



MPLS Networks for Small and Mid-Size Business

**Performance-Enhancing IT Services
with Reduced Costs**

Executive Summary

Grow Your Business - Not Your IT Department

Today's small and medium-sized businesses (SMBs) need to share information and applications securely and privately between locations. They must implement innovative, productivity-enhancing IT services and applications with reduced costs, while simplifying the complexity of connecting multiple business locations and remote users.

Success for SMBs is connected to how well they apply today's technologies to their business models. By taking advantage of the latest performance-enhancing technologies, they can provide a better customer experience and higher quality service to differentiate themselves from their competitors. SMBs with legacy frame relay services are discovering the need for more robust, flexible, and cheaper connections in order to remain competitive.

The SMB Opportunity from MPLS Networks

By virtue of its performance, versatility, and lower network total cost of ownership (TCO), MPLS-based VPN technology is today's leading and fastest-growing SMB network solution. MPLS has proven to deliver secure broadband access and managed network solutions that enable SMBs to connect their business locations to each other—as well as to the Internet, business partners, mobile users and teleworkers—while supporting today's demanding new applications.

The MPLS opportunities for SMBs have blossomed over the past decade as enterprise-hardened MPLS solutions have scaled down to serve SMBs with cost-effective, enterprise-class WAN services.

In addition, a new generation of offerings from Managed Service Providers (MSPs) relieves SMBs of the burden associated with network management and security, allowing SMBs to focus on their core business needs and goals.

The IT and Network Challenges Facing SMBs

SMB Network Challenges

SMBs have a need to implement productivity-enhancing IT services with reduced costs, and with that need, they face the complexity of securely connecting multiple sites. SMBs that have relied on legacy frame relay services are realizing the need for more robust, flexible, and less expensive networks in order to remain competitive.

Minimal Capital Expense

Capital expenditures and network equipment purchases must be minimized. From startups, to growing businesses and local government entities, no organization is immune from the need to minimize capital expense outlays. It is the mode of the times.

Multiple Business Locations and the Need for Cost-effective Scalability

Managing multiple locations without the right tools is costly and complicated. As SMBs expand, they must be able to share real-time data and company applications across locations. Legacy services are costly and unreliable, and broadband services are difficult to deploy. The business impact of maintaining multiple locations includes high costs, security problems, downtime, and the inability to effectively track business performance across locations.

Securely Connecting Mobile Users and Teleworkers

Today's business environment requires that workers to have the ability to do business from anywhere at any time, whether teleworking from home or on the road; without this ability a business loses productivity, revenue, and profits. Providing secure remote access internally can lead to high access costs, expensive IT support, and security risks. SMBs face the challenge of finding a secure, reliable, and affordable way to interconnect company resources and support remote users.

Constrained Internal IT Resources and the Need for Managed Services

SMBs need to focus their resources and time on growing their businesses, not their IT departments. Today's best MSPs become an extension of an SMB's team with 24 / 7 / 365 help desk services, powerful and easy-to-use online self-service portals, and a selection of managed service options to meet all of the SMB's networking needs.

MPLS Networks

The Foundation for Today's Advanced IT Services

Over the past decade, Multi Protocol Label Switching (MPLS) technology—which enables voice and data to be transported together on wide area networks (WANs) with CoS and QoS—has matured to provide a platform for powerful new communications and cloud computing capabilities. This is especially important considering the growing network demands that affect SMBs across the globe. MPLS helps solve the service management problems brought on by fast-ramping demands of video and other bandwidth-intensive, jitter, and latency-sensitive applications.

MPLS assigns labels to data packets; the forwarding of a packet is executed based solely on the contents of the label, rather than by the router examining the details of the entire packet. This dramatically speeds up network traffic routing.

MPLS is the fastest-growing WAN technology on the market today because of its performance and versatility. MPLS is called multi-protocol because it works with IP, ATM, and frame relay protocols. Its packet label orientation allows end-to-end circuits to be created across any type of transfer medium, using any supported protocol. It combines the performance of high-speed legacy WAN technologies with the flexibility and cost advantages of IP-based networks.

MPLS enables new routing functionality and capabilities not available with conventional IP routing, including:

- Virtual private networks (VPNs)
- Traffic engineering
- Layer 2 transport in the OSI network stack
- Guaranteed bandwidth services

MPLS has steadily supplanted legacy WAN technologies and emerged as the best available technology for use in “future-proofing” networks because MPLS:

- **Enables data and voice to travel on the same network**

A converged network supports powerful new applications and services—including Voice Over IP (VoIP) telephony, Unified Communications (UC), corporate video, and cloud computing—as well as the ability to cost-effectively scale existing applications.

- **Provides four classes of service (CoS)**

This capability allows service providers to segregate voice, data, and video traffic into different classes of service, or CoS, ensuring that performance-sensitive applications—such as VoIP—have a clear, uncontested path across the network. Most MPLS networks today segregate traffic on the core network with the following CoS priorities:

- o Real-time – For voice and video
- o Critical – For mission-critical activities, such as credit card transactions
- o Business – For business-critical enterprise applications, database access, and surveillance monitoring
- o Data – For lower-priority traffic, such as Internet and FTP

- **Allows for dynamic bandwidth allocation, Quality of Service (QoS), and traffic prioritization**

CoS, combined with dynamic bandwidth allocation, allows MPLS service providers to ensure QoS, including special priority for voice traffic or other top-priority critical applications. QoS is essential for modern networks because it:

- o Enables the prioritization of business-critical applications
- o Gives companies control over how their bandwidth is used
- o Ensures consistent, uninterrupted network performance
- o Prevents critical applications from failing due to network congestion

SMB Benefits from MPLS Networks

Savings from Moving to VoIP

Because telecom expenses represent 1-2% of an organization's operating costs, it is not surprising that most companies are initially attracted to converged services because of the savings made possible by VoIP. Sage Research found that 83% of companies initially turn to IP communications for voice savings. Because long-distance tolls are eliminated with VoIP, phone bills can be reduced by a minimum of 20–30%; many companies fund their entire converged network with their voice savings.

- **Provides a cost-effective WAN solution**

MPLS networks link headquarters and branch offices via a secure, scalable, and highly redundant network infrastructure, and are easily customizable to fit specific bandwidth, communication, and redundancy requirements.

- **Only one network to manage**

Instead of separate networks for voice and data, a single converged MPLS network translates into less maintenance, increased manageability, and more flexibility.

- **Enables easy deployment of expansive intranets and extranets**

Easy sharing of and access to company confidential data and enterprise-critical applications.

- **Ease-of-use**

Simplicity for end users.

- **Enhanced personal productivity for mobile users and teleworkers**

Traffic traverses the network with minimal delay and packet loss.

- **New performance-enhancing applications**

Companies and people are rapidly adopting new communication, collaboration, and customer service applications that fundamentally improve how function and work.

- **Advantages of cloud computing**

Cloud computing providers offer a wide range of hosted business applications that are stored on the off-site (cloud), provider-maintained servers. Users can access these applications via any Internet-connected Web browser. SMBs are increasingly using a wide range of computing resources that are economically delivered with quality, managed services through the cloud, including:

- o Hosted VoIP services — The ideal telephone communication solution for businesses with multiple locations
- o Bundled and Managed services — Managed security offerings—for example, alleviate the need for SMBs to deploy, manage, and maintain their own network security infrastructures
- o Pay-for SaaS applications — Salesforce.com’s customer relationship management (CRM) SaaS and other business SaaS applications give SMBs ready access to enterprise-class applications, yet require network support for consistent, reliable, quality performance
- o Free applications — SMBs can enjoy free enterprise-class services—such as email and collaboration; for example, Google Gmail[™] is an email platform used by many SMBs, while collaboration environments—such as Google Wave[™]— will also likely gain widespread adoption

The MegaPath MPLS Network

A Catalyst for Convergence

MegaPath owns and operates a fiber optic core network that has run MPLS since 1999. The MegaPath network serves over 23,000 customers and 84,000 endpoints, with an MPLS-based Tier 1, all-optical IP network. MegaPath operates approximately 30 network points-of-presence (POPs), which are located in fault-tolerant, carrier-grade facilities. The POPs are connected to the network via multiple optical circuits (OCx) for complete redundancy.

MegaPath’s all-optical switching technology allows coast-to-coast single hop networking for on-net traffic, which significantly reduces latency as traffic traverses the network. With a redundant path for every connection, traffic is instantaneously rerouted in the event of a network failure, ensuring uninterrupted, high-quality service.

The end result is a powerful, business-class MPLS core network that provides secure multi-site and remote access connections to empower today’s distributed enterprises with converged IP data, voice, and video services.

With network connectivity from MegaPath that is available in a variety of access speeds—DSL, T1, business Ethernet—SMBs can select the right speed for the locations they serve. MegaPath has an unrivaled national broadband network footprint that ensures customers always get the right connection at the best price.

The Advantages of the MegaPath MPLS Network

MegaPath: A Leader in Converged Networks

MegaPath is the leading provider of managed IP communications services in North America and has a portfolio of network services that leverage data and voice convergence. MegaPath’s MPLS network provides significant advantages with the broadest QoS-enabled network in the nation and the largest broadband reach of any provider. With resources on par with any national telecommunications service provider, MegaPath offers SMBs the flexibility to cost-effectively scale network services that meet their changing needs.

High Performance from the Core to the Edge

MegaPath's single hop for cross-country, on-net traffic ensures the highest possible QoS for voice, video, and data traffic. By not handing off voice traffic to the public Internet—which is what many providers do with their VoIP services—MegaPath delivers voice and video that are crystal clear with exceptional quality.

MegaPath also provides a range of high-performance add-on offerings that customers can use to tailor their converged environments, including:

- A PCI module for retail – secure, logged credit card transactions
- Excellent last-mile—from DSL to DS3—and wireless offerings
- SSL and Web-based access for easy Web-based remote access

Reduced Costs via VoIP Communications

For many companies moving to VoIP, the savings in traditional telephony costs fund the entire converged WAN solution.

MegaPath Managed Security Service: Protection in the Cloud

MegaPath complements its robust national network with a portfolio of business communication products and services designed specifically for the needs of SMBs. One of the most innovative offerings is MegaPath's Managed Security Service, which delivers comprehensive unified threat management through the network cloud.

Furthermore, the MegaPath network is protected at a global level from large-scale threats by Fortinet®, a world leader in unified threat management.

MegaPath MPLS Offerings for SMBs

Providing cost savings and performance benefits, MegaPath VPN offerings cover the spectrum of managed WAN services, including:

- **MPLS site-to-site managed VPN: Smart, superior performance for applications**
Consolidates all of your business applications onto a single private network with up to five classes of services, built-in security, and a wide selection of access technologies for maximum performance and flexibility.
- **IPSec Site-to-Site VPN: Secure connectivity for 5 or less sites**
Securely connects all of your sites on the same network with IPSec, the standard Internet encryption technology, so multiple offices can safely share files, applications, and resources. Delivers the highest level of security protection using DES and 3DES encryptions to ensure data security. Offers the widest selection of access technologies.
- **Remote IPSec VPN: Secure client-based remote access**
Offered in conjunction with MegaPath's Site-to-Site MPLS VPN service; capable of seamlessly integrating with MegaPath Security Services, a remote IPSec VPN uses a client on remote-users' laptops and PCs to establish an encrypted tunnel to MegaPath's security gateways; this securely maps the traffic into your MPLS VPN.

- **Managed SSL VPN: Clientless, anywhere secure remote access**

A clientless, integrated SSL-based secure access solution that can be rolled out rapidly and managed with ease without the need to buy or manage a remote access system. All of this and there's no client software to install. A proven, cost-effective solution for secure mobile access.

- **Hybrid VPNs: Combine MPLS, IPSec, and SSL for customized solutions**

SMBs can use a hybrid MPLS/IPsec VPN in which on-net sites are connected directly to the MPLS network and off-net sites are connected via the public Internet using IPsec encryption. The latter option allows SMBs to extend the reach of the MPLS VPN to any site on the public Internet. All of these approaches provide adequate data and source/destination information security, as well as the tools to ensure proper authentication and access controls.

- **Managed Security Services (MSS): Protection in the cloud**

Intrusion prevention, anti-virus/anti-spyware, and web filtering for reliable real-time protection against network and application attacks, worms, and spyware.

Next Steps

Go to <http://www.megapath.com/vpn-security/mpls-site-to-site-vpn/> to learn more about MegaPath MPLS network solutions.