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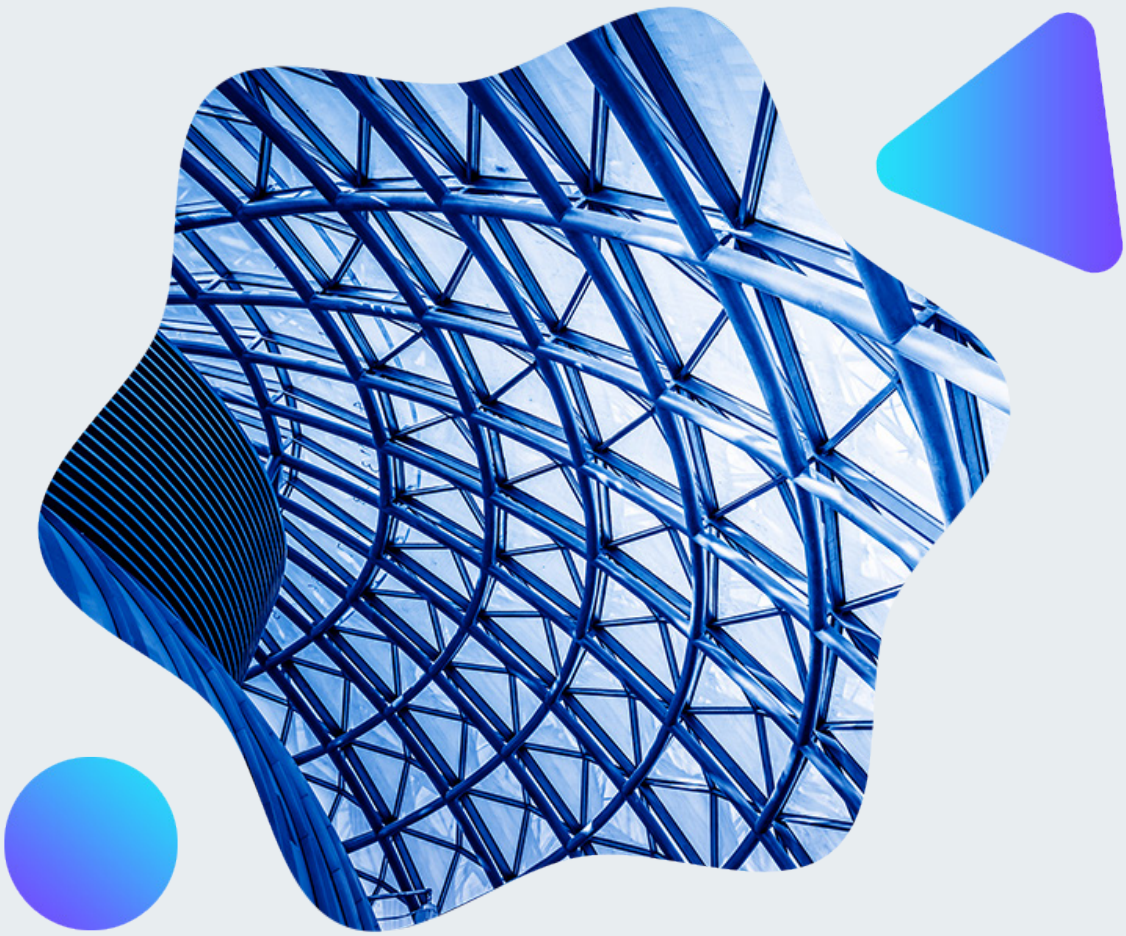


Switched Ethernet

Resilient, scalable and fast connections.

As businesses expand across locations, cloud environments and ecosystems, you need connectivity that adapts with you. Switched Ethernet delivers secure, scalable and high-performance connectivity over a fully redundant, meshed global infrastructure.

Designed for flexibility, it enables seamless, private connections between enterprise sites, data centres, cloud platforms, applications and customers, all within a unified network.

With agile, on-demand Layer 2 connectivity and full control of your routing, you can scale bandwidth from 1Mbps up to 50Gbps (location dependent), ensuring your network evolves in line with your business needs.

Why choose PCCW Global's **Switched Ethernet**

Direct connectivity: Seamlessly connect enterprise locations, data centres, cloud environments, applications and customers.

Improved performance: Delivered via our global private network infrastructure, ensuring enhanced security and consistent performance.

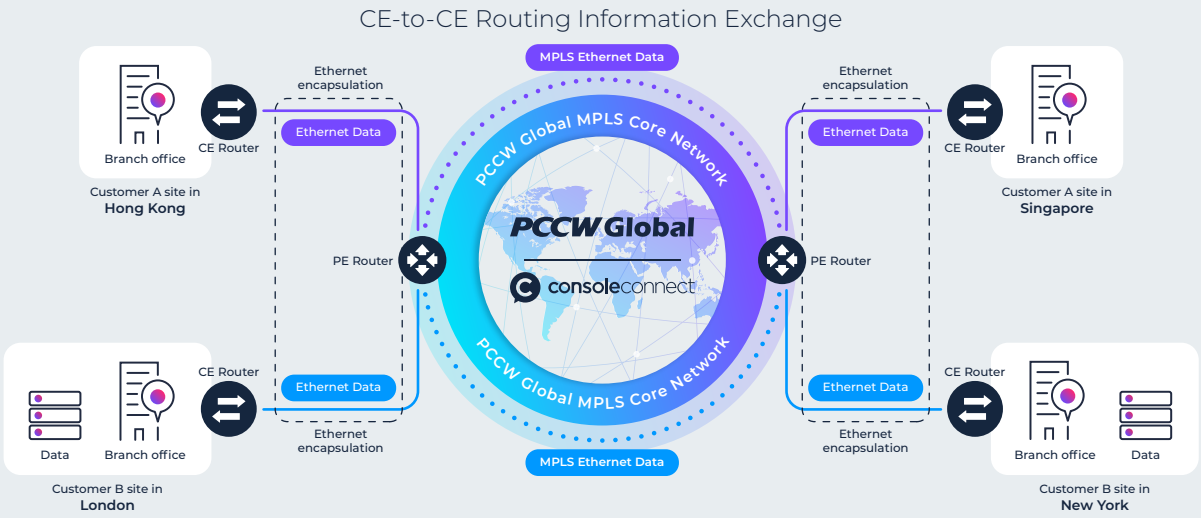
Greater choice: Service type options including E-LAN, E-line and E-Tree (see more detail on page 4).

Cloud access: On-demand Layer 2 connectivity to 200+ cloud locations worldwide.

Features

- Bandwidth options from 1Mbps up to 50Gbps (subject to location).
- Point-to-point and multi-point connectivity options available.
- High network availability SLA (99.99%) supported by widely recognised backbone diversity.
- Class of Service options to prioritise latency sensitive and business-critical traffic.

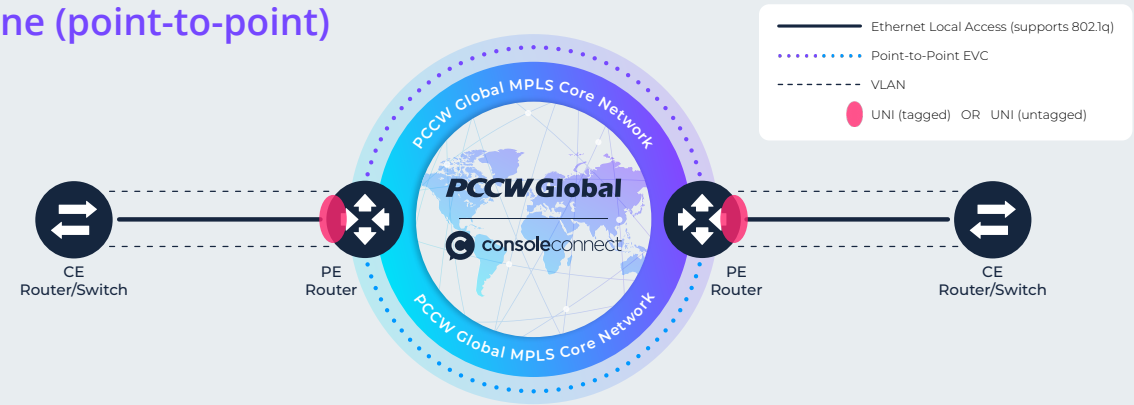
How it **works**



- Switched Ethernet is a secure virtual private Ethernet service, delivered via our fully redundant meshed IP infrastructure.
- Connect your geographically dispersed sites using Ethernet, while maintaining control of your routing.
- Prioritise critical and latency-sensitive traffic with a subscribed Class of Service (CoS) and bandwidth (from 1M to 50G) subject to locations.

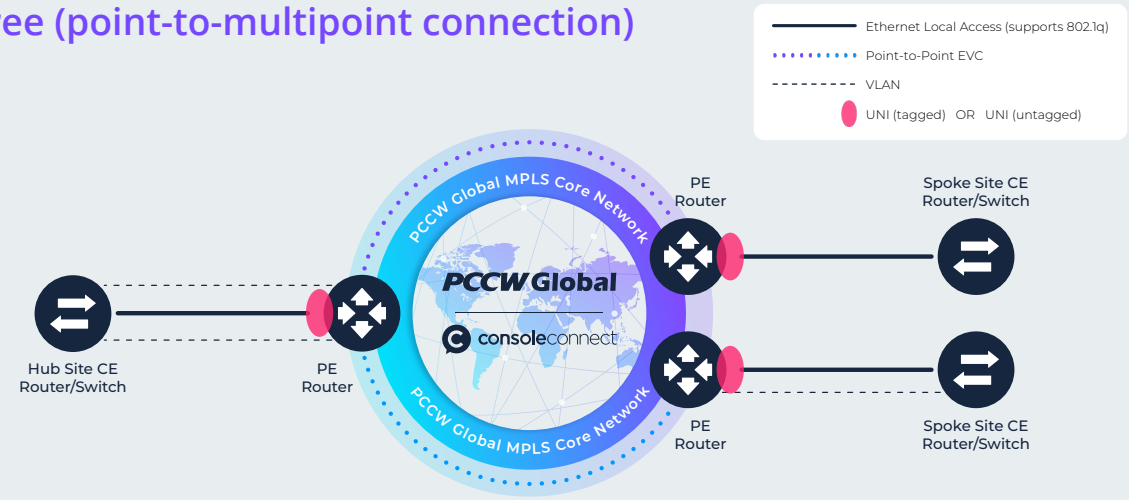
How sites can be **connected?**

E-Line (point-to-point)



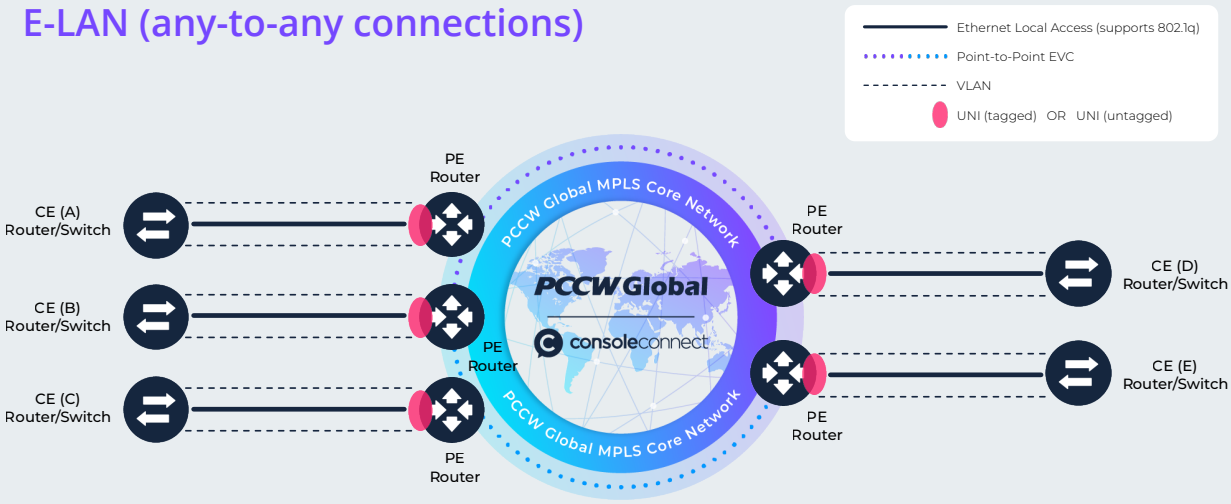
- Provides an Ethernet connection between two UNIs using point-to-point EVC (p2pEVC), with each supporting a single CoS.
- Allows customer to transparently send Ethernet frames across.
- p2pEVC is constructed based on RFC3984 Pseudowire emulation.

E-Tree (point-to-multipoint connection)



- Provides a 'hub and spoke' Ethernet connection among multiple UNIs using multiple point-to-point EVCs (p2pEVCs), with each supporting a single CoS.
- Allows customer to transparently send Ethernet frames across.
- p2pEVC is constructed based on RFC3984 Pseudowire emulation.

E-LAN (any-to-any connections)



- Provides a fully meshed Ethernet connection among multiple UNIs using a combination of point-to-point EVC (p2pEVC) and multipoint-to-multipoint EVC (mp2mpEVC) , with each E-LAN EVC supporting one CoS only.
- Allows for a fully meshed topology to be achieved at Layer 2 among four or more sites. It uses a single bridged virtual Ethernet switching device on the same LAN.
- Each UNI supports a maximum of 5 E-LAN EVCs.

How the service can be **delivered**

Service layer	Options available
Switched Ethernet Port	• User Network Interface (UNI) at network PoP • Choice of Ethernet, Fast Ethernet or Gigabit Ethernet interface to 10/100 Gigabit Ethernet • Supports untagged and tagged (dot1q) frames
Ethernet Local Access	• Choice of Ethernet, Fast Ethernet or Gigabit Ethernet interface to 10/100 Gigabit Ethernet • Connects customer's site to UNI
Ethernet Virtual Connection	• Connects UNIs with subscribed Class of Service (CoS) and bandwidth (from 1M to 50G) subject to locations • Each EVC supports a single CoS, with a choice of premium or standard - see below

CoS	Characteristics	Applications
Premium	Suitable for networks that handle real-time applications and require stringent delay and jitter performance with small packet size	Example of real-time applications: > Voice
Standard	Suitable for networks that do not handle real-time applications	Example of non real-time applications: > SAP, SNA, Oracle, Telnet, E-mail

Switched Ethernet **technical specification**

Specification	Details
For E-Line/E-Tree/E-LAN, Unicast, Multicast and Broadcast Ethernet frames can be delivered over the EVC, except all the Layer 2 Control Protocols from the CE will be discarded	• For E-LAN, Multicast frames will be delivered in the same fashion as Broadcast frames
Header Preservation for E-Line/ E-Tree/E-LAN	• All information in the IP Header is preserved (including source and destination IP addresses, IPP, DSCP etc) • All information in the Ethernet Header is preserved, except the 802.1Q tag, which is used as service delimiter locally within the UNI to identify which VLAN maps to which EVC
Aggregated Ingress (CE to PE) Broadcast and Multicast traffic control for E-LAN	• For each UNI, there is a threshold that controls the aggregated ingress Broadcast and Multicast traffic volume for all E-LAN EVCs within it • The threshold equals to 20% of the total subscribed bandwidth of all E-LAN EVCs in the UNI e.g. An UNI has 2 E-LAN EVCs with a total subscribed bandwidth of 22Mbps will have a Broadcast and Multicast traffic threshold equals to 4.4Mbps applies to all E-LAN EVCs • If the actual aggregated ingress Broadcast and Multicast traffic volume of a particular UNI exceeds the threshold, all the ingress broadcast and multicast traffic from all E-LAN EVCs will be dropped until the ingress traffic rate falls below the threshold
MAC address control for E-LAN	• 25 MAC address per E-LAN EVC at each UNI by default. Additional one will be discarded

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Talk to us

Australia
Level 3 | 200 Mary Street | Brisbane QLD 4000 | Australia

australia@pccwglobal.com

France
2/F 16 rue Washington | 75008 Paris | France

europe@pccwglobal.com

Greece
268 Kifisias Avenue | Chalandri, Athens | Greece

europe@pccwglobal.com

Germany
Schillerstr. 31 | 60313 Frankfurt/M. | Germany

europe@pccwglobal.com

Hong Kong
20/F, Telecom House | 3 Gloucester Road | Wan Chai | Hong Kong

hongkong@pccwglobal.com

Japan
3/F Marunouchi Mitsui Building | 2-2, Marunouchi 2-chome, Chiyoda-ku | Tokyo 100-0005 | Japan

japan@pccwglobal.com

Singapore
6 Temasek Boulevard | #41-04A/05 | Suntec Tower Four | 038986 | Singapore

singapore@pccwglobal.com

South Africa
Building 12 | 1 Woodmead Drive | Woodmead 2191 | Johannesburg | South Africa

africa@pccwglobal.com

UAE, Dubai
Office 504 & 505 Level 5 | Arjaan Business Tower | Dubai Media City | Dubai

mena@pccwglobal.com

United Kingdom
7/F, 63 St. Mary Axe | London, EC3A 8AA | United Kingdom

europe@pccwglobal.com

United States
450 Springpark Place | Suite 1000 | Herndon | VA 20170 | USA

usa@pccwglobal.com

Ready to get started?
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www.pccwglobal.com