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Calculating Return on Investment for SD-WAN

Increase and leverage bandwidth with SD-WAN to gain affordable and reliable WAN connectivity.

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CALCUATING ROI 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.

With the right offering, transitioning from a traditional WAN to an SD-WAN can provide significant price and performance advantages, without sacrificing reliability or application Quality of Experience (QoE).

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 and 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

In this example examining SD-WAN ROI, an organization has ten remote offices that connect to their corporate data center and cloud providers. All costs are in US dollars.

Assume the company has ten existing T1 multiprotocol label switching (MPLS) links, each with 1.5 Mb/sec throughput. The total cost for the ten MPLS circuits is $4,500 per month, or $54,000 annually. The company also has a backup internet broadband link at each location, with 50 Mb/sec throughput that cost $100 per month, or $12,000 annually. The total yearly bandwidth costs to support remote offices is $66,000.

The company has a fractional T3 MPLS circuit with 15 Mb/sec throughput, to support its corporate data center. The cost for the T3 circuit is $1,500 monthly, or $18,000 per year. It also has a backup broadband internet connection with 50 Mb/sec 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 ten branch offices is $85,200.

THE COMPANY'S FUTURE BANDWIDTH NEEDS

The company needs at least an additional 4.5 Mb/sec bandwidth on the private WAN at each of the ten locations to accommodate growing demands. The company evaluated three options to accommodate the additional 4.5 Mb/sec, along with its other requirements.

Their current backup network is an active/passive network configuration. The IT team recognizes backup links go unused when there are no network failures. This represents wasted bandwidth and money. To remedy this, the team wants 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 these goals, the company is considering an SD-WAN solution that would use all links simultaneously. The best SD-WAN solution—using internet links—must have the equivalent reliability and QoE as the MPLS links. The solution 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 such as latency, packet loss, and jitter.

In this example, assume the average cost for a 1.5 Mb/sec MPLS circuit is $450 per month, or $5,400 each year. Each remote office needs three additional 1.5 MPLS links to equal 4.5 Mb/sec, at a yearly cost of $16,200. With ten 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 ten remote offices with 4.5 Mb/sec bandwidth would be $181,200.

The average 50 Mb/sec broadband internet link costs about $100 each month, or $1,200 per year. With ten remote locations, plus the one data center, the total cost is $13,200. This includes a 50 Mb/sec internet link at the data center, at a cost of $1,200 per year. Keep in mind, the cost for broadband connectivity varies 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 ten 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 4.5 Mb/sec, each of the ten remote offices deploy three 1.5 Mb/sec MPSL circuits at a yearly cost of $162,000. The yearly cost for the existing 1.5 Mb/sec MPLS links is $54,000, and the existing 50 Mb/sec 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.

Option #1 Calculations

NETWORK COMPONENTS	ANNUAL COST
10 existing 1.5 Mb/sec MPLS links	$54,000
10 existing 50 Mb/sec broadband internet links	$12,000
30 additional 1.5 Mb/sec MPLS links (4.5 Mb/sec total)	$162,000
Total annual cost of Option #1	$228,000
Total ADDITIONAL COST over current remote office WAN	$162,000

Option #2

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

This option gives the company significantly more bandwidth than the 4.5 Mb/sec 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.

Option #2 Calculations

NETWORK COMPONENTS	ANNUAL COST
10 existing 1.5 Mb/sec MPLS links	$54,000
10 existing 50 Mb/sec broadband Internet links	$12,000
Total annual cost of Option #2	$66,000
Total ADDITIONAL COST over current remote office WAN	$0

Option #3

Each of the ten remote offices replace the MPLS circuit with a second 50 Mb/sec 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 4.5 Mb/sec 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 SDWAN, it also provides many other benefits discussed below.

CALCULATIONS	
10 existing 1.5 Mb/sec MPLS links	$12,000
10 existing 50 Mb/sec broadband internet links	$12,000
Total annual cost of Option #3	$24,000
Total SAVINGS over current remote office WAN	$42,000

OPTIONS SUMMARY

With these three examples, option #1 provides the additional 4.5 Mb/sec capacity the company wanted, but it is far more expensive, and it 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 more than 30 times, 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 the company's needs and provides many other benefits. This solution almost doubles the bandwidth capacity at each of the ten locations, with no additional cost. The company gains an additional 50 Mb/sec of always-active bandwidth. Considering the cost of $164,400 to add three additional MPLS

circuits in option #1 to achieve the 4.5 Mb/sec 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 more than 60 times, and saves $204,000 over option #1. Because the WAN is managed by SD-WAN, it addresses all company needs and provides many other benefits.

Considering the cost of $164,400 to add three more MPLS circuits in option #1 to achieve the 4.5 Mb/sec 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 ten 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 over five years, the cost savings, or ROI, would be $10.2 million.

SD-WAN COST REDUCTION AND SAVINGS

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.

When choosing an SD-WAN solution, you will find each will have its own unique 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 appliance management.

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, network address translation (NAT), routing, virtual routing and forwarding (VRF), 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 HARD COSTS, 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 spent responding to compliance requirements and frees IT personnel to work on strategic projects. In fact, IT teams can significantly reduce the 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.

Learn More

Learn how to meet the demands of today's demanding applications and lower costs with intelligent, flexible Oracle SD-WAN at oracle.com/sdwan.

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Integrated Cloud Applications & Platform Services

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