White Paper

MPLS Cloud

Contents

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.

ZettaNet 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 ZettaNet 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.
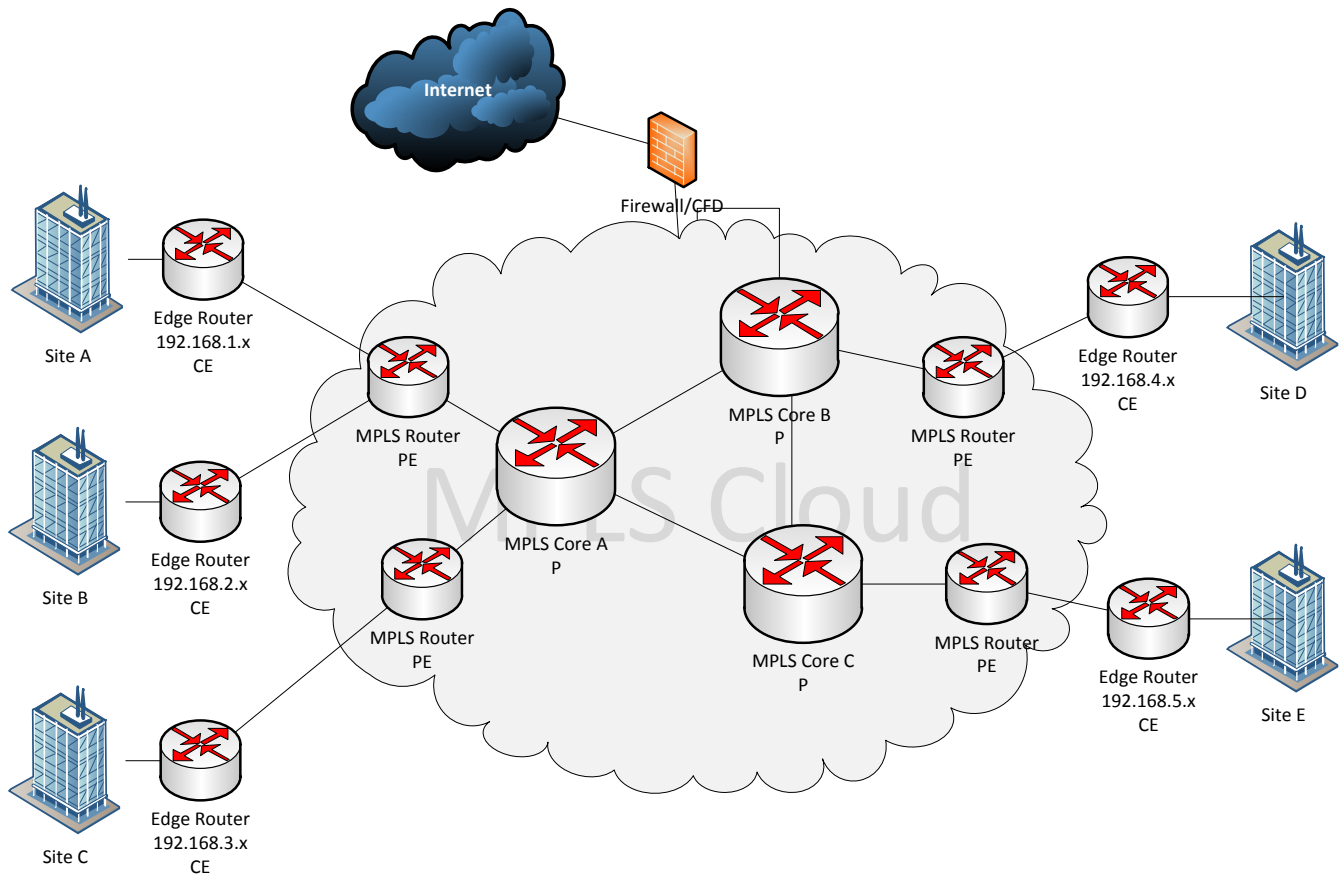
3   DirectNet MPLS

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.
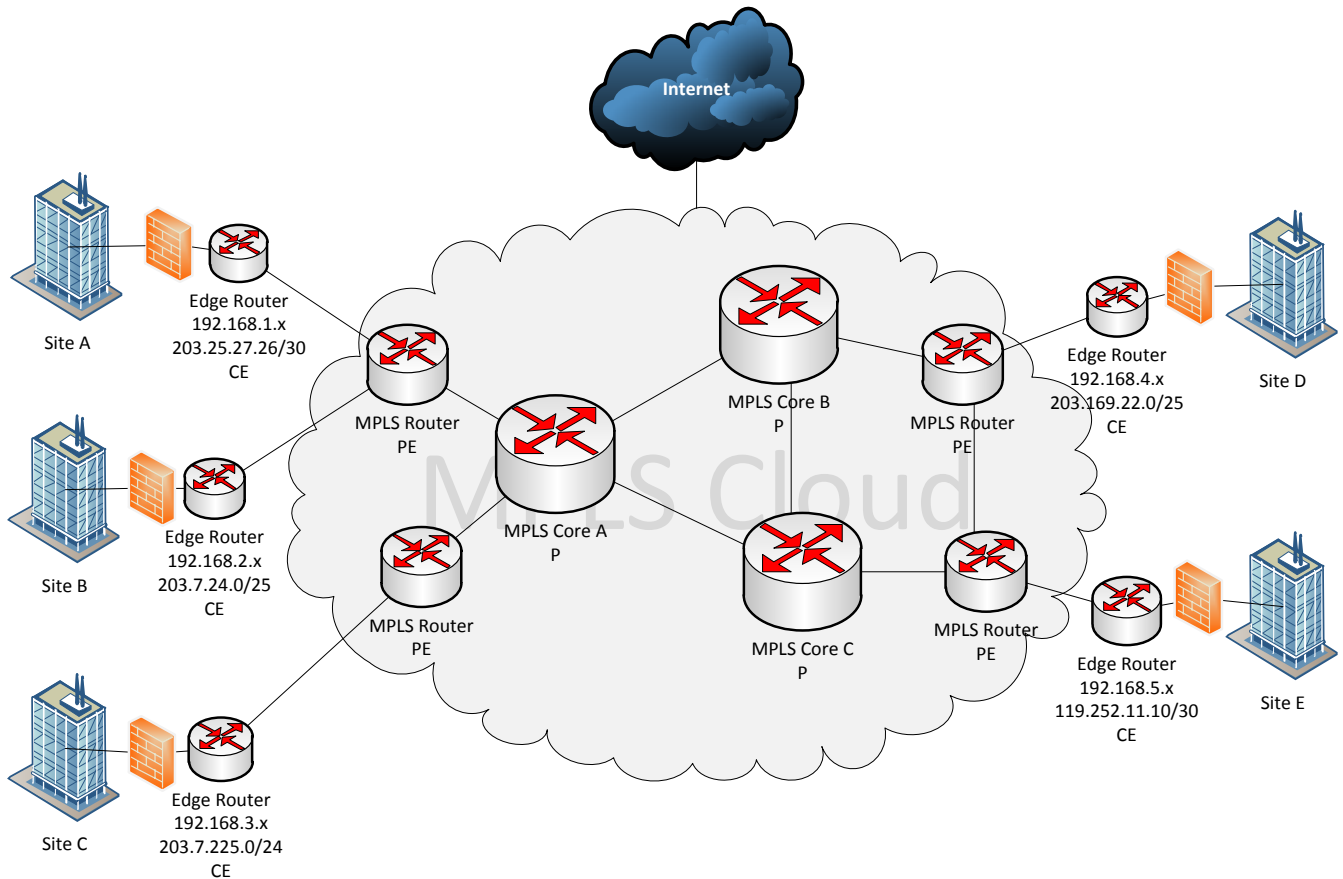
4 Pure MPLS

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 ZettaNet 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