

Calculating Return on Investment for SD-WAN

There are many ways to measure the financial return period of deploying SD-WAN. Many organizations justify their business case and cost by estimating return on investment (ROI), or the time it takes before the savings exceed the cost of deploying the SD-WAN solution.

Traditional wide-area networking (WAN) bandwidth, maintenance, management and support represent a significant portion of an organization's IT budget. With the right offering, transitioning from a traditional WAN to an SD-WAN can provide significant price/performance advantages, without sacrificing reliability or application Quality of Experience (QoE). The payback period for an SD-WAN solution will vary based on the architecture, technology and business model.

SD-WAN ROI example

Let's look at an example of the SD-WAN ROI for an organization with 10 remote offices that connect to their corporate data center and cloud providers. Let's assume the company has 10 existing T1 MPLS links, each with 1.5Mbps throughput. The total cost for the 10 MPLS circuits is \$4,500 per month, or \$54,000 each year. They also have a backup Internet broadband link at each location, with 50Mbps throughput that cost \$100.00 per month, or \$12,000 per year. The total yearly bandwidth costs to support their remote offices is \$66,000.

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The company has a fractional T3 MPLS circuit with 15Mbps throughput, to support their corporate data center. The cost for the T3 circuit is \$1,500 each month, or \$18,000 per year. They also have a backup broadband Internet connection with 50Mbps throughput. The backup Internet connection costs \$100 per month, or \$1,200 per year. The total yearly bandwidth cost to support their data center is \$19,200.

The total costs to support the company's data center and 10 branch offices is \$85,200.

The company's future bandwidth needs

The company needs at least an additional 4.5Mbps bandwidth on the private WAN at each of the 10 locations to accommodate their growing demands. The company evaluated three options to accommodate the additional 4.5Mbps, along with their other requirements.

Their current backup network is an active/passive network configuration. They recognize backup links go unused

when there are no network failures. This represents wasted bandwidth and money. To remedy this, they want all network links to be active at all times. The company currently centralizes network security, and backhauls all branch office traffic to their data center. Instead, they want to connect to their remote offices using multiple, low-cost Internet links.

To accomplish their goals, the company is considering an SD-WAN solution that would use all links simultaneously. The best SD-WAN solution will add the equivalent reliability and QoE when using Internet links that MPLS delivers. It will aggregate multiple, diverse links into a virtual WAN that continuously adapts to traffic, based on the availability and real-time conditions of all network paths. This capability supports more traffic, and ensures all applications run smoothly, by avoiding underlying network issues, like latency, packet loss and jitter.

In this example, let's assume the average cost for a 1.5Mbps MPLS circuit is \$450 per month, or \$5,400 each year. Each remote office needs three additional 1.5 MPLS links to equal 4.5Mbps, at a yearly cost of \$16,200. With 10 locations the total cost is \$162,000. Additionally, the company's data center is supported by a T3 circuit and a backup broadband Internet connection with a yearly bandwidth cost of \$19,200. The total cost to support the company's existing data center, plus 10 remote offices with 4.5Mbps bandwidth would be \$181,200.

The average 50Mbps broadband Internet link cost is about \$100 each month, or \$1,200 per year. With 10 remote locations, plus the one data center, the total cost is \$13,200. This includes a 50Mbps Internet link at the data center, at a cost of \$1,200 per year. Keep in mind, the cost for broadband connectivity will vary based on the type of link, location and service provider.

Remember, the company currently spends \$85,200 each year for WAN connectivity that supports their data center and 10 remote offices. However, to keep things simple in the options below, we'll focus only on the remote office connectivity, for which they currently spend \$66,000 per year.

Option #1

To achieve the additional 4.5Mbps, each of the 10 remote offices deploy three 1.5Mbps MPLS circuits at a yearly cost of \$162,000. The yearly cost for the existing 1.5Mbps MPLS links is \$54,000, and the existing 50Mbps broadband Internet backup links cost \$12,000. The total cost for all remote office links is \$228,000.

No SD-WAN is required for this option. While this gives them the added 4.5Mbps of private WAN bandwidth capacity at each location, it does not address the active/passive redundancy and traffic backhauling issues.

10 existing 1.5Mbps MPLS links - yearly cost	\$54,000
10 existing 50Mbps broadband Internet links - yearly cost	\$12,000
30 additional 1.5Mbps MPLS links (4.5Mbps total) - yearly cost	\$162,000
Total cost	\$228,000
Total additional cost over current remote office WAN	\$162,000

Option #2

Each of the 10 remote offices deploy a hybrid WAN with an SD-WAN solution, aggregating the 10 existing 1.5Mbps MPLS links, and 10 existing 50Mbps broadband links. All links are active 100% of the time. Total yearly cost for 10 1.5Mbps MPLS circuits, and 10 50Mbps broadband Internet links is \$66,000.

This option gives the company significantly more bandwidth than the 4.5Mbps they wanted at each location. It also addresses the active/passive, traffic backhauling, and cloud support issues. Because the WAN is managed by SD-WAN, it also provides many other benefits discussed below.

10 existing 1.5Mbps MPLS links - yearly cost	\$54,000
10 existing 50Mbps broadband Internet links - yearly cost	\$12,000
Total cost	\$66,000
Total cost is equal to the current remote office WAN	\$0

Option #3

Each of the 10 remote offices replace the MPLS circuit with a second 50Mbps broadband Internet link. This Internet-only WAN solution is managed by SD-WAN at a yearly bandwidth cost of \$24,000.

This option gives the company significantly more than the 4.5Mbps of bandwidth they wanted at each location, and also addresses the active/passive, traffic backhauling, and cloud support issues. Because the WAN is managed by SD-WAN, it also provides many other benefits discussed below.

10 existing 1.5Mbps MPLS links - yearly cost	\$12,000
10 existing 50Mbps broadband Internet links - yearly cost	\$12,000
Total cost	\$24,000
Total cost SAVINGS versus current remote office WAN	\$42,000

Options summary

With these three examples, option #1 provides the additional 4.5Mbps capacity the company wanted, but it is far more expensive, and does not address the active/passive, traffic backhauling and cloud support issues.

Option #2 includes the hybrid WAN managed by SD-WAN. This increases the private WAN capacity by over 30x, while saving \$162,000 per year over option #1. This is accomplished by not adding the additional MPLS circuits. Because the WAN is managed by SD-WAN, it addresses all their needs and provides many other benefits. This solution almost doubles the bandwidth capacity at each of the 10 locations, with no additional cost. The company gains an additional 50Mbps of always-active bandwidth. Considering the cost of \$164,400 to add 3 additional MPLS circuits in option #1 to achieve the 4.5Mbps at each location, the ROI for option #2 can be achieved immediately.

Option #3 includes the Internet-only WAN managed by SD-WAN. This solution increases private WAN bandwidth capacity by over 60x, and saves \$204,000 over option #1.

Because the WAN is managed by SD-WAN, it addresses all their needs and provides many other benefits.

Considering the cost of \$164,400 to add 3 more MPLS circuits in option #1 to achieve the 4.5Mbps at each location, the ROI for option #3 is immediate. In fact, option #3 immediately saves the company money over their current bandwidth costs of \$66,000.

These examples are representative of 10 remote locations. If the company has 100 remote locations, the cost savings become even more significant. For example, the bandwidth cost savings of option #3, compared to option #1, would be \$2,040,000 per year. If you extend this out over five years, the cost savings, or ROI, would be \$10.2 million.

SD-WAN makes it easy for organizations to increase and leverage bandwidth to gain affordable and reliable WAN connectivity, anywhere and whenever it's needed.

SD-WAN cost reduction and savings

When choosing an SD-WAN solution, you will find each to be different with their own architecture, technology, business model and cost structure. Generally speaking, network edge SD-WANs have appliances (virtual or physical) installed at each remote location and a central controller. Depending on the solution, the controller provides orchestration, monitoring, analysis and manages the appliances.

With zero-touch provisioning, deploying an SD-WAN in a branch office can be fast and easy. By completing a few simple steps, IT personnel can quickly have the edge appliances online and in production. Not only does this provide simple setup, it can save money by not requiring expensive engineering staff to install and manage the appliances. Some SD-WAN providers will also configure physical appliances prior to shipping, and virtual appliance images can be burned prior to posting. This further eliminates the need to hire, train and pay additional technical personnel to physically manage remote locations.

Reduce costs and complexity through device consolidation

Many SD-WAN edge appliances support multiple functions, such as firewall, NAT, routing, VRFs, WAN Optimization, IPsec termination and more. Instead of integrating physical

or virtual appliances from multiple vendors, a single SD-WAN can service chain these functions to do the work of many. This reduces complexity and equipment sprawl, simplifies deployment, eases on-going support and lowers costs.

Consider ROI for both hard, soft costs and negative impact

The bandwidth cost figures above represent hard-cost savings. In addition to bandwidth cost savings, SD-WAN provides OpEx soft-cost savings. While these can be more difficult to quantify, they can be just as important, especially for organizations with limited IT resources. Soft-cost savings can include protection against lost revenue, and a decrease in user productivity due to network downtime or slow connectivity. SD-WAN helps reduce the time responding to compliance requirements and frees IT personnel to work on strategic projects. In fact, IT teams can significantly reduce their time spent diagnosing and fixing WAN outage and performance issues.

There are other consequences that can negatively impact ROI. These can be substantiated by many intangible variables that occur when a WAN link becomes slow or fails. Examples of indirect consequences include the loss of a company's reputation, erosion of brand equity and negative impacts to customer loyalty. It is these variables, or the inability to control them, that can ultimately do the most long-term damage. Therefore, they must be considered when evaluating an ROI strategy.

SD-WAN value-proposition

Enterprises are demanding flexible WAN solutions that can support their growth and shifting business requirements. Opening new offices, changing service providers, turning up services in the cloud, supporting a mobile workforce, and adding new applications are examples of the rapid pace of change.

SD-WAN makes it easy for organizations to increase and leverage bandwidth to gain affordable and reliable WAN connectivity, anywhere and whenever it's needed. Through aggregating multiple broadband links, and wrapping a layer of intelligence with management policies, organizations can mitigate the effects of downtime, latency, loss and jitter. By taking advantage of low-cost links and flexible deployment, SD-WAN can go above and beyond the reliability, security and performance equal to that of dedicated private circuits.

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About Talari

Talari Networks, innovator of the most reliable SD-WAN technology, engineers the branch office and edge network for maximum business impact, delivering superior application performance and network resiliency, while unlocking the benefits of seamless cloud connectivity services. Incorporating years of innovation into seven generations of product, Talari is deployed across thousands of sites in over 40 countries.