

# SD-WAN vs. MPLS

Wide area networks (WANs) are the connective tissue of the modern distributed organization. They tie together main, remote and branch offices, as well as data centers, through combinations of different link types carrying traffic for applications such as hosted VoIP, video conferencing and file transfers. The specific modes of transport vary from WAN to WAN, but have typically featured Multi-Protocol Label Switching (MPLS) services in a prominent capacity.

More recently the traditional dominance of MPLS has been challenged by the rise of software-defined WANs (SD-WANs). While SD-WANs are first and foremost characterized by their use of a software layer that centralizes network management and enables real-time decision-making about path selection, they are also distinguished by their compatibility with multiple forms of connectivity.

In addition to (or instead of) MPLS, an SD-WAN might incorporate commodity broadband, 4G LTE cellular and satellite internet. All of these options are less expensive per megabit than MPLS, meaning that they are ideal for scaling a WAN to numerous sites and supporting apps requiring lots of bandwidth. There are some performance tradeoffs when ditching MPLS for the alternatives, though – even if you get a great deal on an all-internet WAN, you want to make sure you can still support mission-critical hosted VoIP.

How do SD-WANs and MPLS WANs stack up? They each have unique pros and cons worth understanding before making a purchasing decision.

## SD-WAN

The gulf between SD-WAN and its predecessors is perhaps most apparent in how they support cloud-based applications. On an old-fashioned WAN, ensuring safe passage of traffic from apps such as Salesforce and Office 365 between branches and the cloud requires a double hop, i.e. the forwarding of traffic over both WAN and internet connections. This process incurs a major performance penalty as the traffic passes through security devices such as firewalls. The number of SD-WAN production deployments surged from virtually zero in 2014 to more than 4,000 by June 2017, according to Gartner. SD-WANs bring a new level

of intelligence to business networks, allowing for the increased flexibility, responsiveness, security and control necessary for supporting modern applications.

## Pros

**Cost-effective:** Gartner has also estimated a switch from traditional WAN to SD-WAN could reduce the three-year running costs of a 250-branch deployment from \$1.3 million to \$453,000. These savings are achievable mainly through cheaper network transport than MPLS.

**Configurable:** An SD-WAN can be fine-tuned to deliver the Quality of Service (QoS) your organization requires for its most important apps, such as hosted VoIP. It will automatically and seamlessly select the optimal paths for high-priority traffic, avoiding congestion on links exhibiting excessive packet loss, jitter and latency.

**Simple, yet flexible:** With SD-WAN technology, branch expansion is straightforward. It's much easier to connect a WAN to new sites and to ensure secure connections. Less on-premises protective infrastructure is required, plus straightforward integrations with security software and different link types (including MPLS) can support safe direct connections between branches and SaaS and IaaS solutions.

## Cons

**Not a perfect fit for every firm:** If an organization does not have significant investments in cloud-based applications, it might not get much value from an SD-WAN, since its main advantages apply to superior routing of cloud services.

**Possibly challenging to implement:** Depending on the vendor, a customer might face some hiccups in implementing key SD-WAN infrastructure and integrating it with any existing legacy assets. For example, it could take some time to weave in expensive existing MPLS investments so that they don't have to be ditched entirely.

**May need additional services, especially for security:** While Telesystem offers an SD-WAN solution which includes advanced security features and DDoS protection, typical offerings usually require other measures and integrations like the ones we mentioned earlier, especially for protecting cloud-bound traffic and mitigating DDoS attacks.

## MPLS WAN

MPLS is old, yet resilient technology. It has long been synonymous with the very notion of a WAN, and despite the meteoric rise of SD-WAN, it remains an important revenue stream for service providers and a key mode of transport for countless WANs.

### Pros

**Built-in QoS:** MPLS can preferentially treat traffic from the get-go. Unlike other IP networks, it doesn't need multiple routers to perform lookups of the next hop, since the specific label predetermines the path for traffic.

**Service-level agreements (SLAs):** In addition to QoS, a MPLS plan comes with an SLA specifying a particular level of availability, unlike standard broadband plans offering best-effort service that won't be enough for the most demanding apps like hosted VoIP.

**Carrier support:** The MPLS service provider oversees routing, meaning that customers do not have to bear this burden. They can also maintain fewer overall WAN engineers on staff, saving money on IT personnel.

### Cons

**Very expensive:** MPLS can cost hundreds of times more per Mbps per month than broadband. While it provides a higher level of reliability on paper, the gap has been closing and it's now possible to get good enough service via internet links, as long as they're incorporated into an SD-WAN.

**Single point of failure:** The dependability of an MPLS plan ultimately comes down to the carrier overseeing it. If something happens to the carrier's infrastructure, then MPLS service could be disrupted, at great cost to customers' operations.

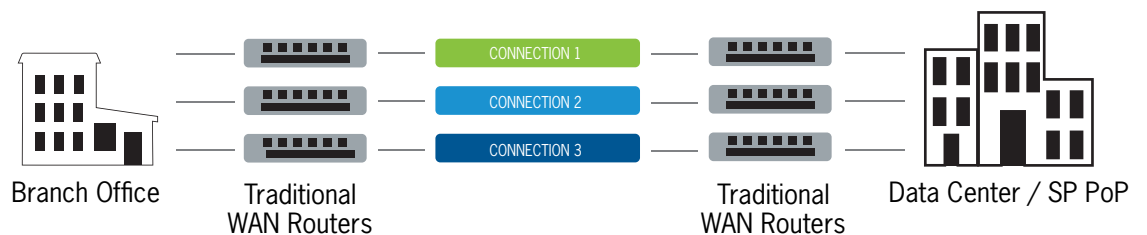
**Not optimized for cloud:** MPLS was originally developed years before cloud computing became a staple of corporate IT. Accordingly, it isn't ideal for the distinctive traffic flows and bandwidth requirements of modern IaaS and SaaS applications

## Choosing the best WAN for your applications

There's plenty to consider when designing and updating your WAN. Along the way, it's important to keep in mind SD-WAN's ability to incorporate MPLS links alongside other forms of connectivity. If you regularly rely on applications such as hosted VoIP and video, it will usually make sense to upgrade to SD-WAN for both the savings and the performance boost, even if you already have some MPLS links in place.

Telesystem has you covered for both hosted voice solutions and an SD-WAN that ensures they perform as expected. Contact our team to learn more about our VoIP and WAN services today.

## Traditional WAN



## Telesystem SD-WAN

