

# Aspen Solutions

## MPLS Backup and VoIP: The Enterprise in Control

### APPLICATION NOTE

#### Introduction

The major telco carriers' of promise premium quality of service for inter-branch VoIP traffic is hastening the migration of many enterprises from their older private Frame Relay networks to MPLS Virtual Private Networks (VPNs). This application note illustrates how the Aspen 365-HQ and Aspen 365-BRANCH can be used to provide disaster-proof, inexpensive backup of the MPLS network using standard Internet access links of various kinds. These can be DSL, cable-modem, fixed wireless, T1, Metro Ethernet, or Satellite based. Aspen's solution works in concert with enterprise IP PBX and related equipment and supports SIP, H.323 and the Asterisk IAX protocol.

#### Example Application

#### Controlling Encrypted VoIP and Data Flows

- Internet as a backup
- Load balancing

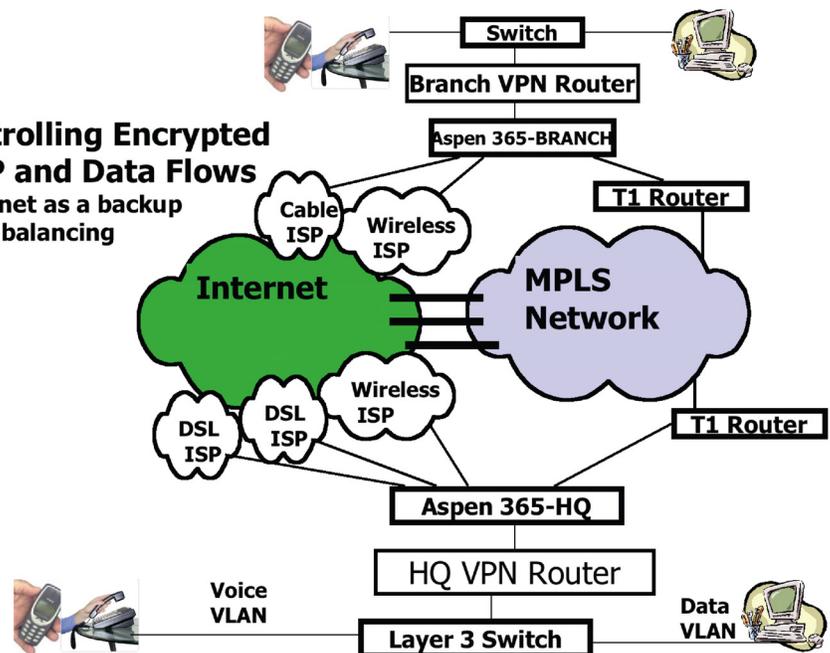


Fig 1

In this example, a local fixed wireless ISP is contracted at each location for path diversity along with a mix of additional ISP links (such as DSL or cable modem). The above infrastructure delivers the following benefits to the enterprise:

**Eliminates Single Carrier Dependence:** Single carrier solutions, even with MPLS, are vulnerable to failure of T1 links, fiber cuts, etc. The Aspen 365 enables companies to deploy their enterprise WAN's across multiple vendors and alternate paths/topologies putting them back in control of their quality of service.

**Disaster Proofing using Alternate Last Mile:** T1 and other copper loop failures can and do occur for various reasons, including construction accidents and natural disasters such as earthquakes or hurricanes. Using local wireless ISPs is a practical means of disaster proofing especially for VoIP and is reasonably low cost. Cable-modem and HFC local loops are also another alternative to traditional T1/DSL copper loops offered by local phone companies.

**“Preferred Voice” Path Selection:** The Aspen 365 allows encrypted voice and data traffic to flow over different VPN paths. Most MPLS users will prefer that VoIP traffic use the MPLS paths as long as they are operational. But when the MPLS VPN path is down, Aspen allows the encrypted VoIP traffic to be placed on the backup Internet paths (either via DSL or the Wireless ISPs). The backup Internet links are idle – Aspen load balances encrypted VPN data traffic over all available links at all times. When VoIP is not active, the load balancing of encrypted data traffic is performed over all available ISP links plus the MPLS path. When VoIP phone calls are active (only a small fraction of the time) any data traffic on the MPLS VPN path is gracefully re-routed to the alternate Internet based VPN paths, and VoIP is given the full bandwidth of the MPLS paths leading to higher-quality, jitter-free voice.

**Standards Based:** The Aspen 365 supports the IETF IPSEC VPN and IETF DiffServ standards and is interoperable with all of the popular 3rd party VPN router hardware, including Cisco, Juniper/Netscreen, SonicWall, Netgear and others.

**Alternate VPN Path Creation:** The IPSEC VPN routers shown in Fig 1 need only have tunnel endpoints configured for the MPLS primary path IP addresses. The Aspen 365 is used to create alternate paths using as many local alternate ISPs as the customer desires, without having to change the configuration in the IPSEC VPN Firewall/Routers. This makes life easy for VPN security administrators, and simplifies the scaling problem posed by a large number of tunnel combinations.

**Milli-second level convergence times:** Failures and degradation of service along any single VPN path are detected and corrected by the Aspen 365 in a few hundred milliseconds; this time to converge is tunable by the end user. The key benefit is that when MPLS failures or scheduled maintenance takes place, NO interruption to existing VoIP calls occurs. With Aspen's rapid failover, users notice no glitches in service.

**Off-load of Random Internet Traffic:** “Bursty” traffic, such as web browsing and video streaming by web browser users, can be safely offloaded to inexpensive DSL links. After all, the asymmetric bandwidth in DSL is appropriate for such use. The Aspen 365 has a comprehensive set of controls to enable users to set almost any policy imaginable in this regard.



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