iNetLink
TECHNOLOGIES

INT NETLINK's Past Projects

MPLS Backbone Service Provider

Afghanistan

CHALLENGE

The challenge for the leading service provider is to migrate legacy networks based on time division multiplexing (TDM), Frame Relay, and ATM into intelligent, integrated, Internet Protocol/Multiprotocol Label Switching (IP/MPLS) packet-based networks capable of supporting converged network services is well under way. Leading wireline and wireless service providers worldwide are already deploying IP/MPLS backbones to take advantage of bandwidth efficiency, scalability, superior network management, and the ability to use IP to expand into new service markets.
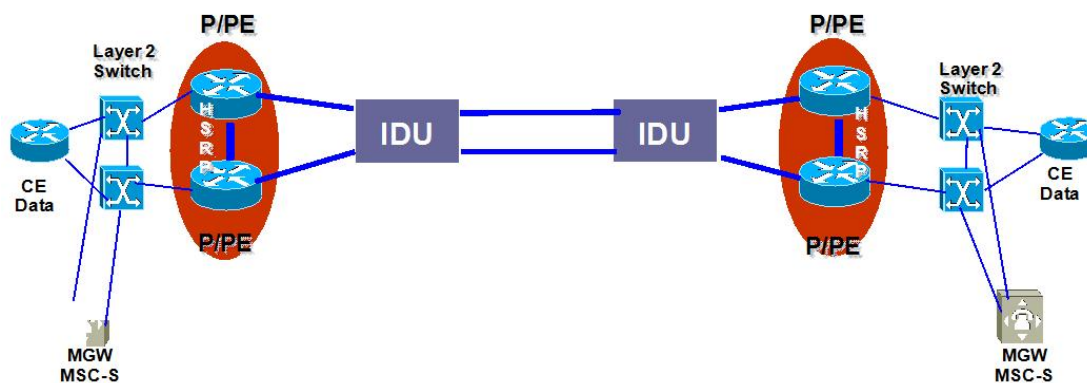
SOLUTION

Cisco addresses these challenges with industry-leading MPLS technologies supported by Cisco IOS Software family, including Cisco IOS XR Software, designed to deliver industry-leading IP/MPLS routing features on the multi-terabit, distributed architecture of the Cisco CRS-1 Carrier Routing System. These include Fast Reroute (FRR), QoS with Differentiated Services (DiffServ), Traffic Engineering (TE), and embedded management tools for QoS assurance, guaranteed bandwidth, resiliency, scalability, and stability. These capabilities and many others are available from Cisco on the broadest set of routing platforms in the industry, giving the mobile operator tremendous flexibility and choice.

The proven Cisco IP/MPLS multiservice architecture has been deployed in service provider environments worldwide. It can provide a single, integrated backbone that can converge many existing, disparate networks-today each having its own disparate traffic paths, end devices, and burdensome management-that the typical mobile operator has built over time. This consolidation and convergence helps mobile operators lower maintenance costs, provides a single management infrastructure, and makes deployment of new services much faster. Since the core, edge, and access layers within the Cisco IP/MPLS architecture can be scaled independently of each other, the phased migration of new and existing networks and services is possible without disruption to existing traffic.

Technical Summary

Schematic Diagram of Two site interconnection

Multiservice IP networking products and solutions for mobile networks from Cisco Systems are helping to transform the design, profitability, and cost-effectiveness of mobile networks around the world. Mobile operators are at different stages of migrating to 3rd Generation/4th Generation (3G/4G) mobile network services and architectures and new IP services and applications. This is the case in TDM networks for traditional mobile voice environments; in ATM networks for 3G mobile networks, specifications Revision 99 to Revision 4/5 (3G R99 and R4/5); and for a range of new value-added services Standards bodies, such as the 3rd Generation Partnership Program (3GPP), are recommending IP for mobile network traffic. 4G standards development is moving towards IP-addressable mobile phones and other devices.

The Cisco IP/MPLS-based architecture and products-tried and true with successful deployments by most wireline service providers worldwide-provide the end-to-end quality of service (QoS), security, scalability, resiliency, and management enhancements for deploying data, voice, and video services. These carrier-class, industry-leading features run on the broad Cisco family of powerful hardware, ranging from Cisco CRS-1 Carrier Routing System, the world's most powerful router; to Cisco 7600 Series Routers, the best performing provider edge and enterprise metropolitan area network (MAN) and wide area network (WAN) router; to an array of customer edge and access routers.

Network Architecture

The following are the salient features of the solution

> The MGW is connected on layer 2 switch to P/PE. MGW is acting as CE
> The MGW has specific mecanishm to perform Fail-Over between its 2 interfaces (Active/standby). This switch-over is based on Internal process and must be transparent to the IP network
> HSRP is implemented to have redundancy on P/PE
> Failure at the Edge :
> MGW Link Failure : internal MGW swithc-over : xx ms (needs to be confirmed by MGW vendor.