditions for IPTV on Access Option 3 would be postponed until there was a review of the general conditions and until work was completed on prices and conditions for new bitstream products and for transfer of VoIP connections over to Access Option 3.

In an email dated last 2 November, the PTA asked Mila to deliver the conditions for IPTV on Access Option 3 and at the same time that it had been decided to delay cost analysis and price decisions for such IPTV until a normal and reasonable request was received from a party requiring access.

Last 12 December, Mila conditions for the bitstream service in question were received. They were submitted for consultation on 13 December and this consultation lasted until last 5 January. No material objections were received but one party requested further explanations on various technical issues. These requests were sent to Mila for comment and Mila's replies were then received last 16 January. The consulted party was sent Mila replies last 17 January and on last 23 January an email was received from the consulted party to the effect that the Mila replies were adequate. The PTA required from Mila that the relevant text in the conditions be rewritten in such a manner that the detailed explanations would be included in the text of the conditions, and the revised conditions were received by the PTA last 15 February.

2 Amendments to the Mila reference offer on bitstream access

The PTA endorses the following amendments to Appendix 5 of the Mila reference offer for bitstream access with respect to conditions for IPTV service on Access Option 3. There is a new subsection added to Section 6 in the Appendix on Access Option 3 which will be Section 6.3 in the revised reference offer and will be as follows.

6 Access Option 3

6.3 Bitstream access for IPTV

6.3.1 General description

IPTV on Access Option 3 (A3) means transit of both multicast and unicast from central PoIs (Point of Interconnection to various Access Options) through a backbone network for bitstream service and to an end user. This is transit of shared TV channels and streaming traffic from the service purchaser TV centre through the Mila trunk and access networks. The service is thus intended for distributors of TV material for them to transfer their service from central servers to end users.

All the same limitations and conditions apply for IPTV on Access Option 3 as apply to other access options.

IPTV through A3 gives Mila's service purchasers the option of distributing their IPTV service at all locations where Mila has installed IP DSLAM equipment and where IPTV service is already on offer. When a new location is configured for IPTV service then IPTV service over A3 is included automatically unless specified otherwise.

The service thus provides access to the whole country which means that it is not possible to select individual locations or areas for IPTV service over A3.

The service is offered on ADSL2+, VDSL2 and GPON connections on Mila's access systems.

The maximum number of channels to end users is the same as on other access options, i.e. 5 (apart from ADSL lines where the service on offer is either 1 HD channel or two standard SD channels).

The service is received at the end user through a router to a set-top box (STB), but it is also possible to connect the STB directly to ONT equipment in the case of GPON.

6.3.2 Technical description

6.3.2.1 Unicast

Unicast is used for transit of control and streaming traffic from the service purchaser TV centre through the Mila trunk and access networks.

- The service is configured as a L2VPN private network in the trunk line network, i.e. one private network for each service purchaser. It is delivered to the service purchaser with either single or dual-tagged VLAN configuration in STP. A special VLAN is designated for each backbone network POP. When the service is being introduced, it is decided which option is appropriate in each instance.¹
- The service purchaser can connect to the network at two locations or more to take in part of POPs at each location or use redundancy (e.g. HSRP/VRRP) to protect the main connection point.

¹ Mila allows for the use of one E-LAN service for each service purchaser with VLAN separation within the service between connection points. The service purchaser therefore, always receives POP VLAN (C-VLAN) on the centre connection. The service purchaser will nevertheless have the option as to whether the "transport VLAN" (S-VLAN) is also tagged to it (i.e. Dual-tagged) or whether it is stripped and the service purchaser only receives the internal VLAN in STP (i.e. single-tagged).



- Unicast service has Priority 3, both in the trunk network and access network, i.e. has higher priority than Internet traffic.
- Bandwidth of a service purchaser's unicast traffic is measured where the interconnection between Mila and the service purchaser takes place. What is called the 95% rule is recommended. (https://en.wikipedia.org/wiki/Burstable_billing). In the case of two or more interconnections, traffic is measured on each interconnection and then they are added together to find the total traffic. It is the responsibility of the service purchaser to ensure sufficient bandwidth at interconnections.

6.3.2.2 Multicast

Multicast is used for transit of shared TV channels traffic from the service provider TV centre through the Mila trunk and access networks.

- The service purchaser specifies the bandwidth he considers he will need for distribution of multicast and it is the responsibility of the service purchaser to order sufficient bandwidth. The minimum bandwidth that a service purchaser can reserve in the trunk network is 100 Mb/s but never more than 600 Mb/s.² Mila reserves the right to discard all traffic in excess of purchased minimum bandwidth.
- Service is delivered to the service purchaser on one VLAN.
- The service is configured as L3 multicast VPN (mVPN) private network in the trunk network i.e. one private network for each service purchaser.
- Multicast service has Priority 4, both in the trunk network and access network, i.e. has higher priority than Internet and unicast traffic.
- The service purchaser must receive authorisation from Mila when new multicast IP addresses are to be added, as care has to be taken that MAC addresses do not conflict with MAC addresses already in use (for Multicast@->MAC@ folders in ALS and DSLAM). Because of limits to the number of multicast IP addresses in IP DSLAM equipment, Mila reserves the right to limit the number of addresses for each service purchaser. A service purchaser shall provide information on the size of each TV streaming to enable correct configuration in the Mila system.

6.3.3 Introduction of service

After an order has been received from a telecommunications company for IPTV over A3, preparation work and the introduction phase commences with the involvement of the electronic communications company in question, Mila technicians and trunk network technicians. This phase involves design, introduction and finally testing of the service. According to the circumstances it could be necessary to increase the capacity of individual connections and/or replace trunk network equipment. The service purchaser shall nominate a technical contact who works with Mila technicians on introducing the service.

The service purchaser has to specify where he wishes to connect to the Mila trunk network. If an existing interconnection will not be used then the service purchaser must order, an interconnection. Possible interconnection locations for IPTV service are limited to Mila's largest technical facilities in Reykjavik and to the Mila technical facility in Akureyri (AKUR). Mila reserves the right to demand that a service

² This is only a reference and should not hinder normal development of TV service. If a reasoned request for more bandwidth is received, Mila will give it consideration. One can expect there to be a need to review the tariff and to increase the capacity of trunk network connections concurrently with this increase in size. Mila however assumes that a service purchaser will employ the newest technology coding to limit the cost of TV streaming to the extent possible.

purchaser installs a geographically distributed system for unicast service if its scope has become of a significant size.³ Mila recommends that a service purchaser use separate interconnections for transit of IPTV. It is also recommended that a service purchaser has at least two connections to the trunk network (see Figure 2).

The service purchaser and Mila need to agree on the VLAN ID to be used for the service.

The service purchaser needs to provide the size (Mb/s) of each and every IPTV stream, both in multicast and unicast. All changes in the size of streams must be notified.

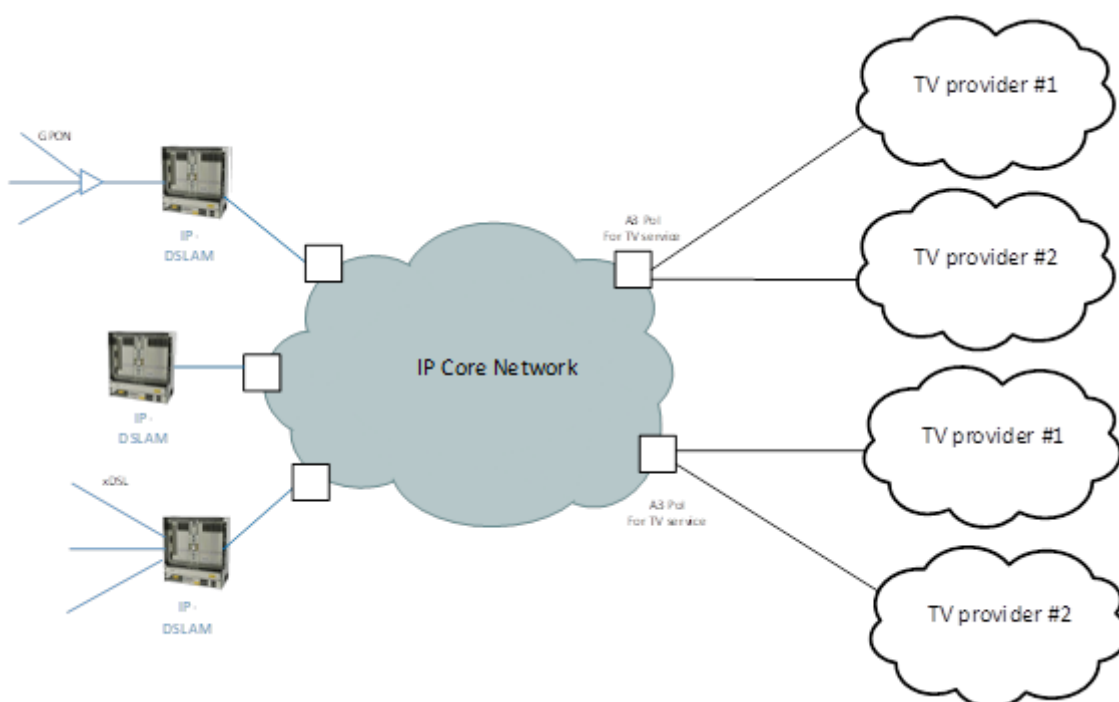


Figure 2: Interconnection points for IPTV over A3.

6.3.4 Arrangement for charging

- Setup charge:
 - A setup charge must be paid for the service. The setup charge is for costs incurred in the introduction of the service on Access Option 3.
- Monthly charge for ports in STP:

³ Mila presumes that a service purchaser will configure unicast IPTV server(s) with distributed architecture when one can, with such implementation, save 1-2 Gb/s of traffic on the Fibre Optic Ring from the Capital City Area. The purpose of such an arrangement is to reduce traffic from the Capital City Area and thus make savings in connection costs, which is in the interests of both the service purchaser and the service provider i.e. resulting in lower costs. Mila assumes that the service purchaser will see an advantage in configuring distributed architecture to reduce costs of IPTV distribution which would appear in the next cost analysis of the system.

- A monthly charge is paid for ports in Mila equipment for interconnections. Mila provides optical units in Mila equipment while the service purchaser provides optical units at his end of the interconnection.
 - See further in Section 8.1.3 in Appendix 1 – Tariff
- Reserved bandwidth in trunk network – Multicast:
 - Service purchaser specifies the bandwidth estimated for multicast. This specified bandwidth is paid for on a monthly basis.
- Measured bandwidth in trunk network (95%) – Unicast:
 - Use of unicast is measured at interconnections and is charged as per real use. The 95% measurement is used, see https://en.wikipedia.org/wiki/Burstable_billing
- Multicast, same charge as for multicast on A1 and A2:
 - See tables for multicast in Appendix 1 - Tariff
- Alteration charges after completion of introduction:
 - Work on changes after completion of introduction is charged pursuant to Section 8.6 in Appendix 1 - Tariff

The Decision

The Post and Telecom Administration endorses amendments to Appendix 5 in the Mila reference offer for bitstream access pursuant to Section 2 in this Decision. With the amendments, a new Section no. 6.3 is added to the Appendix entitled “IPTV on Access Option 3”.

The above specified amendments to the Mila ehf. reference offer for bitstream access shall come into force on 1 May 2018.

Mila ehf. shall update Appendix 5 to the company’s reference offer for bitstream access, no later than on the coming into force of the above specified conditions.

This Decision can be appealed to the Appellate Committee for Electronic Communications and Postal Affairs, see Article 13 of Act no. 69/2003 on the Post and Telecom Administration. The appeal shall have reached the Appellate Committee four weeks from the time that the party in question became aware of the Decision of the Post and Telecom Administration. Costs for an appeal are according to Paragraph 5 of Article 13 of the same Act, and in addition to this there is a special appeal charge to the amount of ISK 150,000, pursuant to Article 6 of Regulation no. 36/2009 on the Appellate Committee for Electronic Communications and Postal Affairs.

Reykjavík, xx.april 2018



PÓST- OG FJARSKIPTASTOFNUN

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Appendix I: ESA Opinion