MALTA COMMUNICATIONS AUTHORITY

Broadband QoS Framework – Extended

Decision Notice

MCA/D/16--2691

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1. INTRODUCTION

In January 2012, the Authority published a consultation document titled Broadband Internet – Quality of Service Framework (MCA/C/12-0741[1]) proposing a Quality of Service Framework for Broadband Internet. Following the completion of the consultation process, the Malta Communications Authority (hereinafter 'MCA') published its response to consultation and final decision (MCA/D/13-1475) (hereinafter referred to as Published Framework Decision). This document proposed a **Quality of Service (hereinafter 'QoS') Framework** with respect to fixed broadband Internet services that addresses the following three objectives:

1. the identification of a minimum number of parameters considered as suitable characteristics of a broadband Internet service;

2. the establishment of the relevant methodology to measure these parameters; and

3. the establishment of a set of obligations that became incumbent on Internet Service Providers (hereinafter 'ISPs'. In implementing these obligations, ISPs measure and report the QoS performance of their fixed broadband services. Furthermore, the ISPs publish a Typical Speed Range (hereinafter "TSR") indicating the speed performance offered to their subscribers on the access network.

In July 2016, the MCA published a consultation document proposing a number of changes to the published Quality of Service Framework for Broadband Internet (MCA/C/16-2614)(hereinafter referred to as the Consultation Paper). This Consultation Paper puts forward a number of proposals which will update the Published Framework Decision.

Following the updates, the broadband QoS framework will:

1. Extend the applicability of the framework to all fixed broadband services offered on the market. A broadband service falls within the remits of the QoS framework either if it is offered using fixed broadband technology or if it is sold and marketed as a fixed broadband service.
2. Introduce an exemption mechanism which allows a service provider to request the MCA, under specific circumstances, to exempt its service/s from the broadband QoS framework.

Following the completion of the consultation process, the Published Framework Decision shall be repealed and replaced by the new decision published as part of this document. The updated broadband decision is also renumbered as MCA/D/16-2691.

[1] https://www.mca.org.mt/consultations/broadband-internet-quality-service-framework

The response to consultation related to the Consultation Paper MCA/C/12-0741[2] provides an overview of the consultation conducted by the MCA on the subject matter remains valid within the context of the subject discussed in the consultation paper MCA/C/12-0741.

The MCA takes the opportunity to thank all the respondents for their contributions.

[2] https://www.mca.org.mt/consultations/broadband-internet-quality-service-framework

SECTION 1: RESPONSE TO CONSULTATION

2. FEEDBACK RECEIVED AND THE MCA'S POSITION

This section provides a summary of the feedback received from GO Plc, Melita Ltd and Vodafone Malta Ltd. The responses are grouped together such that they follow the structure of the Consultation Paper.

2.1 PROPOSAL 1: APPLICABLITY OF THE QOS FRAMEWORK

In its Consultation Paper, the MCA proposed that all broadband services which are of a fixed nature either due to the technology used to deliver them or by virtue of the marketing and/or product positioning strategies employed by the ISP should be within the scope of the Framework Decision.

Responses Received

While all respondents welcomed this proposal, the following two main concerns were expressed.

One respondent said that the MCA did not clarify the criteria which will determine whether a broadband product is an effective substitute for a fixed broadband service or otherwise.

A second respondent requested the MCA to take into consideration specific circumstances relevant to a Universal Service Provider (USP) which may be required to deploy a solution based on mobile access network in order to fulfil requests which are not feasible to deliver using traditional fixed network infrastructure. The respondent argued that in view of these particular circumstances it would not be feasible to deploy QoS measurement platforms to measure the performance of these services. Hence, it was proposed that the MCA should provide an exemption from the QoS Framework, or adopt a lighter regime.

MCA Response

With reference to the point raised above, that is, that the Consultation Paper lacks clarity in its proposals, the MCA notes that the Consultation Paper identifies two criteria with which a broadband service can be classified as a fixed broadband service for the scope of the updated decision.

The first criterion is related to technology. The characteristics of a fixed technology are widely known and were already discussed during the consultation process relevant to MCA/C/12-0741. These are also defined in the Published Framework Decision. The proposals laid down in the Consultation Paper will not change any of these definitions.

The second criterion is related to the marketing of the product and the position it enjoys in the market. In its analysis, the MCA will take into account, cumulatively or separately:-

1. Any characteristics attributed to the product which cause it to resemble a fixed broadband service;
2. Any applicable terms and conditions which may render the product similar to a fixed broadband service; and
3. The marketing adopted by the service provider.

With reference to the use of mobile access network in order to fulfil a request for a fixed broadband service which request is being serviced as a result of regulatory obligations arising from the provision of a universal service, the MCA notes the concern raised and understands the specific circumstances under which this service is offered. The MCA considers favourably the proposal to grant an exemption similar to that as proposed in the Consultation Paper provided that the following criteria are met:

1. A request for a fixed broadband service is only serviced over a technology which is not fixed in nature, as a measure of last resort. The provider should, as part of its justification, provide sufficient documentation which justifies the choice of technology and to prove that no other service in the area could have been feasibly offered.

2. The product used to fulfil fixed broadband requests is not marketed in any way by the provider as a fixed broadband service.

3. Speed information related to the product offer must still be offered, in line with the requirements as laid down in the EU Regulation 2015/2120.

2.2 PROPOSAL 2: EXEMPTION MECHANISM PROPOSED

The MCA proposed a mechanism by which service operators may apply for an exemption from the application of the QoS framework in these circumstances, where either the technology in use, or its setup, might restrict the operator from exerting a level of control on the network performance and hence impacting the QoS experience of the end-user. The conditions which are required to be met for a service to be granted an exemption from the framework are:

a) The cause for the lack of control or predictability of the QoS on its broadband network is beyond the reasonable control of the provider, and is neither a limitation arising from contractual obligations that the provider has entered into with third parties nor is it the result of the absence of such contractual obligations. The limitations must likewise not result from a lack of network resources on the part of the service provider;

b) The service is not marketed as a fixed broadband service. In order to meet this condition, the product must neither be marketed as a fixed product, nor be made to look equivalent to, or a replacement of, a fixed broadband service. It may only be marketed as a service which is complimentary to a fixed broadband service; and

c) The service provider adequately discloses any limitations related to the provision of QoS performance. This disclosure should be made both in the advertising material, as well as in more detail in the relative terms and conditions.

Response Received

One respondent argued that since the MCA has already stated clearly the conditions related to the award of an exemption from the broadband QoS framework, it should then consider a mechanism whereby the exemption from the scope of application of the Framework is automatic thus rendering the process more efficient and avoid unnecessary delays. The respondent also argued that Regulation 35 of the "Electronic Communications Networks and Services (General) Regulations", [S.L. 399.28 of the Laws of Malta] (hereinafter "ECNSR"), only regulates the requirements of subscriber "contracts" and not of advertising material.

On the other hand, another respondent agreed with the proposal of the MCA that an explicit exemption from the broadband QoS framework should be granted by the MCA. The respondent also suggested that the MCA should provide sample text which should be included in the terms and conditions of such services.

One respondent argued that providers of such exempted services should not be allowed to advertise headline speeds for such services.

In other feedback received, the importance of enforcement to be carried out by the MCA in order to discourage service providers who wish to enjoy marketing benefits without following obligations related to QoS and transparency was emphasised.

MCA response

The MCA refers to the proposal to adopt an automatic exemption from the broadband QoS framework using the same circumstances identified in the Consultation Paper. The MCA considers the exemption from the broadband QoS framework as the exception, rather than the rule and hence the proposal to grant an exemption through an application reflects this position. With reference to the efficiency of the application process, the MCA will ensure that applications for an exemption will be processed within ten (10) working days provided that the relevant documentation supporting the claim is provided and no further clarifications are required in order to conclude the process. This will therefore ensure that the process is not long. Furthermore, the MCA notes that an application for an exemption can be submitted, in writing, immediately following the publication of this final decision document.

The MCA recognizes that Regulation 35 of the ECNSR regulates the requirements related to the terms and conditions of subscriber contracts, but not to advertisements, which are regulated under a separate law. The MCA contends that in advertising a service, service providers are obliged to

reflect in substance, the terms and conditions laid down in subscriber contracts This is especially relevant in the context of the speed of a broadband connection, since this is one of the primary factors a subscriber takes into account when choosing a broadband package and hence transparency in this regard is of fundamental importance

The MCA does not agree with the proposal which restricts the use of headline speeds in the advertisement of services, which will be exempted from the application of the broadband QoS framework. The MCA notes that the use of headline speeds is optional for all ISPs. Nevertheless, this Decision specifies that whenever an ISP publishes a numerical figure for the advertising speed, it is expected that the setup sold to the end-user should be able to reach that headline speed. The same should apply for exempted services.

Moreover, an ISP may be providing more than one exempted service. Therefore, there should be a clear distinction between such services through the use of the headline information, which could refer to speed.

Furthermore, a service provider remains obliged under EU Regulation 531/2012 to disclose speed information related to the product. In this respect, the exemption granted from the Framework Decision would imply that the provider of an exempted service would not be bound to quote the required figures using the TSR method as established in the decision, but should still apply prudent and realistic figures when providing such information.

2.3 PROPOSAL 3: IMPLEMENTATION TIMELINES

The MCA proposed a time frame, spread over a period of nine months commencing from the publication of the final decision for the implementation of the amended framework as follows:

In the case of fixed broadband services, which are already being offered and which, as a result of these proposed changes, will become subject to the Framework as amended, the following transitory periods were proposed:

1. A nine-month period, starting from the date of publication of the amended Framework Decision is allowed for the implementation of the section titled “Measurement Methodology” and the section titled “Network Performance Parameters”;

2. A four-week period, starting from the date of publication of the amended Framework Decision is allowed for the implementation and publication of Section 9 titled “Service Contract Obligations”; and

3. The MCA also proposed that no transitory period shall be applicable in the case of any service, which is offered subsequent to the publication of the amended Framework Decision;

Response Received

A respondent recognised that the transitory time frames proposed were equal to those given for the implementation of the Published Framework Decision. However, the said respondent, noted that adopting the same time frames even at a time when the content and requirements of the Framework Decision have been known for three years might not be appropriate. The respondent did not provide alternative time frames, however, it is understood that its statement implied that the implementation timeframes as proposed by the MCA were longer than required.

On the other hand, another respondent argued that the time frames provided are deemed too short and suggested that a twelve month period for the implementation of the whole framework and a six week period for the implementation of the TSR would be more appropriate timeframes.

A third respondent did not object to the timeframes proposed by the MCA. It argued however that marketing restrictions should be applied during the transition period. This respondent did not elaborate or provide examples of the marketing restrictions it was referring to.

MCA Response

The MCA is of the opinion that the proposed timeframes are appropriate and will consequently retain the timeframes indicated.

With reference to enforcing marketing restrictions during the transitory period, the MCA notes that no such restrictions were imposed during the transitory period when the original Framework Decision was implemented. The MCA sees no justification to deviate from this position in the case of this Decision and as proposed in the Consultation Paper, it confirms that there will be no marketing restrictions during the transitory period.

In conclusion, the MCA will maintain its original position as laid out in its consultation.

2.4 ADDITIONAL FEEDBACK RECEIVED

One respondent provided feedback indicating that some adaptations to the implementation method as specified in the published decision are required in order to measure the QoS parameters as established in the framework. The feedback provided indicates the need for flexibility in the decision framework in order to reflect the needs of different technologies used to provide the service.

MCA Response

The Authority acknowledges that different technologies may require different methods to acquire equivalent QoS information from the network. Therefore, the MCA considers that it is justified to

include, where appropriate, a level of flexibility in implementation methods outlined in the Decision, without altering the purpose and scope of the Decision Framework.

Section – 2: THE DECISION

3. DEFINITIONS

In this document the following definitions apply:

“Internet Service Provider” (ISP) is an undertaking which provides access to the Internet to its subscribers.

“Point of Presence” (PoP) means an access point which connects an Internet Service Provider to the Internet.

“Subscriber” means any person who avails himself of any contract which is offered by the Internet Service Provider, excluding tailor made contracts.

“Time Consistent Busy Hour” means the one (1) hour period starting at the same time each day for which the average traffic of the resource group concerned is greatest over the days under consideration.

“End user” means any person who makes use of applications which are available over the Internet.

4. LEGAL BACKGROUND

Regulations 39[1] and 39[2] of the ECNSR, empowers the Authority, subject to a public consultation, to require ISPs to measure and publish a set of QoS parameters suitable for the service they offer, which information must be published in a manner which is comparable, adequate and up-to-date.

The provisions in regulations 37 and 39 of the ECNSR state that service and/or network providers must publish the QoS information specified in regulation 39 of the ECNSR in at least the following instances:

1. at the point of sale, either verbally by the representative or through material easily accessible by the subscriber available at the retail outlet; and
2. on a website if the network or service provider owns a website.

Regulation 35[1][b][iv] of the ECNSR requires service providers to include the following information in the contracts concluded with their subscribers:

1. the service availability;
2. the minimum access speed, which should not be significantly lower than the marketed upper limit; and
3. information about the forms of traffic management and other restrictions on traffic which the ISP adopts on its connections.

Regulations 35, 37, and 39 of the ECNSR are equally applicable to ISPs without distinction to the platform over which the Internet service is delivered. Also, regulations 35 and 37 of the ECNSR, do not distinguish between broadband subscribers who avail themselves of contracts offered by the ISPs and those subscribers which negotiate tailor made contracts with the ISPs.

5. SCOPE AND APPLICABILITY

5.1 SCOPE

Without prejudice to the Authority's right to issue further decisions with respect to the implementation of regulations 35, 37 and 39 of the ECNSR in order to extend the scope of Quality of Service Framework, this Decision is limited to:

a) Broadband Internet services which are of a fixed nature. The fixed nature of a broadband service can be determined either through the technology used to deliver the service, or by attributes given to the service in presenting it to the market. These conditions are further described as follows:-

   a. **Technology**: Broadband services provided over fixed broadband infrastructure, which could be either wired or fixed wireless access networks;

   b. **Marketing**: All broadband services, which are actively marketed as fixed broadband services, or which are so designed to serve as a direct replacement to the fixed broadband service shall be, for the purposes of this decision treated as fixed broadband services.

The term **'subscriber'** is restricted to individuals or entities which avail themselves of standard contracts offered by the ISP. Individuals who, or entities which negotiate a tailor-made contract with their ISPs are outside the scope of this Decision.

Other broadband services, which do not qualify under either of the abovementioned categories, are not subject of this decision.

5.2 EXEMPTION

An ISP offering fixed broadband service, which is subject to the Decision as identified in section 5.1 above may request to the MCA, in writing, to be exempt from the provisions of this decision, provided that either or both of the following conditions are met:

1) The network, either inherently or as set up by the ISP has limitations which would not allow the ISP either to have full visibility and control over its network performance or else the same performance is not predictable.

   Provided further that the cause of such lack of control or predictability of the QoS is beyond the reasonable control of the provider and is neither a limitation arising from contractual obligations that the provider has entered into with third parties nor is it the result of the

absence of such contractual obligations. The limitations must likewise not result from a lack of network resources on the part of the service provider;

2) The ISP, in order to fulfil obligations as a Universal Service Provider, fulfils a request for a fixed broadband service using a technology which is not fixed in nature.

   Provided that the ISP uses this technology as a measure of last resort in the absence of other viable alternatives relying on existing fixed broadband services.

   Provided further that the technology in use is not marketed as a fixed broadband product by the same ISP.

On submitting its request for such exemption, the ISP must provide sufficient proof of all the claims raised.

Following the grant of the exemption, the service provider shall ensure that:

1. The service is not marketed as a fixed broadband service. In order to meet this condition, the product must neither be marketed as a fixed product, nor be made to look equivalent to, or a replacement of, a fixed broadband service; and

2. The service provider adequately discloses, in a detailed manner, in the respective terms and conditions, any limitations related to the provision of QoS performance including those used to justify the acquired exemption.. Furthermore, the service provider must ensure that the advertising and marketing material reflect appropriately the content of the same terms and conditions.

Upon receipt of a request from an ISP to exempt a service(s) from this Decision, the MCA shall:-

1. Process the application by examining in detail the claims presented. During this stage, the Authority may seek clarifications from the applicant as necessary;
2. Issue a letter exempting the service provider from the Decision including any conditions which are deemed necessary to safeguard the rights of the end-users, and other market operators; and
3. Publish on its website a notice stating the grant of such exemption.

The MCA shall process the application within a period of ten (10) working days provided that the required documentation supporting the claims presented is duly presented.

The exemption granted by the Authority is only applicable with respect to the requirements arising from the Framework Decision and is without prejudice to any other requirements resulting from other applicable legislation.

5.3 APPLICABILITY

This Decision is effective immediately from the date of publication. Consequently, the Published Framework Decision shall be immediately repealed. All services which are launched subsequent to the date of publication of the Decision are immediately subject to the provisions of the Decision.

Fixed broadband services which are available to the subscriber at the date of publication of the Decision or earlier and which are now subject to the Decision shall be subject to the implementation of the provisions of the Decisions in accordance to the following schedule:

1. ISPs should include in their terms and conditions the information related to the Typical Speed Range information as specified in section 9 within 4 weeks from the publication of the Decision

2. ISPs should measure and report their QoS performance as specified in section 6 of the Decision within 9 months from the publication of the Decision.

3. ISPs should measure Network Performance parameters as specified in section 8 of the Decision within 9 months from the publication of the Decision.

6. QUALITY OF SERVICE PARAMETERS

The Quality of Service of Broadband Internet shall be measured on the basis of

a) Data Transmission Speed

Data Transmission Speed is defined as the time taken for an amount of data to be transferred successfully from Point A to Point B, which points are both connected to the Internet. The subscriber's end is located at Point A. Data transmission speed is measured in both the download and the upload directions as follows:

i. **Data Transmission Speed in the Download Direction** shall refer to the Data Transmission Speed achieved by the broadband connection when data is flowing from a machine connected to the Internet, acting as a data transmitter located at point B, in the direction of the subscriber's end of the connection;

ii. **Data Transmission Speed in the Upload Direction** shall refer to the Data Transmission Speed achieved by a broadband connection when data is flowing from the subscriber's end of the connection towards a machine connected to the Internet and acting as a data receiver at Point B;

b) Availability of Internet Access (Network Availability)

In line with ETSI ES 202 765-4, 'Availability of Internet Access' is defined as the probability that the end user, through his/her Internet connection, is able to reach other network elements, which are also connected to the Internet.

Availability of Internet Access is further defined as the ratio of the total time during which the Access Network, the Core Network and the Local and International Connections are simultaneously available to the subscriber in a given period of time.

c) Latency

Latency defined as the time interval between the instances that a packet of data is launched from an IP based machine located at 'Point A' to the moment it is received by machine located at 'Point B'.

d) Packet Loss

Packet Loss defined as the percentage ratio of those packets sent from 'Point A' in the network which did not reach their intended destination, Point B, to the total number of packets transmitted over a specific time interval between these two points.

7. MEASUREMENT METHODOLOGY

7.1 TECHNICAL MEASUREMENTS

a) The ISP is required to measure the QoS parameters using passive measurement techniques.

b) The term 'Reference Point' used in this section is defined as that network element within the Core Network of the ISP such that it is as near as possible to the point whereby the core network interfaces with the external connection points (typically the International Gateway connection and the Local Gateway) whereby all incoming connections from the subscribers' end are expected to be concentrated.

Measurement Method of Data Transmission Speed

The upload and download speeds shall be derived from the measurement of network counters (e.g. SNMP) that are maintained by the router(s) located at the Reference Point.

Measurement Method of Availability of Internet Access

In order to measure the Availability of Internet Access, the ISP shall take into account:

a) **Access Network Availability**: The period(s) of time during which the Access Network is able to receive connections from the Customer Premises Equipment (CPE);

b) **Core Network Availability**: The period(s) of time during which the Core Network is available to route traffic from the Access Network and the International and/or the Local Connections;

c) **Local and International Connections Availability**: The period(s) of time during which the Local and International connections are available and able to carry traffic. A local connection is considered available when the ISP can connect to at least one server which is connected to the Internet via a local ISP. An International connection is considered available when the ISP can connect to another server which is not based in Malta via its international connections;

d) The **Unavailability due to Planned Maintenance** shall consist of total duration when either of the Access Network, Core Network, and the Local and International Connections is unavailable due to maintenance.

Provided that such unavailability occurs during the period between midnight (00:00) (included) and six in the morning (06:00) excluded and is the result of planned maintenance.

Provided further that any such unavailability is clearly stated when availability figures are forwarded to the Authority.

The "**Total Available Period**" shall consist of the total duration when the Access Network Availability, the Core Network Availability and the Local and International Connections Availability overlap simultaneously.

The "**Total Period of Downtime**" shall consist of the total period of time which excludes the "Total Available Period" and the "Unavailability due to Planned Maintenance".

Availability of Internet Access shall equate to (1 – ((Total Period of Downtime)/(Total Available Period + Total Period of Downtime + Unavailability due to Planned Maintenance))) expressed as a percentage.

Measurement Method of Latency

Latency shall equate to half the average time taken for a minimum of five (5) consecutive echo request/reply ping packet pairs (e.g. ICMP) between the subscriber's CPE and the Reference Point.

Measurement Method of Packet Loss

Packet Loss shall equate to the ratio of the number of echo/reply ping packets (e.g. ICMP) which are lost when transmitted from the Reference point to the subscriber's CPE, as opposed to the total number of ping requests between these points. A ping request which does not generate a counter reply is deemed to be lost.

7.2 DATA SAMPLING METHODOLOGY

Measurement of QoS parameters is to be based on a sample of appropriate size such that the resultant measurements enjoy a margin of error which is not larger than 5%. Furthermore the chosen sample base must be representative of

a) Each individual broadband package offered by the ISP;

b) The distribution of the subscribers across the whole territory of Malta and Gozo;

c) The distribution in time over a 24 hour basis, 7 days a week with the exclusion of periods in which there is no service due to preventive maintenance; and

d) In those cases where the ISP confirms that internal wiring, at the subscriber's premises, to be the cause of lack of performance of the broadband connection, the ISP may exclude such sources, provided that such exclusions are documented.

7.3 DATA REPORTING AND PUBLISHING

a) The ISP shall prepare its QoS parameters measurements in the form of a report. The ISP should choose its own format provided that the following information is documented as part of the report:-
   - the margin of error of the statistical figures;
   - the methodology used for the collection of data including any limitations which may have an impact on the results;
   - a clear identification of the location points within the ISP's network that form the basis of the results measured;
   - the presentation of QoS measurements for each broadband package and which measurements need to be broken down by region where each region is established in accordance with the Demographic Review of 2010 as published by the National Statistics Office.

b) This report is to be provided to the Authority every quarter.

   The Authority through this Decision reserves the right to establish a reporting format should it deem this necessary in order to make the QoS measurements easily understandable and comparable between the different ISPs.

c) After an adequate period of review of the reports submitted by the ISPs, the Authority shall establish a date for publication of these reports on the ISPs website.

8. NETWORK PERFORMANCE PARAMETERS

8.1 INFORMATION IN RESPECT OF NETWORK PERFORMANCE PARAMETERS

When the Authority is required to address situations whereby

a) Consumer complaints are received at the Authority citing significant deterioration of broadband QoS; and/or
b) A deterioration of broadband QoS is observed by the Authority through studies which it may conduct from time to time or through other means,

it may request information from the relevant ISP about its Network Performance in order to establish the source(s) of the said deterioration. In doing so, the Authority will be assessing the network performance of the ISP using:

a) **Connection Oriented** parameters as listed in 8.2 and
b) **Core Network** related parameters as listed in 8.3 below.

8.2 CONNECTION ORIENTED PARAMETERS

Connection Oriented Parameters shall comprise of:

a) **Available Data Rate** defined as the speed by which a connection can handle traffic. This is measured in bits per second (bps).

b) **Connection Utilization** defined as the ratio between the actual bandwidth which is committed and in use as a percentage of the Available Data Rate of a given connection.

c) **Packet Drop Ratio** defined as the number of packets which a specific connection drops out of the network as a ratio of all the packets which are handled by the connection.

These parameters are applicable to the Access Network, and the Local and the International Connections which are defined as follows:

a) the **Access Network** which shall refer to all the network elements comprising of the connections labelled 'A' and the component labelled "Access Network" in Figure 1. This delineation encompasses the connection of each individual subscriber up to the point where these are aggregated to the point of connection to the core network.

b) the **Local and International Connections (Gateways)** shall refer to the external connections of an ISP (labelled 'C' and 'D' in Figure 1 below). For the purpose of estimating the Network Performance of these connections, the ISP shall aggregate together these connections according to their termination. All connections which are actively used to carry locally bound traffic shall be considered as a single Local Connection, while those connections

which an ISP uses to carry traffic to/from International servers shall be considered as a single International Connection. Such aggregation should exclude those connections which are in a state which do not normally carry traffic and furthermore, require an intervention to be able to do so.

In order to delineate the area of influence of the ISP and isolate the ISP's network from the remaining components of the Internet, the boundaries that are appropriate for the International connectivity point should be extended to the first International Point of Presence (PoP) where the International connection is terminated.

8.3 CORE ORIENTED PARAMETERS

a) **Bandwidth Utilization** is defined as the amount of bandwidth which is utilized at the Core Network as a ratio of the total bandwidth available in the core network. This indicator is to be measured during the Time Consistent Busy Hour (TCBH).

b) **Packet Drop Ratio** is defined as the number of packets which are dropped out of the network by the Core Network as opposed to the total number of packets which are handled by the core network.

These parameters are applicable to the **Core Network** which term shall refer to those network elements which connect together the Access Network, and any external connections, either local or International which an ISP may have. The core network is labelled as "ISP Core Network" in Figure 1 below.

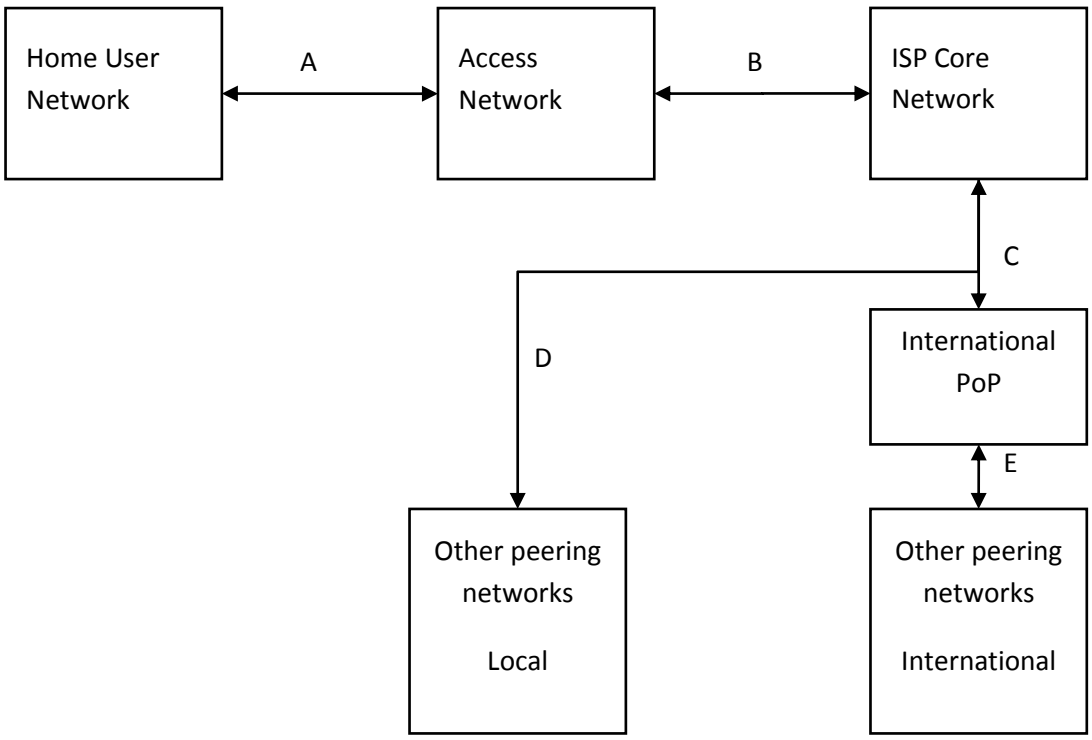

Figure 1 1 High level schematic diagram of a generic ISP setup

9. SERVICE CONTRACT OBLIGATIONS

9.1 INTRODUCTION OF TYPICAL SPEED RANGE

a) The ISP is required to qualify the Broadband Access Speed through the use of the TSR parameter, which is computed in line with the procedure listed in this section depending on whether the package under consideration is existing and hence has subscribers, or is a new package altogether.

b) The established TSR shall be indicated to the subscriber

i. in any advertising material with the same importance as is given to the headline speed

ii. at the point of sale, and

iii. in any subscriber's contract issued after the effective date of this Decision.

c) Should an ISP opt to make use of a numerical figure to describe the speed of its broadband Internet packages additional to the TSR, the ISP should ensure that in no instance can the headline speed be greater than the maximum access speed ever achievable by a connection sold under the specified headline speed. The ISP should take due consideration of Access Network configurations which might limit, in any way, the performance of the broadband connection.

d) The ISP should not sell to its subscribers connections which cannot perform within the limits of the TSR figures.

Provided that in the case whereby a subscriber insists in purchasing a particular package in spite of the fact that the ISP cannot guarantee the performance of the connection within the established TSR, the subscriber contract should reflect such a scenario.

iv. ISPs are required to calculate the TSR figures on a quarterly basis and to maintain the statistical data related to the calculation of the latest TSR figures for audit purposes.

Procedure for the Calculation of the TSR for existing Broadband Packages

a) The ISP should choose a statistical sample out of the sold broadband connections which is representative of all connections sold under the same headline speed. The chosen sample should be such that the resultant statistics would enjoy a statistical margin of error of 5% or better.

b) The access speed of the group is to be measured over a period of time which should not be less than thirty (30) days and which is representative over a 24/7 basis.

c) The 80th and 20th percentile marks should be then used as the TSR of the particular package.

Procedure for the Estimation of the TSR for new Broadband Packages

a) The ISP should use realistic and prudent estimates to calculate the TSR using available network information.

b) Following the launch of a new package, the ISP should monitor the performance of the broadband connections sold under an estimated TSR thus ensuring that the estimated TSR is met.

c) Should the estimated TSR be significantly different from the actual TSR the ISP should inform its subscribers of that particular package with the revised TSR by changing the subscribers' contract using the established mechanism under the decision entitled "Modifications to the Terms and Conditions of subscriber contract" issued by the Authority[3].

[3] https://www.mca.org.mt/consultation/decision-subscriber-contracts

10. OBLIGATIONS OF NETWORK PROVIDERS TOWARDS ISPS

Contracts regulating the agreements between the upstream and the downstream providers are to include, as a minimum, the necessary performance commitments in terms of the Network Performance parameters, such that the downstream provider can offer to its subscribers the required level of service as required in this Decision

APPENDIX 1 – EXTRACT FROM THE DEMOGRAPHIC REVIEW 2010 ISSUED BY THE NATIONAL STATISTICS OFFICE

Referring document: Demographic Review 2010

Definitions and Methodological Notes

Section 6. Classifications pg XVII

Localities are classified into districts according to the Malta Geographical Codes (MGC) as follows:

Southern Harbour – Valletta, Senglea, Cospicua, Ħaż-Żabbar, Fgura, Floriana, Kalkara, Ħal Luqa, Marsa, Paola, Santa Luċija, Ħal Tarxien, Xgħajra

Northern Harbour – Ħal Qormi, Birkirkara, Gżira, Ħamrun, Msida, Pembroke, Tal-Pieta`, St Julian's, San Ġwann, Santa Venera, Tas-Sliema, Swieqi, Ta' Xbiex

South Eastern – Żejtun, Birżebbuġa, Gudja, Ħal Għaxaq, Ħal Kirkop, Marsaskala, Marsaxlokk, Mqabba, Qrendi, Ħal Safi, Żurrieq

Western – Mdina, Ħaż-Żebbuġ, Siġġiewi, Ħ'Attard, Ħal Balzan, Ħad-Dingli, Iklin, Ħal Lija, Rabat, Mtarfa

Northern – Ħal Għargħur, Mellieħa, Mġarr, Mosta, Naxxar, St Paul's Bay

Gozo and Comino – Victoria, Fontana, Għajnsielem and Comino, Għarb, Għasri, Ta' Kerċem, Munxar, Nadur, Qala, San Lawrenz, Ta' Sannat, Xagħra, Xewkija, Żebbuġ

Appendix 2 – Glossary

ICMP	Internet Control Message Protocol
ISP	Internet Service Provider
ECNSR	Electronic Communications Networks and Services (General) Regulations SL399.28 of the Laws of Malta
ECRA	Electronic Communications (Regulations) Act – Chapter 399 of the Laws of Malta
MCA	Malta Communications Authority
PoP	Point of Presence
QoS	Quality of Service
SNMP	Simple Network Management Protocol
TSR	Typical Speed Range