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# Standard Terms Determination for Chorus' Unbundled Bitstream Access Service

## Schedule 1: UBA Service Description

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Updated to incorporate Commerce Commission decisions, amendments, and clarifications through to 15 December 2019

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# 1. Definitions

1.1 Except where expressly provided otherwise:

| | |
|---|---|
| **Approved Modem List** | means the list of Modems that have been approved for installation by Chorus under clause 16.3 of the UBA Operations Manual, published on a Chorus website accessible by the Access Seeker.1 |
| **ATM** | means Asynchronous Transfer Mode |
| **Basic UBA Service** | means the UBA service as described in section 4 of this schedule. |
| **Coverage Area** | means the geographic area serviced by a given Handover Point. |
| **CoS** | means Class of Service. |
| **CPE** | means Customer Premises Equipment. |
| **DSLAM** | means Digital Subscriber Line Access Multiplexer - a device that connects many digital subscriber lines to a network by multiplexing the DSL traffic onto one or more network trunk lines. |
| **DSL** | means Digital Subscriber Line. |
| **Enhanced UBA Services** | means the Enhanced UBA services as set out in section 4 of the UBA Service Description. |
| **ETP** | is the External Termination Point at an End User's premises or, where there is no termination point external to the premises, the first jack on the premises wiring, or the building distribution frame. |
| **Handover Connection** | means the Chorus Owned Equipment and includes:<br>(a) the port on the relevant data switch;<br>(b) the optical fibre from the port to Chorus' OFDF; and<br>(c) the OFDF. |
| **Handover Fibre** | means the Handover Fibre interconnected with the Handover Connection (and is supplied by either the Access Seeker or Chorus) that provides physical interconnection with the Access Seeker's Network. |
| **Handover Point** | means Chorus' first data switch, or equivalent facility, located in the Coverage Area. |
| **LAP** | means the Local Aggregation Path, operating between the End-user DSLAM, and Chorus' first data switch (or equivalent facility) other than a DSLAM. |

[1] Decision No 679 (23 July 2009).

| | |
|---|---|
| **Peak Utilisation** | Means, in relation to a LAP, the highest Utilisation on that LAP within a calendar month. |
| **PTD** | means Packet Transfer Delay. |
| **POTS** | means Plain Old Telephone Service. |
| **Utilisation** | means, in relation to a LAP, the average throughput in Mbps (measured for both upstream and downstream traffic) over a five minute period, expressed as a percentage of the throughput capacity available on that LAP. |
| **UBA** | means Unbundled Bitstream Access. |
| **UBS** | means the Unbundled Bitstream Service supplied by Chorus on a commercial basis or pursuant to a determination in relation to the now expired designated access service of "access to, and interconnection with, Chorus' fixed PDN." |
| **UBA Backhaul Service** | means the designated access service of "Chorus' unbundled bitstream access backhaul" as set out in subpart 1 of Part 2 of Schedule 1 of the Act. |

## 2. Introduction

2.1 This UBA Service Description is part of the UBA Terms, which set out the rights and obligations of Chorus and Access Seekers in relation to Chorus' unbundled bitstream access service.

2.2 References to clauses or sections are references to clauses and sections in this UBA Service Description unless expressly provided otherwise. Clause 1.1 sets out definitions for terms contained in this UBA Service Description that are not defined in the UBA General Terms. Otherwise, the definitions set out in the UBA General Terms apply.

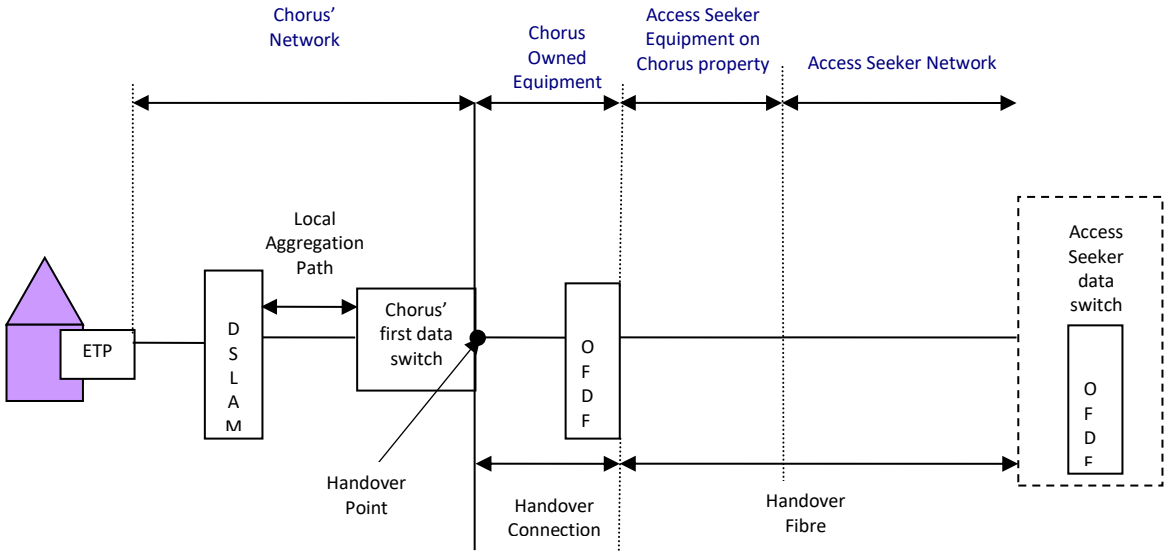
## 3. The UBA Service

3.1 For the purposes of the UBA STD, the UBA Service comprises the Basic UBA Service and the Enhanced UBA Services. Separate service descriptions for the Basic UBA Service and the Enhanced UBA Services are set out below.

3.2 The UBA Service is a DSL enabled service (and its associated functions, including the associated functions of Chorus' operational support systems) that enables access to, and interconnection with, that part of Chorus' fixed PDN[2] that connects the End User's building (or, where relevant, the building distribution frames) to Chorus' first data switch (or equivalent facility), other than a DSLAM.

3.3 The supply of a UBA Service is not conditional on a requirement that the Access Seeker, the End User, or any other person must purchase any other service from Chorus.

3.4 The following diagram[3] illustrates the UBA Service:




2 PDN or public data network means a data network used, or intended for use, in whole or in part, by the public.

3 This is a logical diagram and it does not describe any technical build.

# 4. Basic UBA Service

## Introduction

4.1 The Basic UBA Service provides an Access Seeker with an internet-grade 'best efforts' bitstream service and enables an Access Seeker to offer its End Users DSL enabled services.

4.2 The Basic UBA Service is a wholesale access service which the Access Seeker can combine with other wholesale access services offered by Chorus such as the UBA Backhaul Service to deliver a DSL enabled service to End Users.

4.3 The Basic UBA Service is not available for resale to End Users. However, the Basic UBA Service is available for resale to other Access Seekers.

4.4 The Basic UBA Service can be provided with or without an active analogue telephone service on the same copper pair (with or without POTS respectively). POTS does not form part of the UBA Service. For the 'with POTS' UBA Service price to apply, POTS (or an equivalent service) must be purchased separately, either directly from Chorus by the End User or by the Access Seeker or another Service Provider under a separate service agreement. To avoid doubt, an Access Seeker may also take the Basic UBA Service at the 'with POTS' price if it offers its own POTS service using an input from Chorus (such as the UCLF Service or Access Seeker Voice or Baseband).

4.5 Where a POTS service is being provided by Chorus to the same End User over the same copper pair, the UBA with POTS price will be available only until the day before three years from Separation Day.

## Basic UBA Service

4.6 The Basic UBA Service available under this service description is a DSL enabled service which has a maximum downstream line speed for data traffic sent to the End User and a maximum upstream line speed for data traffic sent from the End User.

4.7 The maximum upstream or downstream line speed that the DSLAM can support on the End User's line given existing line conditions is subject to:

4.7.1 any constraints required to comply with the Interference Management Plan;

4.7.2 the use of interleaving;

4.7.3 any network settings required by the Access Seeker to provide a reliable service, where such settings are not applied for the primary purpose of limiting the maximum line speed; and

4.7.4 any factors limiting line speed as described in 4.8.

4.8 The upstream or downstream line speed the DSLAM can support on the End User's line may be limited by factors including:

4.8.1 the condition of the copper line;

4.8.2 copper loop length;

4.8.3 type of cable containing the copper loop;

4.8.4 the presence of other services in a cable sheath containing the copper loop;

4.8.5 the performance capability of the DSLAM;

4.8.6 the End User's modem;

4.8.7 presence and degree of external interference (from potential causes such as poor suppression of AC power, electric fences, radio broadcasts etc); and

4.8.8 the configuration and/or condition of wiring within the End User's premises.

**Service Specifications**

4.9 The Basic UBA Service:

4.9.1 is an internet grade service;

4.9.2 is supplied to an End User by a DSLAM in their local exchange or cabinet and bitstream rate limits (if any) are applied at the DSLAM in their local exchange or cabinet; and

4.9.3 transports Access Seeker's internet traffic from the ETP at an End User's premises to the Handover Point (as described in clause 4.20 below) for the Coverage Area which hosts the DSLAM.

4.10 Where the End User is in a Coverage Area where there is a Handover Point, traffic is handed over at the Handover Point.

4.11 Where the End User is not in the same Coverage Area as the Access Seeker's Handover Point, then the Access Seeker must purchase backhaul from either Chorus or another party. Traffic is carried from the ETP and handed over at the Handover Point nominated by the Access Seeker.

4.12 The table below outlines the metrics that the Basic UBA Service will achieve:

| Metric | Specification (1500 byte packet) |
|---|---|
| Throughput | 99.9% probability of providing to any provisioned End User a minimum uplink and downlink average throughput of 32kbps during any 15 minute period on demand |
| Mean one-way packet delay | < 1 sec |
| One-way packet delay variation | Unspecified |
| One-way packet loss ratio | Unspecified |

4.13 Note:

4.13.1 The service specifications relate to the Basic UBA Service performance from the ETP to the Handover Point, and exclude serialisation delays, transcoding delays, etc.

4.13.2 Packet delay variation is measured as: PTD upper minus PTD min, where the PTD upper is the 99.9% quartile of PTD in the evaluation interval, and PTD min is the minimum PTD in the evaluation interval.

4.13.3 Packet loss ratio and delay variation must be evaluated over an interval of 15 minutes.

4.14 Where the Basic UBA Service does not use ATM and is supplied using a fibre-based LAP, the Utilisation must not exceed 95% for any five minute period either for upstream or downstream traffic.

**Interleaving**

4.15 For each Basic UBA Service connection ordered, the Access Seeker will advise Chorus whether that connection will be provisioned with interleaving on/off, or high/low.

4.16 The default setting for the Basic UBA Service is to have interleaving turned on or high.

4.17 Interleaving is used by Chorus on DSL connections to increase the tolerance of line noise. End Users can ask their Access Seeker to have interleaving turned off or low. With interleaving turned off or low there may be a reduction in latency, but the Basic UBA Service may be more susceptible to line noise that may cause the End User to believe their service is faulty. Access Seekers will bear the responsibility for evaluating if the fault is attributable to interleaving being turned off or low and, if so, for remedying this.

**General Service Requirements**

4.18 The Access Seeker is to fulfil any authentication, authorisation, and addressing functions for the service provided to the End User. The Access Seeker is to provide all Layer 3 functions.

**Coverage Areas and Handover Points**

4.19 Each End User will be located in a Coverage Area. The End User traffic from DSLAMs in a Coverage Area is carried to the Handover Point over LAPs supporting the Basic UBA Service.

4.20 The Handover Point is the aggregation point for the DSLAMs supplying the Basic UBA Service within a Coverage Area. Access Seekers may, via backhaul services and/or other services, connect their network to any available Handover Points throughout the country.

4.21 A list of current Handover Points and Coverage Area s are available to an Access Seeker via a secure web portal. Chorus may introduce new Handover Points and Coverage Areas or change the available Handover Points and Coverage Areas in accordance with the UBA Operations Manual.

**External Termination Point**

4.22 The Basic UBA Service is delivered over a DSL copper interface to the ETP at the End User's premises.

4.23 The Access Seeker or the End User is responsible for providing and installing all required CPE and wiring at the End User's site beyond the ETP, including a service compatible modem. The Access Seeker will ensure that TelePermit and premises wiring requirements are adhered to. Where requested by the Access Seeker, Chorus will provide wiring at the End User's site beyond the ETP to a single jackpoint and install a service compatible modem provided by the Access Seeker from the Approved Modem List.[4]

**Handover of the Basic UBA Service**

4.24 The Access Seeker must establish interconnection for the Basic UBA Service at a minimum of one Handover Point. Interconnection with the Handover Point is required for handover of the Basic UBA Service to the Access Seeker. If requested by the Access Seeker, the same Handover Point may also carry Enhanced UBA Services traffic.

4.25 Chorus must supply the Handover Connection. Chorus is also required to install and interconnect the Handover Fibre and the Handover Connection. The Access Seeker or Chorus will supply the Handover Fibre.

[4] Decision No 679 (23 July 2009).

4.26 Basic UBA Service traffic will not be distinguishable from other traffic supplied at the same Handover Point, such as, Unbundled Bitstream Service traffic.

4.27 Prior to provision of the Basic UBA Service, the Access Seeker must:

4.27.1 have Handover Fibre interconnected with Chorus' Handover Connection in the Coverage Area where handover is to occur; and

4.27.2 advise Chorus of the Coverage Areas in which its End Users are located and indicate the handover arrangements for those Coverage Areas, including backhaul mapping arrangements.

4.28 The UBA Backhaul Service is not part of the UBA Service and additional terms and charges will apply where the Access Seeker purchases this service.

**Geographic Availability**

4.29 The Basic UBA Service is available where Chorus has ADSL or ADSL2+ (or other next generation type technologies) coverage and the line speed meets the minimum rate of 64kbps. A POTS service will only be available with the Basic UBA Service in areas where Spark has an active analogue telephone service.

## 5. Enhanced UBA Services

**Introduction**

5.1 The Enhanced UBA Services enable an Access Seeker to offer its End Users simultaneous delivery of internet grade IP traffic and real time grade IP traffic over a single UBA service connection. The Enhanced UBA Services provide connectivity between the ETP and the Access Seeker side of the first Ethernet aggregation switch.

5.2 The Enhanced UBA Services are wholesale access services that the Access Seeker can combine with other wholesale services offered by Chorus, such as the UBA Backhaul Service, to deliver a DSL enabled service to End Users.

5.3 The Enhanced UBA Services are not available for resale to End Users. However, Enhanced UBA Services are available for resale to other Access Seekers.

5.4 The Enhanced UBA Services can be provided with or without an active analogue telephone service on the same copper pair (with or without POTS respectively). POTS does not form part of the UBA Service. For the 'with POTS' UBA Service price to apply, POTS must be purchased separately, either directly by the End User, or by the Access Seeker or another Service Provider under a separate wholesale service agreement.

5.5 Where a POTS service is being provided by Spark to the same End User over the same copper pair, the Enhanced UBA Services with POTS price will be available only until the day before three years from Separation Day.

**Enhanced UBA Services**

**5.6 The Enhanced UBA Services available under the UBA Service description are:**

5.6.1 40kbps Enhanced UBA Service;

5.6.2 90kbps Enhanced UBA Service;

5.6.3 180kbps Enhanced UBA Service;

5.7 All Enhanced UBA Services are Ethernet-based DSL enabled services that allow the simultaneous delivery of two CoS:

5.7.1 Internet grade IP traffic: delivered as a 'best efforts' class of service (Internet CoS). This will achieve a 99.9% probability of providing to any End User a minimum downlink average throughout of 32kbps during any 15 minute period on demand, irrespective of whether the Real Time CoS is in use or not.

5.7.2 Real time grade IP traffic: delivered as a real time class of service to support some latency sensitive applications (Real Time CoS). This will support real time traffic with the following characteristics:

(a) one of the following three profiles of guaranteed real time traffic, including Layer 3 headers (RTP, UDP, IP) but excluding Layer 2 headers (Ethernet):

- 40kbps;
- 90kbps; or
- 180kbps; and

(b) the Real Time CoS will be dedicated per End User and available at all times on demand.

5.8 The maximum upstream or downstream line speed that the DSLAM can support on the End User's line given existing line conditions is subject to:

5.8.1 any constraints required to comply with the Interference Management Plan;

5.8.2 the use of interleaving;

5.8.3 any network settings required by the Access Seeker to provide a reliable service, where such settings are not applied for the primary purpose of limiting the maximum line speed; and

5.8.4 any factors limiting line speed as described in 5.9.

5.9 The upstream or downstream line speed the DSLAM can support on the End User's line may be limited by factors including:

5.9.1 the condition of the copper line;

5.9.2 copper loop length;

5.9.3 type of cable containing the copper loop;

5.9.4 the presence of other services in a cable sheath containing the copper loop;

5.9.5 the performance capability of the DSLAM;

5.9.6 the End User's modem;

5.9.7 presence and degree of external interference (from potential causes such as poor suppression of AC power, electric fences, radio broadcasts etc); and

5.9.8 the configuration and/or condition of wiring within the End User's premises.

**Service Specifications**

5.10 The table below outlines the metrics that the Enhanced UBA Services will achieve:

| **Metric** | **Notes:** | **Real time CoS**<br>**(200 byte packet)** | **Internet CoS**<br>**(1500 byte packet)** |
|---|---|---|---|
| Throughput | kbit/s | = 40kbit/s or 90kbit/s or 180kbit/s | 99.9% probability of providing to any provisioned End User a minimum uplink and downlink average throughput of 32kbps during any 15 minute period on demand |
| Mean one-way packet delay | Interleaving HIGH<br>Interleaving LOW | <50ms<br><25ms | <1s<br><1s |
| One-way packet delay variation | Milliseconds | <10ms | Unspecified |
| One-way packet loss ratio | Interleaving HIGH | <0.1% | Unspecified |

5.11 Note:

5.11.1 The service specifications relate to the performance of the Enhanced UBA Services from the ETP to the Handover Point, and exclude serialisation delays, transcoding delays, etc.

5.11.2 Packet delay variation is measured as: PTD upper minus PTD min where PTD upper is the 99.9% quartile of PTD in the evaluation interval, and PTD min is the minimum PTD in the evaluation interval.[5]

5.11.3 Packet loss ratio and delay variation must be evaluated over an interval of 15 minutes for all classes of service, as per Chorus standard network practice.

5.11.4 Low interleaving means an interleaving setting that delivers as much error protection as possible while introducing no more than 10ms additional one way packet delay and subject to the mean one way packet delay specification for interleaving low being met.

5.11.5 Traffic may be policed at both an aggregate level and at an End User level to ensure compliance with the service specification.

5.11.6 Depending on the Enhanced UBA Service supplied, either 40kbps, 90kbps or 180kbps of real time traffic may be tagged per End User. Exceeding this limit could prevent the service specifications from being achieved.

5.11A Where the Enhanced UBA Services are supplied using a fibre-based LAP, the Utilisation must not exceed 95% for any five minute period either for upstream or downstream traffic.

**Exceptions to Service Specifications**

5.12 Where the End User line quality does not meet the required line speed threshold to deliver the service the Enhanced UBA Service specifications will not apply. This threshold would be based on the ability of the End User copper loop to achieve the specifications of the service.

5.13 The presence of any of the below factors may mean an End User's peak throughput for the internet CoS is less than their line speed:

5.13.1 protocol overheads;

5.13.2 network load;

5.13.3 constraints within the Access Seeker and End User domains;

5.13.4 the presence of any real time traffic;

5.13.5 the capacity of the Local Aggregation Path (LAP); or

5.13.6 any constraints external to the Enhanced UBA Services.

[5] Evaluation intervals are explained in 5.11.3

**Interleaving**

5.14 For each Enhanced UBA Service connection ordered, the Access Seeker will advise Chorus whether that connection will be provisioned with interleaving low or interleaving high.

5.15 The default setting for the Enhanced UBA Services is to have interleaving set to high.

5.16 Interleaving is used by Chorus on DSL connections to increase the tolerance of line noise. End Users can ask their Access Seeker to have interleaving set on low for the Enhanced UBA Services. With interleaving set on low, there may be a reduction in latency, but the Enhanced UBA Services may be more susceptible to line noise that may cause the End User to believe their service is faulty. Access Seekers will bear the responsibility for evaluating if the fault is attributable to interleaving being set on low, and if so, for remedying this.

**General Service Requirements**

5.17 The Access Seeker is to fulfil any authentication, authorisation, and addressing functions for the Enhanced UBA Service provided to the End User. The Access Seeker is to provide all Layer 3 functions.

5.18 Bandwidth reserved for real time traffic but not used will be aggregated and available to all internet CoS users on that DSLAM.

**Coverage Areas and Handover Points**

5.19 Each End User will be located in a Coverage Area. The End User traffic from DSLAMs in a Coverage Area is carried to the Handover Point over LAPs supporting the Enhanced UBA Services.

5.20 The Handover Point is the aggregation point for the DSLAMs supplying the Enhanced UBA Services within a Coverage Area. Access Seekers may, via backhaul services and/or other services, connect their network to any available Handover Points throughout the country.

5.21 A list of current Handover Points and Coverage Areas are available to an Access Seeker via a secure web portal. Chorus may introduce new Handover Points and Coverage Areas or change the available Handover Points and Coverage Areas in accordance with the UBA Operations Manual

**External Termination Point**

5.22 The Enhanced UBA Services are delivered as Ethernet services over a DSL copper interface to the End User ETP.

5.23 The Access Seeker or the End User is responsible for providing and installing all required CPE and wiring at the End User's site beyond the ETP, including a service compatible modem. The Access Seeker will ensure that TelePermit and premises wiring requirements are adhered to. Where requested by the Access Seeker, Chorus will provide wiring at the End User's site beyond the ETP to a single jackpoint and

install a service compatible modem provided by the Access Seeker from the Approved Modem List.[6]

**Handover of Enhanced UBA Services**

5.24 The Access Seeker must establish interconnection for the Enhanced UBA Services at a minimum of one Handover Point. Interconnection with the Handover Point is required for hand over of the Enhanced UBA Services to the Access Seeker. If requested by the Access Seeker, the same Handover Point may also carry Basic UBA Service traffic.

5.25 Chorus must supply the Handover Connection. Chorus is also required to install and interconnect the Handover Fibre and the Handover Connection. Chorus or the Access Seeker will supply the Handover Fibre.

5.26 The internet CoS Enhanced UBA traffic will not be distinguishable from the Unbundled Bitstream Service traffic supplied at the same Handover Point.

5.27 Prior to provision of the Enhanced UBA Services, the Access Seeker must:

5.27.1 have Handover Fibre interconnected with Chorus' Handover Connection in the Coverage Area where handover is to occur; and

5.27.2 advise Chorus of the Coverage Areas in which its End Users are located and indicate the handover arrangements for those Coverage Areas, including backhaul mapping arrangements.

5.28 The UBA Backhaul Service is not part of the Enhanced UBA Services and additional terms and charges will apply where the Access Seeker purchases this service.

**Geographic Availability**

5.29 The Enhanced UBA Services are available where Chorus has Ethernet-based ADSL2+ (or other next generation type technologies) coverage and the line speed meets the line speed threshold. A POTS service will only be available with the Enhanced UBA Services in areas where Spark has an active analogue telephone service.

5.30 Where a POTS service is being provided by Spark to the same End User over the same copper pair, the Enhanced UBA Services with POTS price will be available only until the day before three years from Separation Day.

[6] Decision No 679 (23 July 2009) 7.