

# Redefining Your WAN with Broadband

## Improving Business Agility and Reducing the Dependency on MPLS

The wide area network (WAN) has always been about connecting users to applications and moving data over long distances. This includes connectivity for collaboration among enterprise users, clients, suppliers, and partners across distributed geographical locations. It also includes the movement of data over distance for disaster recovery and business continuity.

Those requirements still exist today, however, the explosion of cloud services and frustration surrounding the high cost and inflexibility of Multiprotocol Label Switching (MPLS) networks has forced a rethink of the enterprise WAN. Companies are now looking to the Internet as their WAN, which opens the door for faster WAN provisioning and the ability to use multiple WAN paths at the same time. This WAN transformation is referred to as the software-defined WAN (SD-WAN).

## Time for a Change

More than three decades ago, the WAN was simply made up of leased-line circuits that provided point-to-point connectivity. Then Frame Relay was developed to support larger hub-and-spoke enterprise environments, providing more simplified branch-to-data center connectivity. In more recent years, the WAN has been defined by the use of MPLS technology delivered by telecommunication providers.

While MPLS provided enterprises with a stable, high-performance, and highly-scalable means of more easily interconnecting multiple data centers and branch offices, it was (and continues to be) expensive. A business with 100 branch offices might pay more than \$2.5 million a year for MPLS connectivity. That said, MPLS made sense for the enterprise over the last decade because applications were only hosted in the data center, and the Internet could not deliver the reliability to support user demands.

## Meeting SD-WAN Requirements

### Flexibility

With Silver Peak, customers can rapidly and non-disruptively augment or replace their MPLS networks with any form of Internet for ubiquitous, instant-on connectivity.

### Visibility and Control

Silver Peak gives customers visibility into both legacy and cloud applications, and supports business intent policies to secure and control all WAN traffic. Dynamic Path Control allows customers to define by policy which path is used for specific application traffic, as well as select paths based on the quality of the connection.

### Performance

Silver Peak Path Conditioning ensures private line performance over the Internet by repairing dropped and out-of-order packets in real-time for greater WAN efficiency. Silver Peak optimizes the most SaaS applications of any SD-WAN provider.

### Savings

Silver Peak can dramatically reduce connectivity, equipment and network administration costs by up to 90% by enabling customers to leverage lower-cost Internet bandwidth. Customers can easily mix and match carriers by access technology and by geography. And with a simplified WAN architecture, customers can reduce the branch networking footprint, significantly lowering branch equipment CAPEX.

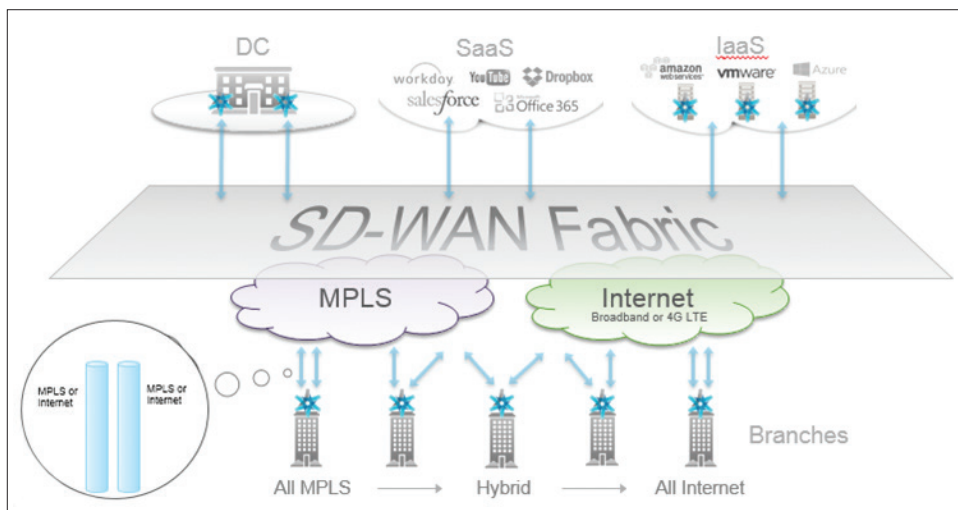


Figure 1: An SD-WAN supports multiple paths and allows connectivity decisions to be made independent of carriers.

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With today's reality of cloud-based applications, MPLS is no longer sufficient to address today's WAN requirements. And in the words of Bob Dylan, "The times they are a changin'."

## Internet and Cloud Demand a Fundamental Shift

Today, with more applications offered on-demand via the Internet and cloud, there is a distinct need for enterprises to operate at "cloud speed." By 2018, Gartner predicts Software as a Service (SaaS) will become the dominant model for consuming application functionality for approximately 80% of all organizations. To operate at this pace, the IT organization now faces a new set of challenges:

- Improve the responsiveness and agility of the business and the network
- Reduce costs of the network
- Provide better support and performance for SaaS and cloud services

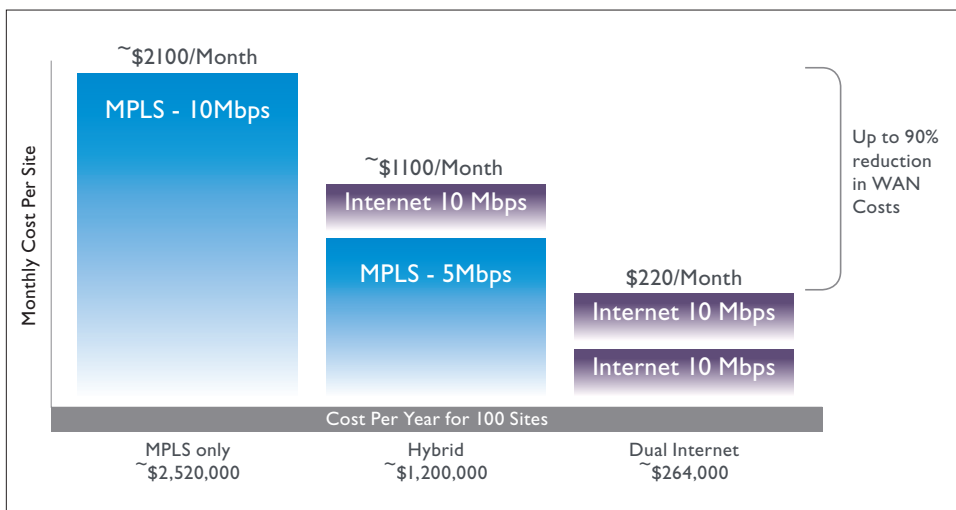
There is an overarching need for increased responsiveness and agility in today's enterprises. If a new office needs to be opened, if a branch office needs to be relocated, or if IT resources need to be moved, the process to add, move, or change MPLS connectivity takes too long and is too disruptive to the business. For example, establishing connectivity at a new site, or increasing the bandwidth to an existing one, can take up to 45 days for T1 lines, and six months for higher-speed circuits. To compound matters, MPLS today does not accommodate new methods of automation, and typically requires on-site IT expertise and configuration of networking equipment.

Lower-cost Internet connectivity has been available, but it has lacked scale, reliability, and security. If Internet connectivity was purchased, it would often sit idle until needed for fail-over. This is like buying a plane ticket from San Francisco to Los Angeles, and also buying a non-refundable bus ticket in case the flight gets cancelled.

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*"SD-WANs support multiple paths and allow connectivity decisions to be made independent of carriers."*

*"Transitioning to this new WAN model requires minimal disruption or cost."*



Source: Telegeography.com - Broadband vs. MPLS pricing for San Francisco Q4 2014. Median monthly price: 10-20 Mbps Broadband \$110/month, 10 Mbps MPLS IP VPN + Local Access \$2,100 Month.

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Businesses are also wasting millions of dollars each year because of the “Trombone Effect,” otherwise referred to as back-hauling. Today, we directly access cloud applications in our homes via broadband Internet, and it works just fine and costs less. But accessing those same cloud applications from within the enterprise often equals slower performance and wasted costs because the transmission is being sent back over the expensive MPLS connection before connecting the cloud over the Internet. Which begs the question: If most enterprise applications are in the cloud, why not connect to them over the Internet?

As SaaS and cloud applications become more pervasive throughout today’s enterprises, the IT organization is also losing visibility and control over the expanding application mix. Most CIOs and IT leaders today cannot say how many SaaS applications are running on their network, or which SaaS applications are in use across the enterprise. When SaaS performance or connectivity problems arise, the IT organization is usually notified via IT trouble tickets. Today, IT not only needs to improve the performance of this new set of applications, but also rein-in how applications are being used on the network.

But what if you could replace or reduce your dependency on MPLS? What if you could use more Internet connectivity in a secure, controlled and optimized manner? What if you could guarantee consistent and reliable performance for users connecting to any applications? And what if you could do all of these while saving up to 90% in WAN costs?

Now, you can.

## Creating a Broadband WAN

An SD-WAN is a virtual WAN overlay that helps enterprises flexibly and securely connect users to applications via the most cost-effective source of connectivity available. This enables enterprises to augment or replace MPLS networks with secure broadband Internet connectivity.

An SD-WAN supports multiple paths and allows connectivity decisions to be made independent of carriers, which helps enterprises avoid lengthy procurement and deployment delays for a faster time to service at the branch.

Want to see everything? Once connected, an SD-WAN fabric should provide visibility into both data center and cloud traffic, and provide the ability to centrally assign business intent policies to secure and control the WAN traffic. An SD-WAN should dynamically select the best path (MPLS or Internet) for each application based on customer defined policies and real-time network quality measurements, and all data in-flight across the WAN should be encrypted edge-to-edge.

An SD-WAN should ensure private line performance over the Internet by overcoming quality problems created by packet loss and out-of-order packets. This is especially important as more SaaS applications are used in the branch.

By transitioning to an SD-WAN, enterprises can reduce their dependency on and expense of MPLS connectivity. By creating a virtual WAN overlay, customers do not have to overhaul any existing WAN investments. Customers can easily mix and match carriers by access technology and by geography.

## Move at Your Own Pace

The beauty of an overlay approach to the new WAN is that enterprises can move at their own pace. While the ultimate goal may be a 100 percent broadband WAN, enterprises can begin their journey with a hybrid WAN. As MPLS upgrades arise, businesses can explore lower-cost broadband Internet services as an alternative path for connecting to Cloud applications. This provides an opportunity to downsize the MPLS bandwidth and only use that connectivity for remaining data center applications. Enterprises can begin to migrate additional applications from the data center and into the cloud as desired, and do so in an optimal way.

Transitioning to this new WAN model requires minimal disruption or cost. Internet services can be introduced into the WAN without impact on application performance or the MPLS network. An SD-WAN automatically selects the optimum path for every application. This can restrict business-critical traffic to MPLS networks, while directing less-critical traffic across the Internet VPN. Given industry averages for bandwidth costs, payback for an SD-WAN investment starts immediately.