Ethernet Access

Data sheet for the E-Line Service Type

Wholesale

General

Related Documents	Telstra Wholesale fact sheet: https://www.telstrawholesale.com.au/content/dam/tw/products/data_ip/ethernet-access/Documents/Telstra_Wholesale_Ethernet_Access_Factsheet Telstra Service Interface Specification (TSIS) [commercial-in-confidence] TSIS Addendum for E-Access [commercial-in-confidence]	
Supported MEF Service Types[1]	E-Line: EVPL (CE-VLAN ID based at UNI) – Supported on all access types EPL (Port-based at the UNI) – Only supported on Telstra Fibre	
Service Speeds[2]	Telstra Fibre Accesses:	20 Mbps to 2Gbps
	NBN Accesses, FTTP:	5, 10, 20, 30, 40 & 50 Mbps
		FTTN, FTTB and FTTC: 5 Mbps & 10 Mbps
	Telstra Mobile Accesses:	up to 10/10, 20/20, 40/40 and 100/50Mbps[3]

[1] The MEF 33-defined E-Acess service type is also supported on the EA product and is described in a separate associated data sheet at https://www.telstrawholesale.com.au/content/dam/tw/products/data_ip/ethernet-access/Documents/Ethernet_Access_E-Access_Service_Type_Data_Sheet

[2] Actual speeds achieved are dependent on a range of factors described in the TSIS documents, including (but not limited to) distance from exchanges for accesses which are not on Telstra fibre

[3] When use as a backup for Telstra fibre access, the service speed on the Telstra mobile access cannot exceed the service speed on Telstra fibre. The speed tiers on Telstra mobile access represent the maximum data speeds applied to downstream and upstream transmissions on our network. The typical speeds the End User will experience will vary depending on a range of factors and will not always be at or towards the top of the typical speed range. Depending on the speed tier selected, mobile access can experience typical 4G speeds of 2-50Mbps in the download and 1-10Mbps in the upload.

UNI Attributes (Aggregated Head-end)

Interface Types	1000Base-T 1000Base-SX 1000Base-LX 10GBASE-SR 10GBASE-LR 100GBASE-SR4 100GBASE-LR4	
Interface Modes	Auto Negotiate (Default) Full Duplex	
Access Type	Fibre-based	
UNI Access Availability Target	99.90%: 99.98%:	Single uplink (fibre-based access) Fully redundant[4] UNI pair (fibre-based access) The pair can either be co-located or geographically diverse[5]
Frame Formats	IEEE Std 802.1Q (0x8100)	
UNI MTU Size[6]	Jumbo:	9000 bytes
UNI Service Multiplexing	Yes (≥1 EVC associated with the UNI)	

[4] Fully redundant means that there is a second NTU that is dual-homed to the Layer 2 Edge of the pseudowire/ VPLS cloud, with geographically diverse fibre access paths, enabling flexible customer-managed failover at Layer 3
[5] Business rules apply to the locations of a fully redundant pair of head-end UNIs
[6] The MTU at the head-end UNI cannot be considered in isolation and needs to be cognisant of the tail UNI MTU and physical access (bearer) technology

UNI Attributes (Tail End)

Interface Types	**Telstra Fibre Access**	**NBN Access**	**Telstra Mobile Access**
	10Base-T	100Base-Tx	10Base-T
	100Base-Tx	1000Base-T	100Base-Tx
	1000Base-T	1000Base-SX	1000Base-T
	1000Base-SX	1000Base-LX	1000Base-SX[7]
	1000Base-LX		1000Base-LX[7]
	10GBASE-SR		
	10GBASE-LR		
Interface Mode	Auto Negotiate (Default) Full Duplex Half Duplex		
Access Type	Telstra Fibre-based NBN: FTTP, FTTN, FTTB, FTTC: Premium CoS (1:1) only Telstra Mobile: Use for rapid activation or as a backup for a tail-end Telstra Fibre-based access type only[8]		
UNI Access Availability Target	99.70%: Single uplink (NBN Access) 99.90%: Single uplink (Telstra fibre accesses) 99.95%: Single uplink with Mobile Backup (Telstra Fibre access + Telstra Mobile access) 99.98%: Fully redundant uplink (Telstra fibre accesses)[9]		
UNI MTU Size	Telstra Fibre accesses:	1596 bytes (standard) 9000 bytes (jumbo – requires approval)	
	NBN Accesses:	1522 bytes	
	Mobile Accesses:	1596 bytes[10]	
UNI Shut Down	Supported on EPL service type Disabled on EVPL service type		
UNI Service Multiplexing	For E-Line EVPL only Telstra Fibre accesses: Yes (≥1 EVC associated with the UNI) NBN Accesses: No Mobile Accesses: No (only 1 EVC associated with the UNI)[11]		
CE-VLAN ID Bundling	For Line EPL: All-to-one: All CVIDs mapped to one EVC at the UNI E-Line EVPL: One-to-one: One CVID mapped to one EVC at the UNI Many-to-one: >1 CVIDs mapped to one EVC at the UNI (Telstra fibre and Telstra mobile accesses only)		

[7] Optical interfaces for the tail UNI not initially supported on EA Mobile access use for rapid activation
[8] By default, EA Mobile access use for rapid activation is automatically converted to mobile backup once the tail-end EA fibre is delivered. Cannot be used in conjunction with E-Line EPL
[9] Fully Redundant tail UNIs cannot be geo-diverse nor NBN-based
[10] Jumbo frames are not supported on Telstra mobile accesses and therefore should not be used for rapid activation and/or as a backup for Telstra fibre accesses if Jumbo frames are required
[11] Only one EVC can be associated with the tail UNI on Telstra mobile accesses and therefore should not be used for rapid activation and/or as a backup for Telstra fibre accesses if more than one EVC needs to be associated with the tail UNI

EVC Attributes

Available Classes of Service

Expedited (1:1 CIR:PIR): Short queues and strictly enforced rates, optimised for small frame sizes and low-jitter interactive unidirectional applications, like VoIP and videoconferencing. Not available over NBN accesses and Telstra mobile accesses.

Priority (1:1 CIR:PIR): Short queues with reliable delivery even if delayed. Used for selected 'real time' applications like SQL database queries and unidirectional streaming video. Not available over NBN accesses and Telstra mobile accesses.

Premium (1:1 and 1:4 CIR:PIR): Medium queues with low discard preference, used for key business applications like email and large file transfers. Premium (1:1) is the only class of service available over NBN accesses. Not available over Telstra mobile accesses.

Standard (0:1 CIR:PIR): Deep queues with higher discard preference, used for best effort applications like web browsing. Not available over NBN accesses. This is the only Class of Service available over Telstra mobile accesses[12].

Class of Service Operation

Single CoS: Any one of the four available CoS can be used within the EVC, subject to the access type as above

Multi-CoS[13]: Up to four CoS are concurrently supported within the same EVC. (Only supported on Telstra fibre accesses)

EVC Frame Mapping

Single-CoS: Frames are C-VID mapped to the EVC irrespective of customer CoS marking

Multi-CoS[11]: Frames can be either C-tag mapped (C-VID and PCP) or DSCP-mapped

Target Network Performance Objectives, (UNI-to-UNI)

Class of Service	Frame Loss Ratio	Average One-way Frame Delay			Average Frame Delay Variation
		0-161km	162-1609km	1610-16093km	
Expedited	<0.01%	<5.7ms	<14.5ms	<37.5ms	<1ms
Priority	<0.01%	<10ms	<20ms	<43ms	Not Specified
Premium	<0.1%		Not Specified		Not Specified
Standard			Best Effort		

Bandwidth Profile Rates[14]

For single-CoS EVC: Per UNI.EVC

For multi-CoS[11] EVC: Per UNI.EVC.CoS

Colour Mode

Colour blind[15]: Expedited: 1:1 (CIR Only)
Priority: 1:1 (CIR Only)
Premium: 1:1 (CIR Only)
Standard: 0:1 (EIR only)

[12] For Telstra mobile access, the traffic is carried in a best-effort capacity only. There is no Class of Service differential treatment in the Telstra mobile network. When use as a backup for Telstra fibre access, traffic failover occurs when the physical fibre between the tail-end NTU and the aggregation switch located in the Telstra exchange is down.

[13] Multi-CoS is not supported on Telstra mobile accesses and therefore should not be used for rapid activation and/or as a backup for Telstra fibre accesses if Multi-Cos is being enabled.

[14] Bandwidth Profiles are a method of characterising Service Frames for the purpose of rate enforcement or policing. Incorrectly shaped traffic ingressing a UNI towards Telstra will be policed accordingly. The policers are agnostic to any layer-2 marking for single CoS services so will discard traffic on an 'as they arrive' basis. This means non-conforming high-value and low-value traffic have similar probability of being discarded.

[15] A colour-blind profile is one where the ingress EVC policer at the UNI ignores any existing colour indication that the service frame is already conformant to CIR (green) or EIR (yellow)

EVC Attributes cont.

Colour Forwarding[16]	Yes
CoS Marking Preservation	Layer 2 priority (802.1p) and Layer 3 priority (DSCP) always preserved end-to-end
CE-VLAN ID Preservation	For Telstra fibre accesses: Yes : CE-VLAN IDs are preserved UNI to UNI No: CE-VLAN ID re-write/translation occurs (one-to-one bundling only) For NBN Accesses: Untagged at tail-end results in tagged at head-end When tagged at tail-end, CE-VLAN preservation must be “Yes” (i.e. no translation) For Mobile accesses: Yes : CE-VLAN IDs are preserved UNI to UNI No: CE-VLAN ID re-write/translation occurs (one-to-one bundling only)
Layer 2 Control Processing	As per MEF specifications for EVPL, the following Layer 2 control protocols will be discarded at UNI ingress: xSTP, LLDP, PAUSE frames, GARP/MRP, LACP/LAMP, CDP, Link OAM, VTP, Port Authentication, UDLD, E-LMI. For EPL, PAUSE frames will be discarded at UNI ingress.
Service Frame Delivery	Known Unicast: Unconditionally supported[17] Unknown Unicast: Unconditionally supported Broadcast: Unconditionally supported Multicast: Unconditionally supported
MAC Address Limit	50 (Enforced in the network)
EVC MTU	Fibre Accesses: 1596 bytes (default) 9000 bytes (requires approval) NBN Accesses: 1522 bytes Mobile Accesses: 1596 bytes[8]
Service OAM Processing	IEEE 802.1ag CFM is used for internal operational and fault sectionalisation purposes Customer Service OAM frames with MD-Level = 5, 6 or 7 will be transparently passed at the UNI
Relevant Specifications	MEF 10.2, MEF 23, IEEE802.3

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[16] Colour Forwarding describes the relationship between the colour on an ingress frame into the Operator (Telstra) Network and the colour of the resulting egress Frame. When Colour Forwarding is Yes, the EVC cannot “promote” a frame from Yellow to Green

[17] Subject to the CoS performance objectives