

ETHERNET ACCESS

Our Ethernet Access services can be customised to meet your growing demand, helping you to improve operational efficiencies, decrease time-to-market and build customer loyalty.

SUMMARY

MEF service types supported	E-Line (EVPL Services), ie VLAN-based Service Multiplexing at the UNI.
Physical access technology	Fibre-based (up to 10 Gbps). Copper-based (up to 10 Mbps ¹).
Ingress Bandwidth Profiles (BWP)	Rate enforcement per EVC and per-EVC-per-CoS as per MEF standards. CIR traffic delivered as per the Target Performance Objectives per CoS. EIR traffic is Discard Eligible and may not be delivered under all conditions. The BWP is colour-blind at the UNI.
EVC (service) bandwidth – PIR	Fibre: 0.5 Mbps to 1 Gbps per EVC (predefined fixed-bandwidth increments). Copper: 0.25 Mbps to 10 Mbps (predefined fixed-bandwidth increments).
UNI (port) speed	10 Mbps/100 Mbps/1 Gbps/10 Gbps
Service multiplexing²	Allows a UNI to terminate multiple EVCs, as per MEF standards.
UNI access availability target	99.90%: single uplink (fibre-based access). 99.98%: fully redundant (fibre-based access) ³ . 99.80%: single uplink (copper-based access).
Physical interface type	10GBase-LR, 10GBase-SR, 1000Base-LX, 1000Base-SX, 1000Base-T, 100Base-TX, 10Base-T.
MAC layer	IEEE 802.3, auto-negotiated, full duplex, half duplex.
Classes of Service	Expedited (1:1 CIR:PIR) ⁴ : Short queues and strictly enforced rates, optimised for small frame sizes and low-jitter interactive unidirectional applications, like VoIP and videoconferencing. Priority (1:1 CIR:PIR) ⁴ : Medium queues with reliable delivery even if delayed. Used for selected 'real time' applications like SQL database queries and unidirectional streaming video. Premium (1:1 CIR:PIR) (1:4 CIR:PIR) ⁵ : Small queues with low discard preference, used for key business applications like email and large file transfers. Standard (0:1 CIR:PIR) ⁴ : Deep queues with higher discard preference, used for best effort applications like web browsing.
CoS identifiers	802.1p or DSCP.

SUMMARY CONTINUED

Target performance objectives	TARGET NETWORK PERFORMANCE OBJECTIVE UNI-TO-UNI					
	Class of service	Frame loss ratio	Average One-way frame delay			Average frame delay variation
	Expedited	<0.01%	(0-161 km)	(162-1,609 km)	(1,610-16,093 km)	<1 msec
			<5.7 ms	<14.5 ms	<37.5 ms	
	Priority	<0.01%	(0-161 km)	(162-1,609 km)	(1,610-16,093 km)	Not specified
			<10 ms	<20 ms	<43ms	
	Premium	<0.1%	Not specified			Not specified
	Standard	Best effort				
Layer 2 control processing	As per MEF specifications for EVPL, the following Layer 2 control protocols will be discarded at UNI ingress: • xSTP • PAUSE frames • LACP/LAMP • Link OAM • Port Authentication • E-LMI • LLDP • GARP/MRP • CDP • VTP • UDLD.					
CE-VLAN bundling support	One-to-one (one CE-VLAN ID mapped to one EVC at the UNI). Many-to-one (many CE-VLAN ID mapped to one EVC at the UNI).					
CE-VLAN ID preservation	Yes: Enabled by default (CE-VLAN IDs preserved UNI to UNI). No: CE-VLAN ID Tag re-write/translation for one-to-one bundling only.					
CE-VLAN CoS preservation	Layer 2 priority (802.1p) and Layer 3 priority (DSCP) always preserved.					
Q-in-Q	Mapping customer frames to EVC is performed via the outer-most tag within a multi-tagged frame. When CE-VLAN ID Preservation is enabled: Multi-tagged frames at ingress to the UNI are passed transparently. When CE-VLAN ID Preservation is disabled: Given multi-tagged frames are ingressing the UNI, the outer-most tag will be re-written.					
Service frame delivery	Unicast: Supported. Broadcast: Supported. Multicast: Supported.					
L2 fault management/ service OAM	IEEE 802.1ag CFM is used for internal operational purposes. Customer Service OAM frames with MD-Level = 5, 6 or 7 will be transparently passed at the UNI.					
EVC MTU	1596 bytes (Standard for fibre access). 9000 bytes ⁶ (Jumbo – subject to availability on fibre access). 1518 bytes on copper access.					
MEF certification	MEF 9 and MEF 14 compliance ⁷ .					
Relevant customer-facing standards	MEF 6.1, MEF 10.2, MEF 23.					

1. Speed achievable on copper accesses is dependent on factors including the distance from the exchange. 2. Only supported on fibre accesses. 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. Layer 1 failover mechanisms may be supported in some cases – consult your TW account manager for details. 4. These CoS are not supported on copper-based accesses. 5. 1:4 CIR:PIR only provided for Ethernet Access services on copper accesses. 6. Jumbo MTU size is not supported on the Expedited CoS because this CoS is targeted towards voice and other real-time applications which inherently use small frame sizes. 7. Only Fibre accesses are MEF-certified. No copper accesses are MEF-compliant.

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