

White Paper

MPLS Cloud

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1 Overview

The MPLS Cloud service provides enterprises with the ability to connect multiple sites (i.e. branch offices, warehouses) together in a simple and modular way.

Highway 1 offers several service models to suit differing customers' requirements.

1. CentralNet MPLS
2. DirectNet MPLS
3. Pure MPLS

1.1 How MPLS works

Multiprotocol Label Switching (MPLS) is a mechanism in high-performance telecommunications networks which directs and carries data from one network node to the next with the help of labels. MPLS makes it easy to create "virtual links" between distant nodes. It can encapsulate packets of various network protocols.

MPLS works by prefixing packets with an MPLS header, containing one or more "labels".

These MPLS-labeled packets are switched after a label lookup/switch instead of a lookup into the IP table.

The entry and exit points of an MPLS network are called label edge routers (LER), which, respectively, push an MPLS label onto an incoming packet and pop it off the outgoing packet. Routers that perform routing based only on the label are called label switching routers (LSR). In some applications, the packet presented to the LER already may have a label, so that the new LER pushes a second label onto the packet.

Labels are distributed between LERs and LSRs using the "Label Distribution Protocol" (LDP).[5] Label Switch Routers in an MPLS network regularly exchange label and reachability information with each other using standardized procedures in order to build a complete picture of the network they can then use to forward packets.

Credit http://en.wikipedia.org/wiki/Multiprotocol_Label_Switching

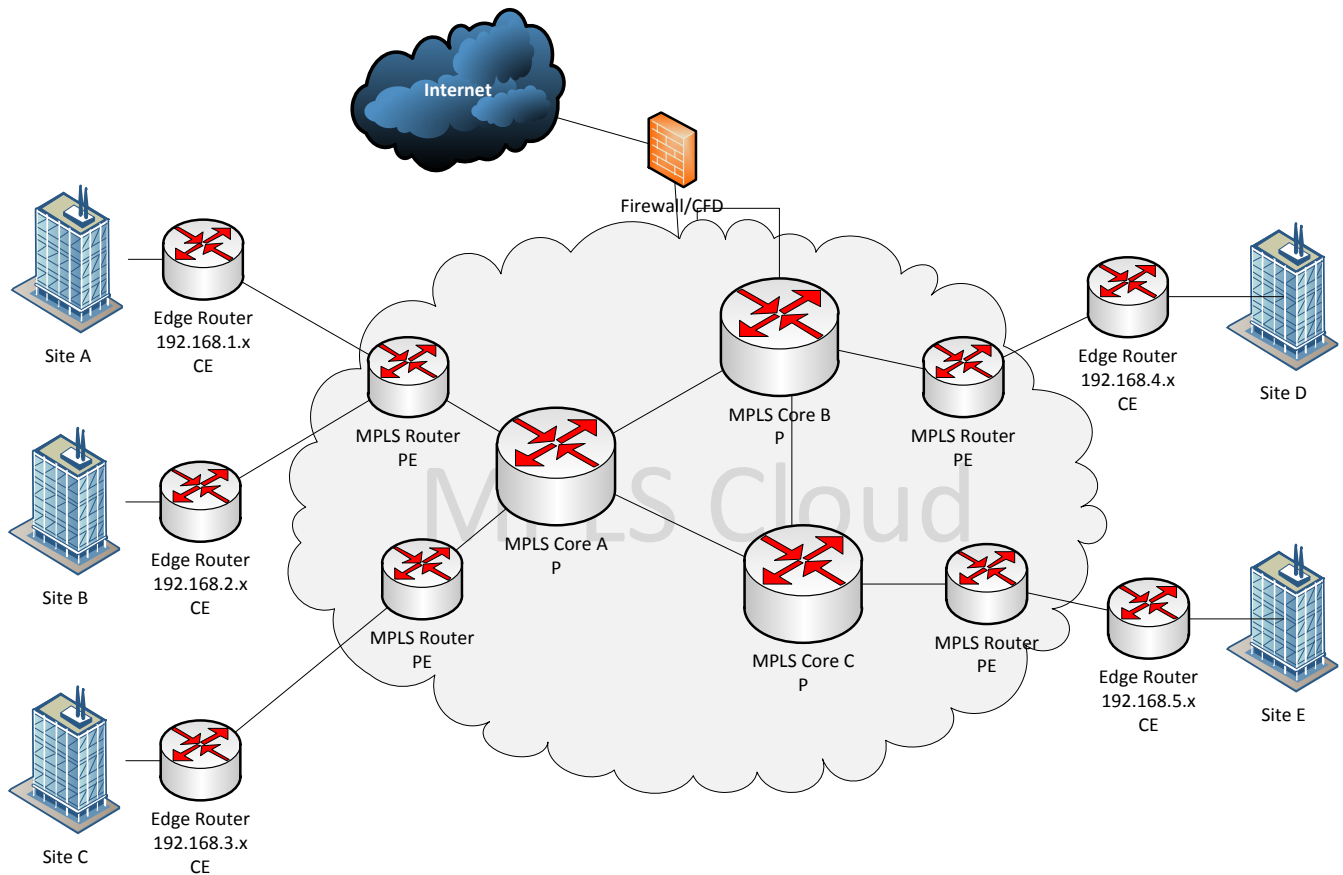
1.2 Available Endpoint Technologies

We can provide MPLS is available on the following endpoint technologies:

1. Ethernet (Fibre, Ethernet over Copper aka Midband)
2. xDSL (ADSL/ADSL2+, SHDSL)
3. HSDPA (3G Wireless)
4. WiMax (Fixed Wireless)

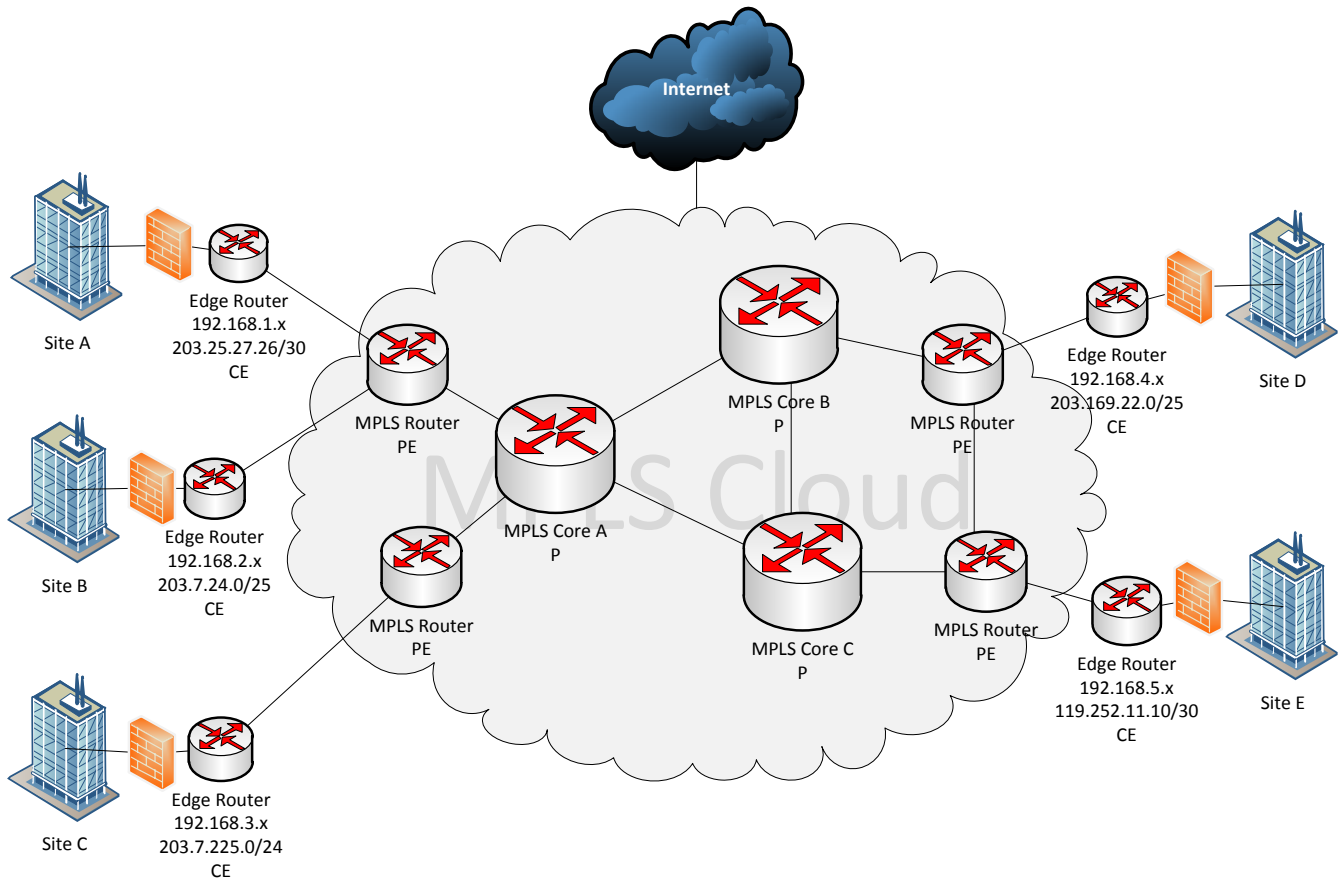
2 CentralNet MPLS

CentralNet MPLS provides a central point of internet connectivity through a firewall located within the Highway 1 network. CentralNet is designed for organisations that want to take advantage of the benefits of centralising external access through a single point on the network. This greatly simplifies security and network maintenance however does not allow MPLS sites to be directly addressable (except when using NAT) from the internet. CentralNet is recommended for most customers if it can be accommodated.



3 DirectNet MPLS

DirectNet MPLS provides internet connectivity at each MPLS site. Each site is provided with real-world IP addressing for internet connectivity and internal addressing to access other MPLS sites. This model is design for customers with existing firewall and security requirements at each site.



4 Pure MPLS

Pure MPLS provides a MPLS service without internet connectivity. This type of network assumes the customer ether does not require internet connectivity or will supply it themselves. In the scenario where the customer will be supplying internet connectivity, a Highway 1 Network Engineer may be required to make adjustments the MPLS network to ensure successful operation.

5 Model comparison

Feature	Directnet MPLS	CentralNet MPLS	Pure MPLS
Direct Connectivity Between MPLS Sites	Y	Y	Y
Internet Connectivity	Y	Y	N
Centralised Firewall configuration for all MPLS Sites	N	Y	N
Centralised Content Filtering	N	Y	N
Single Remote Access Point	N	Y	N
MPLS Sites directly addressable from the Internet	Y	N	N
MPLS Sites addressable via NAT from the Internet	Y	Y	N

6 Commercial Components

6.1 Pricing

Service	Description	Fee
MPLS Cloud	This is the fee to maintain the cloud. This is determined by: <ol style="list-style-type: none"> 1. Backhaul Size – How much total MPLS backhaul does the customer require. 2. Any non-standard configuration required. 	<i>For Each Cloud:</i> Setup + Monthly
MPLS Site	This fee provides: <ol style="list-style-type: none"> 1. Site Connectivity into the MPLS Cloud 2. Router Management (Optional) 3. Router Rental (Optional) 	<i>Per Site:</i> Setup + Monthly
Internet Bandwidth	This fee provides the internet service to the MPLS network. This can be either a dedicated PIPE or a monthly traffic quota with excess.	<i>For Each Cloud:</i> Setup + Monthly
Firewall	This fee provides a firewall service. This can be either managed or self-managed by the customer.	<i>For Each Cloud:</i> Setup + Monthly
Content Filtering	This fee provides a content filtering service. This can be either managed or self-managed by the customer.	<i>For Each Cloud:</i> Setup + Monthly

6.2 Contracts

- MPLS clouds have a minimum contract term of 24 months.
- An MPLS site has a minimum contract term of 12 months.
- Internet bandwidth has a minimum contract term of 12 months but may be upgraded at any time.
- Firewall and Content Filtering have a minimum contract term of 12 months.