

Ethernet Access

Data sheet for the MEF-Defined E-Line
Service Type

General

RELATED DOCUMENTS	<ul style="list-style-type: none"> Telstra Wholesale fact sheet: https://www.telstrawholesale.com.au/products/data/ethernet.html Telstra Service Interface Specification (TSIS) [commercial-in-confidence] TSIS Addendum for E-Access [commercial-in-confidence]
SUPPORTED MEF SERVICE TYPES¹	E-Line: <ul style="list-style-type: none"> EVPL (CE-VLAN ID based at UNI)
SERVICE SPEEDS²	0.256 Mbps to 1Gbps <ul style="list-style-type: none"> Telstra Fibre Accesses: 0.512 Mbps to 1Gbps Telstra Copper Accesses: 0.256 to 10Mbps NBN Accesses, FTTP: 5, 10, 20, 30, 40 & 50 Mbps <ul style="list-style-type: none"> FTTN and FTTB: 5 Mbps & 10 Mbps

UNI Attributes (Aggregated Head-End)

INTERFACE TYPES	<ul style="list-style-type: none"> 1000Base-T 1000Base-SX 1000Base-LX 10GBASE-SR 10GBASE-LR
INTERFACE MODES	<ul style="list-style-type: none"> Auto Negotiate (Default) Full Duplex
ACCESS TYPE	<ul style="list-style-type: none"> Fibre-based
UNI ACCESS AVAILABILITY TARGET	<ul style="list-style-type: none"> 99.90%: <ul style="list-style-type: none"> Single uplink (fibre-based access) 99.98%: <ul style="list-style-type: none"> Fully redundant³ UNI pair (fibre-based access) The pair can either be co-located or geographically diverse⁴
FRAME FORMATS	<ul style="list-style-type: none"> IEEE Std 802.1Q (0x8100)
UNI MTU SIZE⁵	<ul style="list-style-type: none"> Jumbo: 9000 bytes
UNI SERVICE MULTIPLEXING	<ul style="list-style-type: none"> Yes (≥ 1 EVC associated with the UNI)

1. The MEF 33-defined E-Access service type is also supported on the EA product and is described in a separate associated data sheet. E-Line EPL services are described in a separate data sheet at <https://www.telstrawholesale.com.au/products/data/ethernet.html>

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. 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.

4. Business rules apply to the locations of a fully redundant pair of head-end UNIs.

5. 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 <ul style="list-style-type: none"> • 10Base-T • 100Base-Tx • 1000Base-T • 1000Base-SX • 1000Base-LX • 10GBASE-SR • 10GBASE-LR 	Telstra Copper Access <ul style="list-style-type: none"> • 10Base-T • 100Base-Tx 	NBN Access <ul style="list-style-type: none"> • 100Base-Tx • 1000Base-T • 1000Base-SX • 1000Base-LX
INTERFACE MODE	<ul style="list-style-type: none"> • Auto Negotiate (Default) • Full Duplex • Half Duplex 		
ACCESS TYPE	<ul style="list-style-type: none"> • Telstra Fibre-based • Telstra Copper-based : Premium CoS (1:1) and (1:4) • NBN: FTTP, FTTN, FTTB: Premium CoS (1:1) only 		
UNI ACCESS AVAILABILITY TARGET	<ul style="list-style-type: none"> • 99.70%: Single uplink (NBN Access) • 99.80%: Single uplink (Telstra copper accesses) • 99.90%: Single uplink (Telstra fibre accesses) • 99.98%: Fully redundant uplink (Telstra fibre accesses)⁶ 		
UNI MTU SIZE	<ul style="list-style-type: none"> • Telstra Fibre accesses: <ul style="list-style-type: none"> – 1596 bytes (standard) – 9000 bytes (jumbo – requires approval) • Telstra Copper Accesses: 1518 bytes • NBN Accesses: 1522 bytes 		
UNI SHUT DOWN	<ul style="list-style-type: none"> • Disabled 		
UNI SERVICE MULTIPLEXING	<ul style="list-style-type: none"> • Telstra Fibre accesses: Yes (≥1 EVC associated with the UNI) • Telstra Copper Accesses: No • NBN Accesses: No 		
CE-VLAN ID BUNDLING	<ul style="list-style-type: none"> • 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 accesses only) 		

6. Fully Redundant tail UNIs cannot be geo-diverse nor copper-based nor NBN-based.

EVC Attributes

<p>AVAILABLE CLASSES OF SERVICE</p>	<ul style="list-style-type: none"> • 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 Telstra copper accesses or over NBN accesses. • Priority (1:1 CIR:PIR): Medium queues with reliable delivery even if delayed. Used for selected 'real time' applications like SQL database queries and unidirectional streaming video. Not available over Telstra copper accesses or over NBN accesses. • Premium (1:1 and 1:4 CIR:PIR): Small 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, whereas Premium (1:1) and (1:4) are both available on Telstra copper accesses. • Standard (0:1 CIR:PIR): Deep queues with higher discard preference, used for best effort applications like web browsing. Not available over Telstra copper accesses or over NBN accesses. 																																	
<p>CLASS OF SERVICE OPERATION</p>	<ul style="list-style-type: none"> • Single CoS: Any one of the four available CoS can be used within the EVC, subject to the access type as above • Multi-CoS: Up to four CoS are concurrently supported within the same EVC. (Only supported on Telstra fibre accesses) 																																	
<p>EVC FRAME MAPPING</p>	<p>Single-CoS: Frames are C-VID mapped to the EVC irrespective of customer CoS marking</p> <p>Multi-CoS: Frames can be either C-tag mapped (C-VID and PCP) or DSCP-mapped</p>																																	
<p>TARGET NETWORK PERFORMANCE OBJECTIVES, (UNI-TO-UNI)</p>	<table border="1"> <thead> <tr> <th rowspan="2">Class of Service</th> <th rowspan="2">Frame Loss Ratio</th> <th colspan="3">Average One-way Frame Delay</th> <th rowspan="2">Average Frame Delay Variation</th> </tr> <tr> <th>0-161km</th> <th>162-1609km</th> <th>1610-16093km</th> </tr> </thead> <tbody> <tr> <td>Expedited</td> <td><0.01%</td> <td><5.7ms</td> <td><14.5ms</td> <td><37.5ms</td> <td><1ms</td> </tr> <tr> <td>Priority</td> <td><0.01%</td> <td><10ms</td> <td><20ms</td> <td><43ms</td> <td>Not Specified</td> </tr> <tr> <td>Premium</td> <td><0.1%</td> <td colspan="3">Not Specified</td> <td>Not Specified</td> </tr> <tr> <td>Standard</td> <td colspan="5">Best Effort</td> </tr> </tbody> </table>	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				
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<p>BANDWIDTH PROFILE RATES⁷</p>	<ul style="list-style-type: none"> • For single-CoS EVC: Per UNI.EVC • For multi-CoS EVC: Per UNI.EVC.CoS 																																	
<p>COLOUR MODE</p>	<ul style="list-style-type: none"> • Colour blind⁸: Expedited: 1:1 (CIR Only) Priority: 1:1 (CIR Only) Premium: 1:1 (CIR Only) and 1:4 (CIR:PIR) Standard: 0:1 (EIR only) 																																	

7. 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.

8. 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 (continued)

COLOUR FORWARDING⁹	<ul style="list-style-type: none"> • Yes
COS MARKING PRESERVATION	<ul style="list-style-type: none"> • Layer 2 priority (802.1p) and Layer 3 priority (DSCP) always preserved end-to-end
CE-VLAN ID PRESERVATION	<ul style="list-style-type: none"> • For Telstra fibre accesses: <ul style="list-style-type: none"> – Yes : CE-VLAN IDs are preserved UNI to UNI – No: CE-VLAN ID re-write/translation occurs (one-to-one bundling only) • For Telstra copper accesses: <ul style="list-style-type: none"> – Untagged at tail-end results in tagged at head-end (Tagged tail-end not permitted) • For NBN Accesses: <ul style="list-style-type: none"> – 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)
LAYER 2 CONTROL PROCESSING	<ul style="list-style-type: none"> • 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.
SERVICE FRAME DELIVERY	<ul style="list-style-type: none"> • Known Unicast: Unconditionally supported¹⁰ • Unknown Unicast: Unconditionally supported • Broadcast: Unconditionally supported • Multicast: Unconditionally supported
MAC ADDRESS LIMIT	<ul style="list-style-type: none"> • 50 (Enforced in the network)
EVC MTU	<ul style="list-style-type: none"> • Fibre Accesses: <ul style="list-style-type: none"> – 1596 bytes (default) – 9000 bytes (requires approval) • Copper Accesses: 1518 bytes • NBN Accesses: 1522 bytes
SERVICE OAM PROCESSING	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • MEF 10.2, MEF 23, IEEE802.3
MEF CERTIFICATION	<ul style="list-style-type: none"> • E-Line Services on Telstra fibre accesses¹¹ are CE2.0 certified

9. 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.

10. Subject to the CoS performance objectives.

11. There is no intent to MEF-certify services on copper accesses or NBN accesses.

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