consoleconnect

The simpler, **smarter way to connect**

L2 connection

Service specification

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Table of contents

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1. Introduction

Console Connect L2 Connection is a secured virtual private Ethernet service, transported via a fully redundant Multi-Protocol Label Switching (MPLS) enabled IP infrastructure provided by Console Connect. It enables Customers to connect geographically separate LANs using Ethernet, with the following benefits:

- Scalable solution that caters for future bandwidth expansion. Network bandwidth can be upgraded easily providing there is enough capacity available in the Ethernet Local Access.
- Low cost of equipment for high bandwidth Ethernet connection to the WAN.
- Minimize operating costs, as multiple services can be supported by a single network connection.

It is suitable for Customers who:

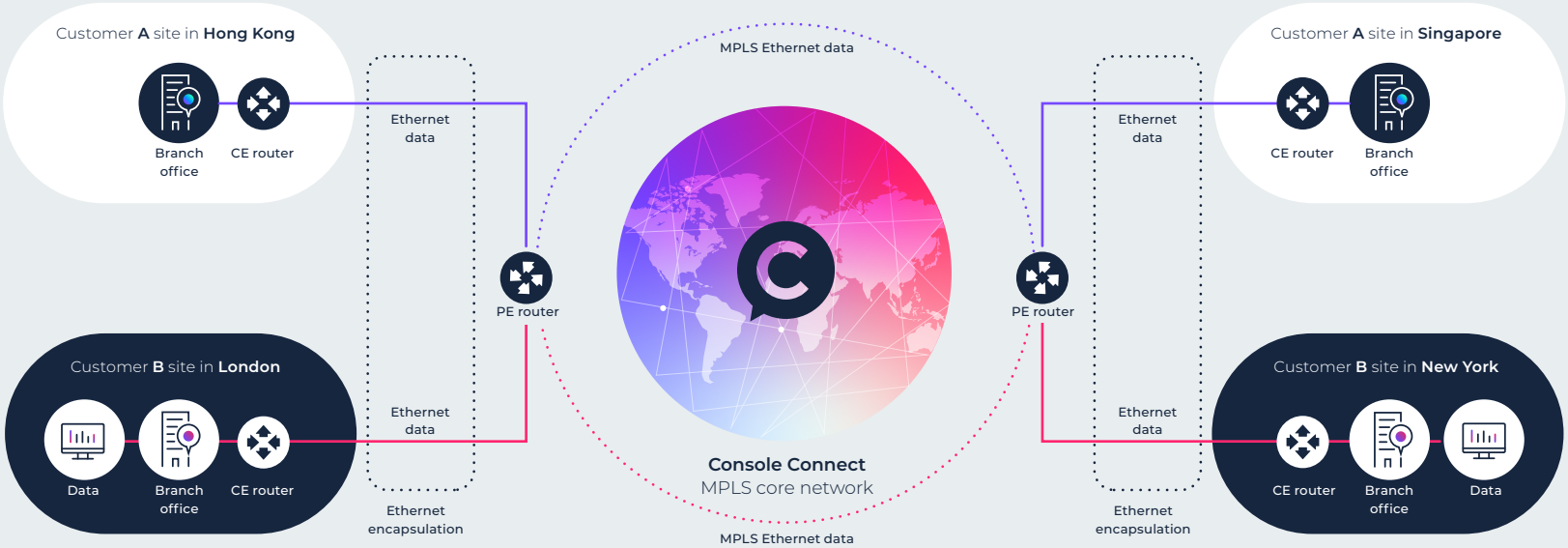
- Want to extend Ethernet connections beyond their LAN infrastructure into the WAN.
- Requires full control of their WAN routing without intervention from a service provider.
- Requires multi-cable system resiliency build-in to their WAN.

Console Connect L2 Connection Service is an E-Line (Point to Point connection).

1.1 Service Components

Each Console Connect L2 Connection E-Line consists of the following common components, which establish an end-to-end Ethernet connection between Customer sites:

- Switched Ethernet Port – UNI at network PoP's PE router.
- Ethernet Local Access – Connecting Customer's site to the selected UNI at network PoP's PE router.
- EVC – Ethernet Virtual Connection connecting UNIs with subscribed CoS and bandwidth (from 1Mbps to 10000Mbps with 1Mbps increments).

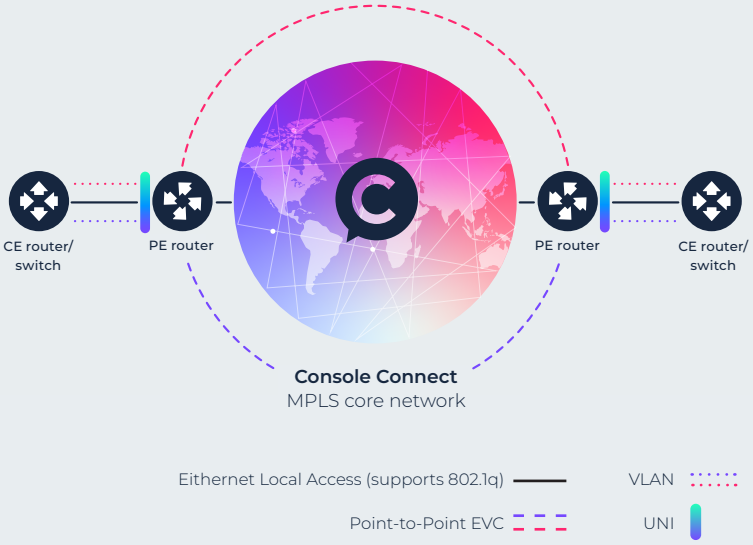


2. E-Line

This service provides an Ethernet connection between two UNIs using point-to-point EVC (p2pEVC), which allows Customers to transparently send Ethernet frames across without MAC address learning. The p2pEVC is constructed based on RFC3985 Pseudo Wire Emulation Edge-to-Edge (PWE3) architecture.

The service consists of a pair of UNIs connected by one or multiple p2pEVC(s) between them:

- The UNI pair supports tagged (802.1q) Ethernet frames from the CE.
- For UNI pairs running tagged Ethernet frames, multiple p2pEVCs can be provisioned. Each p2pEVC is mapped to a unique VLAN ID at the corresponding UNI.
- The VLAN ID on each UNI for a given p2pEVC may be different.
- The VLAN ID assigned at the UNI is assigned by Console Connect during the provisioning of the L2 Connection.
- Each p2pEVC has its own subscribed bandwidth.
- The bandwidth is set by the Customer when creating an L2 Connection on Console Connect.
- Unicast, Multicast and Broadcast Ethernet frames can be delivered over the p2pEVC, except:
- All L2CP from the CE will be discarded.
- Multicast Ethernet frames will be delivered in the same fashion as Broadcast frames.
- UNI supports a default Ethernet MTU size of 1522 bytes (802.1q tagged Ethernet frames) with an IP MTU size of 1500 bytes. For jumbo frame support, kindly raise a feasibility request to a Console Connect representative.

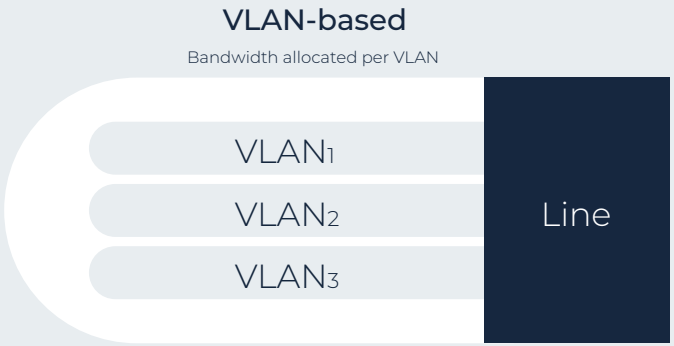


3. Local access

Console Connect L2 Connection services support Ethernet Local Access with the following parameters:

	Service Parameters	Service Requirements
1	Physical Interface	See the Console Connect Port Specification for available physical interface types.
2	Default Ethernet & IP MTU size	Ethernet: 1522 bytes (tagged/dot1q) IP: 1500 bytes. (For the support of jumbo frames, kindly raise feasibility request to Console Connect's representative)
3	Encapsulation	Tagged (802.1q) No VLAN tag transparency (VLAN IDs, 802.1p markings are not preserved)
4	Mode of Operation	Manual configuration as 1000M/10000M Full Duplex

E-Lines allow a physical UNI supporting multiple EVCs. Each EVC will be mapped to a specific VLAN on the Ethernet Local Access between CE and UNI, which has its own bandwidth allocation according to the service subscribed
(This operation mode is known as VLAN-based mode).



4. Technical specifications

The table below outlines the key technical specifications of Console Connect L2 Connection service.

Service Parameters	Console Connect L2 Connection Service – E-Line	Comment
Service Nature	Point-to-point	
Service Technology	Pseudowire Emulation (RFC3985)	
UNI Interface	**See the** Console Connect Port Specification **for available physical interface types.**	For jumbo frame support, consult Console Connect Support.
UNI supported Frame Size & Encapsulation Type	**See the** Console Connect Port Specification **for available physical interface types.**	
Ethernet Virtual Connection (EVC) bandwidth	From 1Mbps to 10000Mbps with 1Mbps increments	
Broadcast and multicast traffic control	N/A	
Max MAC addresses per EVC at UNI	N/A	
Layer 2 Control Protocol Support	All will be discarded, including STP/RSTP/MSTP, PAUSE, LACP/LAMP, Link OAM, Port Authentication, E-LMI, LLDP, GARP/MRP Block	

5. Definitions

CE	Customer Edge equipment
EVC	Ethernet Virtual Connection appears in the form of point-to-point
L2CP	Layer 2 Control Protocol
LAN	Local Area Network
MAC	Media Access Control
MPLS	Multi-Protocol Label Switching
p2pEVC	Point-to-Point EVC
PE	Provider Edge equipment
PoP	Point of Presence
UNI	User Network Interface, aka Console Connect Port at IP infrastructure
WAN	Wide Area Network

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