IDC

The Business Value of Cisco SD-WAN

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Navigating this White Paper

Click on titles or page numbers to navigate to each section.

BUSINESS VALUE HIGHLIGHTS

Click on highlights below to navigate to related content within this PDF.

402%
five-year ROI

15.6 months
to payback

39%
reduction in total cost of operations

38%
more efficient network management

167%
more available bandwidth

71%
more efficient help desk operations

38%
network infrastructure savings

94%
reduction in unplanned downtime

77%
reduction in network degradation

$1.5M
additional revenue gained or protected

Executive Summary

Software-defined wide area network (SD-WAN) is one of the most important technologies used by organizations to drive multicloud and hybrid cloud enablement, ensure high-quality user experiences, and enforce security. To understand the business value of SD-WAN, IDC conducted a comprehensive primary research project studying Cisco's Viptela SD-WAN offering ("Cisco SD-WAN") and its business value for enterprise customers.

Cisco SD-WAN is a secure, cloud-scale architecture designed to improve network speed, security, and efficiency while providing the benefits of being open, programmable, and scalable. Using the Cisco vManage console, network managers can establish an SD-WAN overlay fabric connecting datacenters, branches, campuses, and a hybrid workforce to optimize network performance.

To determine real-world effectiveness of this offering, IDC conducted research that explored the value and benefits for organizations using Cisco SD-WAN solutions to run and support their branch locations. The project included eight interviews with companies that were using SD-WAN and that had experience with or knowledge about its benefits and costs.

Based on extensive quantitative and qualitative data derived from these interviews, IDC calculates that study participants will realize significant average annual business benefits of $4.53 million and a 402% five-year return on investment (ROI) by:

- Optimizing overall network performance and reliability by providing better network management, increasing network capacity, and reducing the incidence of network degradation
- Reducing unplanned downtime for end users who depend on network-enabled applications and lessening dependence on help desk operations
- Reducing capex and opex network infrastructure costs and contributing to better business results by significantly protecting revenue

Situation Overview

The edge of the enterprise network has transformed significantly over the past decade. The rise and mainstream adoption of public cloud–based software as a service (SaaS) and infrastructure as a service (IaaS) to power business-critical applications have required organizations to rethink how they provide connectivity to internal and external resources. SD-WAN fundamentally allows enterprises to abstract the underlying WAN data plane from the management overlay, which enables myriad benefits. SD-WAN helps enterprises improve user and application experiences, provides integrated connectivity and security, enables seamless connectivity to the cloud and hosted applications, and provides an opportunity for organizations to save money. *Worldwide SD-WAN Infrastructure Forecast, 2022–2026* (IDC #US48793922, June 2022) reports that in 2022, the SD-WAN infrastructure market will be $4.5 billion, growing at a compound annual growth rate of 14.1% to reach $7.2 billion by 2026.

SD-WAN infrastructure has a handful of key components. First, SD-WAN infrastructure provides automated management of hybrid WANs, meaning multiple WAN connections such as MPLS, broadband, ethernet, or cellular 4G/5G. SD-WAN offers should also include a policy controller to manage application prioritization and management; further, SD-WANs include routing capabilities, such as intelligent path selection across the hybrid WAN based on application and user policies.

SD-WAN has grown rapidly in recent years because it helps solve the pain points enterprises face in managing their wide area network. A June 2021 IDC global survey of enterprises asked 1,200 respondents what their top 3 WAN challenges were. Security requirements related to IaaS and SaaS cloud services and other internet applications topped the list; second was complexity associated with interconnecting multiple WAN transport types, and third was managing consistent user experience for on-premises and off-premises (SaaS/IaaS) applications. SD-WAN fundamentally addresses all of these concerns. In response to a subsequent question regarding the most important considerations when buying WAN infrastructure or services, respondents cited integrated security most frequently; operational agility, application visibility, and multicloud access were other frequently cited considerations.

Meanwhile, a variety of trends are driving the SD-WAN market, including:

- **The edge of the network, which is highly distributed:**
  Over the past decade, the rise and mainstream adoption of IaaS and SaaS have caused organizations to rethink their WAN architectures to ensure optimized connectivity to the cloud, which has given rise to the SD-WAN market. Meanwhile, since 2020, the COVID-19 pandemic made users and devices accessing cloud-based resources more distributed too. This has resulted in hyper-distribution: Users and devices — including hybrid workers and connected IoT devices in the field — are distributed and accessing multicloud applications. Organizations are responding by embracing software-defined networking capabilities in their WAN to ensure it can meet the needs of their hyper-distributed business.

- **Direct connections to the cloud:**
  One of the primary use cases for SD-WAN is connecting connecting corporate campuses, branch offices, and hybrid workforces to cloud-based applications. SD-WAN platforms can optimize connections to multiple cloud platforms through direct connections with cloud providers or with connections into interconnect platforms that then provide connectivity into SaaS and IaaS clouds. Creating these optimized connections between SD-WAN and the cloud ensures high-quality performance of cloud-based applications

- **Security natively embedded into SD-WAN:**
  One of the most significant trends in the SD-WAN market has been the continued integration of security features with SD-WAN management platforms. Common security functions integrated with SD-WAN include an enterprise firewall, intrusion protection systems, and URL filtering. Some customers may also be interested in integrating the SD-WAN with cloud-based security tools to create a secure access service edge (SASE) architecture. Typical cloud-based security tools used in conjunction with SD-WAN include a secure internet gateway (SIG) or a zero trust network access (ZTNA) platform.

- **Advanced visibility, analytics, and automation:**
  One of the chief goals for enterprises today is to provide high-quality user and application experiences. A key to doing so is being able to enhance visibility into the underlying network, measure the performance of applications, and identify — and quickly remediate — any performance issues that arise before they impact users. SD-WAN platforms should have native capabilities for providing deep levels of insights into user and application experience, as well as actionable insights for remediating or avoiding issues.

Overall, SD-WAN remains one of the fastest-growing segments of the enterprise network infrastructure market, given the significant advantages this technology enables. Business adoption of SD-WAN continues to grow, driven by organizations looking to transform their networks to ensure high-quality user and application experiences, while supporting secure, enterprise-class connectivity across all edges of the enterprise network.

Cisco SD-WAN Overview

Cisco SD-WAN is a cloud-delivered platform for managing the WAN. Cisco SD-WAN provides enterprises an opportunity to centrally manage user and application traffic from the campus, branch, datacenter, and even remote worker sites to a variety of endpoints — from corporate datacenters to the public cloud.

Cisco SD-WAN key technology capabilities:

- **Comprehensive SD-WAN architecture:**
  Cisco SD-WAN architecture is designed with separate and dedicated components that provide the flexibility for enterprises to implement overlay, underlay, physical, and virtual networks. It can leverage hyperscale and complex networks with carrier-class routing and support for high availability. Cisco SD-WAN's recently released updated user interface is designed to simplify the user experience through a visualized, intuitive interface that facilitates easier operation and monitoring for faster troubleshooting.

- **Integrated security:**
  The platform provides security capabilities that integrate with cloud security to protect branches, home users, and cloud-based applications from threats. Cisco TrustSec software enables Cisco SD-WAN to provide micro-segmentation and identity-based policy management for Cisco Software-Defined Access (SDA) branches as well as non-SDA branches, delivering consistent multidomain policy enforcement.

- **Optimized for multicloud:**
  Cisco SD-WAN provides direct integrations with the major IaaS and SaaS vendors, including Amazon Web Services (AWS), Microsoft Azure, and Google Cloud. Built-in optimizations support most SaaS offerings, such as Microsoft 365 and Cisco WebEx unified communications (UC) platform. Cisco's partnership with Equinix enables SD-WAN Cloud Interconnect, which leverages the Equinix global network for access to various cloud applications and destinations; through a partnership with Megaport, Cisco SD-WAN also provides similar software-defined cloud interconnect (SDCI) capabilities.
- **Flexible and scalable infrastructure:**
  The platform's physical and virtual platforms are designed to deliver high availability and throughput, multigigabit port options, 5G cellular links, and encryption capabilities. Scalable multitenancy, comanagement, and multiregion fabric capabilities are designed to provide management efficiency. The Cisco SD-WAN platform supports use cases for both private and public 5G.
- **Integrated capabilities:**
  The platform provides support for integration of the core SD-WAN capabilities along with unified communications, session border controller functionality, and 5G connectivity integration. This includes call manager deployments on the cloud as well as on premises. The consolidation of these functions with SD-WAN on a single platform can help reduce complexity, capital expenses, and operational costs for customers.
- **Visibility for actionable insights:**
  Cisco ThousandEyes provides end-to-end visibility into application, internet, cloud, and SaaS environments, in addition to detailed hop-by-hop route analysis. The platform can also enable isolation of fault domains to deliver actionable insights that expedite troubleshooting and mitigate performance impact on users.

The Business Value of Cisco SD-WAN

Study Firmographics

IDC conducted research that explored the value and benefits of using Cisco SD-WAN to run and support branch locations in geographically distributed networks. The project included eight interviews with organizations that were using this solution and that had experience with or knowledge about its benefits and costs. During the interviews, companies were asked a variety of quantitative and qualitative questions about Cisco SD-WAN's impact on their IT and network operations, core businesses, and costs.

Table 1 (next page), presents the aggregated firmographics of the interviewed organizations. The organizations that IDC interviewed had a base of 11,144 employees with annual revenue of $4.6 billion, indicating the involvement of several large companies. This workforce was supported by an IT staff of 465 managing 662 business applications on behalf of 863,800 external customers. In terms of geographic distribution, three companies were based in the United States with the remainder in Australia (2), Canada, Ecuador, and Malaysia. In addition, the following vertical markets were represented: retail (3), financial services (2), construction, energy, and entertainment. (Note: All numbers cited represent averages.)

TABLE 1

Firmographics of Interviewed Organizations

	Average	Median	Range
Number of employees	11,144	5,750	600–50,000
Number of IT staff	465	275	10–2,000
Number of external customers	863,800	83,750	200–3,000,000
Number of business applications	662	188	18–3,500
Revenue per year	$4.6B	$2.3B	$8.1M to $18.7B
Countries	United States (3), Australia (2), Canada, Ecuador, and Malaysia		
Industries	Retail (3), financial services (2), construction, energy, and entertainment		

n = 8; Source: IDC Business Value Research, April 2022

Choice and Use of Cisco SD-WAN

The organizations interviewed by IDC described their rationale for selecting Cisco SD-WAN to serve as a secure, cloud-scale architecture that is open, programmable, and scalable. Study participants commented that Cisco SD-WAN gave their organizations the ability to improve WAN speed and management of distributed sites while supporting multiple lines of business at a single venue. They noted that the platform offered simplified network setup and helped modernize network operations, thereby increasing the efficiency of managing geographically distributed connections across a significant number of branches or sites. One retailer wanted a cost-effective way for its network to be able to accommodate the rapid growth being experienced by the organization.

Participants elaborated on these and other selection criteria:

- **Improved WAN speed and management — APAC entertainment:**
  "The number 1 driver was that our network, which is around 10,000 sites around Australia, was very low speed. Between nodes, the general speed was 128Kbps — really slow — with the highest speed around 1Mbps. The other reason was that we were going for a merger, so we had to have a product that could support multiple lines of business at a single venue. So we needed an approach that could provide the logical separation and support offered by Cisco's SD-WAN router."

- **Simplified network setup — APAC energy:**
  "Previously, before we moved to SD-WAN, we had our MPLS or IP VPN on the router and a firewall at each of our sites. We had another router managing internet access. So, you have about three different devices doing three different jobs. We saw that with SD-WAN, we could simplify things with a single box by managing multiple mediums."
- **Modernized network, especially for cloud services — North America construction:**
  "We had several reasons to switch to Cisco. One, to modernize our operations because we needed to increase the efficiency of managing connections between all our job sites. We work across Canada and the United States, Australia, and the Caribbean, so we were standing up and taking down a lot of sites throughout the year. SD-WAN gave us the ability to very quickly do that as well as provide local internet access for the increased use of cloud services. It also provided more direct connectivity to our cloud-based services that we run, for example, in Azure in the western United States."
- **Cost-effective network to handle fast growth — North America retail:**
  "We have over 200 stores and are growing anywhere from 30 to 40 stores every year. In terms of datacenters and distribution centers, it made sense to go with Cisco's software-defined WAN because of total cost of ownership."

Table 2 describes organizational usage associated with the deployment of Cisco SD-WAN in the network facilities of the interviewed companies. Note that there was a substantial Cisco footprint across all companies, with 98% of revenue touched or supported by SD-WAN. In addition, there were 10,052 internal users and 140 applications over 746 sites on average across all companies.

TABLE 2

Organizational Usage of Cisco SD-WAN

	Average	Median
Number of sites	746	165
Number of internal users	10,052	4,225
Number of applications	140	125
Revenue supported by applications	98%	100%

n = 8; Source: IDC Business Value Research, April 2022

Business Value and Quantified Benefits

IDC's Business Value model quantifies the benefits for organizations using Cisco SD-WAN to support their network management efforts. Interviewed organizations reported that the automated features and functionality offered by Cisco SD-WAN increased the productivity of network management teams. The platform also optimized overall network performance and reliability by providing better network management, increasing network capacity, and reducing the incidence of

network degradation while being utilized across multiple sites. SD-WAN also reduced capex and opex network infrastructure costs, which made a contribution to business results by protecting the revenue base. In addition, reducing the incidence of unplanned downtime lessened dependence on help desk operations and led to improved end-user productivity, which also had positive downstream impacts on business results.

Study participants described these benefits:

- **More functionality leading to cost savings — North America retail:**
  "The biggest benefits are the total cost of ownership, the maintenance of it, and the appliance chassis. Cisco SD-WAN is smaller than one of those large ISO routers, so it doesn't have as many moving parts. As a result, we don't have as many failures with this platform while at the same time we gain more functionality. There are also security policies and statistical analyses that we can enable on these products. Because of these features, we're avoiding buying other tools. I think we're avoiding, in terms of other tools for features that are in SD-WAN, another $100,000 per year."

- **Better flexibility to meet business needs — APAC entertainment:**
  "We now have the ability to make changes to meet business requirements such as different types of applications. We get more bandwidth, which allows the business to explore new initiatives. If we need to respond to changes from the business, then it's easier and faster for us to make them. It's all template based, so we can make changes to hundreds of routers at a time."

- **Easier management for complex environments — APAC entertainment:**
  "Cisco SD-WAN is more manageable because it's centrally controlled and managed. And it supports our requirements because we're a heavily regulated industry and we need to prove that we can separate different lines of business from each other. So we need to keep that traffic separate, and the [Cisco] SD-WAN supports it very well with its VPN architecture."

- **Fewer issues for network teams to address — APAC entertainment:**
  "There are efficiencies in the transactional data going back and forth between data points, so there are fewer errors. There's inherently more security because of the way that it's architected."

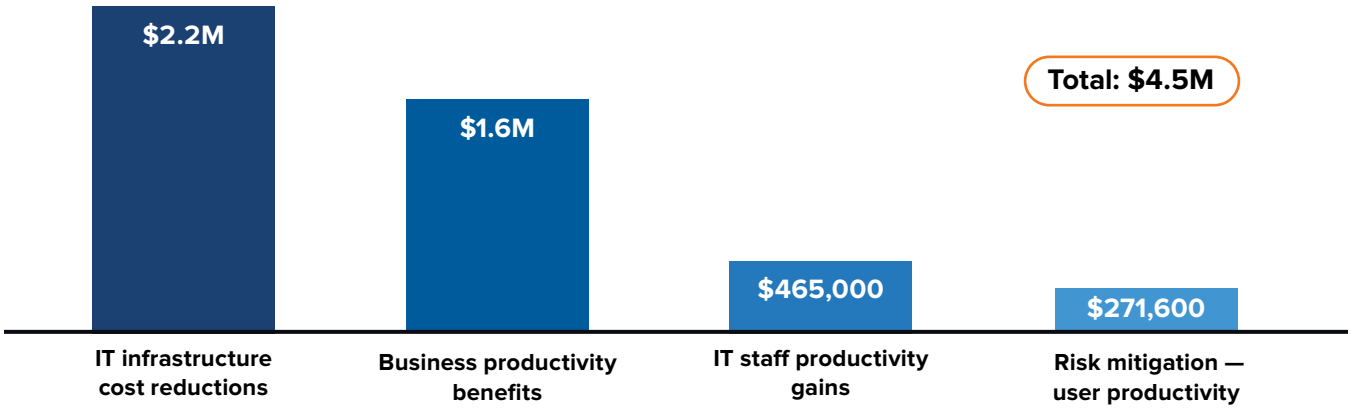
- **Reduced latency through integration with the public cloud — North America construction:**
  "We are able to get lower latency to the majority of our locations for better performance. We get that from [Cisco] SD-WAN because we can take advantage of more direct routes over the internet. Our primary data is located in the western United States where we have a datacenter that has the appliance. So we have an express route from that location into the western United States, and then all of our job sites make a direct SD-WAN connection to that datacenter to take advantage of a connection to the Azure Fabric. Previously, they had to get routed."

Based on interviews with the eight intensive users of Cisco SD-WAN, IDC quantified the value study participants will receive at average annual benefits of $4.5 million per organization over five years with a 402% five-year return on investment, as shown in **Figure 1** (next page). **Figure 2** (next page) shows the same data set recalculated per 100 users, which amounts to $45,100.

FIGURE 1

Annual Average Benefits per Organization

($)

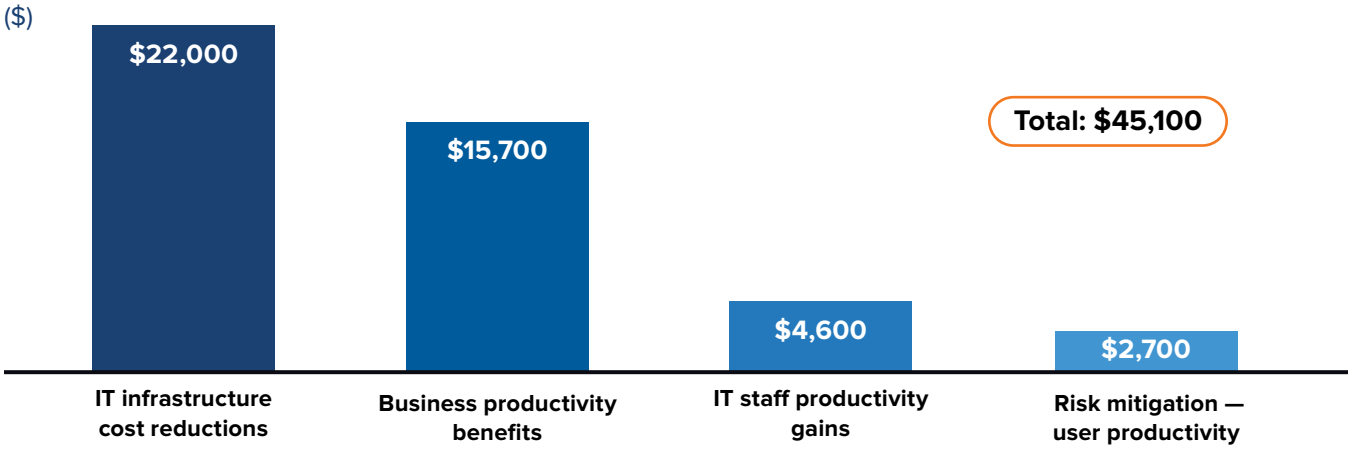


n = 8; Source: IDC Business Value Research, April 2022

FIGURE 2

Annual Average Benefits per 100 Users

($)



n = 8; Source: IDC Business Value Research, April 2022

Improvements in Network Operations and Performance

Interviewed organizations told IDC that the use of Cisco SD-WAN helped them meet the requirements these organizations need for a more robust, flexible, and cost-effective network by providing easier network management and workflow simplification in their geographically distributed networks. They appreciated the benefit of having a more cost-effective network infrastructure along with the improved visibility needed to address help desk issues. In addition, they noted improved ability to segment the network with greater granularity along with being able to free up network staff time to focus on more strategic tasks that directly supported business operations.

Study participants elaborated on these and other benefits:

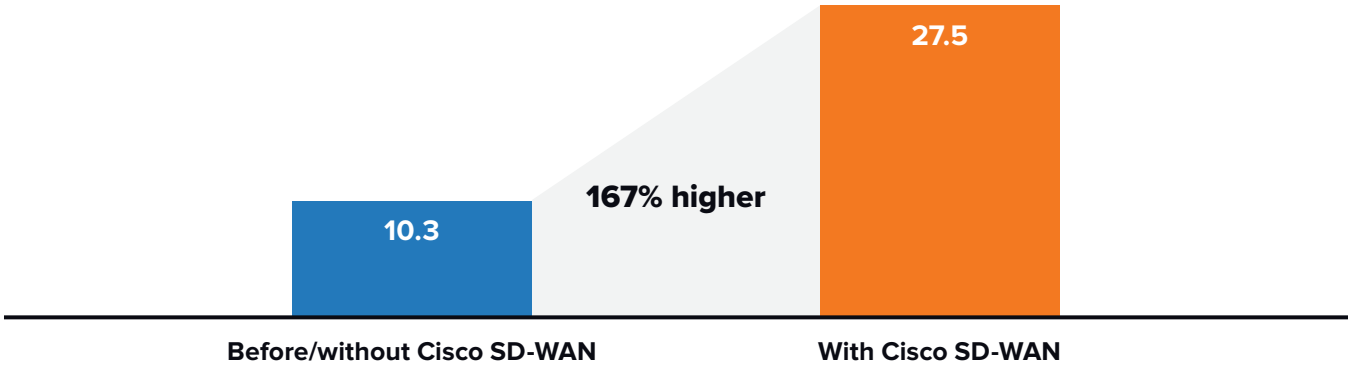
- **Ability to manage the network across multiple locations/sites more easily — North America retail:**
  "Simplified workflow is probably the number 1 benefit to our network teams. As an example, with the configurations all being based on templates, when we need to make a global change, we just make one change to that template, and it's propagated across the environment. This happens instead of having to do it X number of times or write a script, deploy it, and hope it works."
- **Time freed up to focus on more strategic tasks — APAC retail:**
  "Because of the time freed up, we're looking at implementing PaaS infrastructure as a project. We're also looking at other security applications. We're basically just working more on the application side of the projects instead of the infrastructure side because of more productivity."

To get a full and complete picture of the post-adoption impacts of Cisco SD-WAN, IDC evaluated specific ways the solution affected network infrastructure, operations, and performance beginning with network bandwidth. Interviewed organizations reported that they gained significantly more bandwidth to run business applications over distributed sites. As shown in **Figure 3**, after adoption, companies were able to increase overall network bandwidth very substantially (167%).

FIGURE 3

Network Bandwidth per Organization

(Mbps)



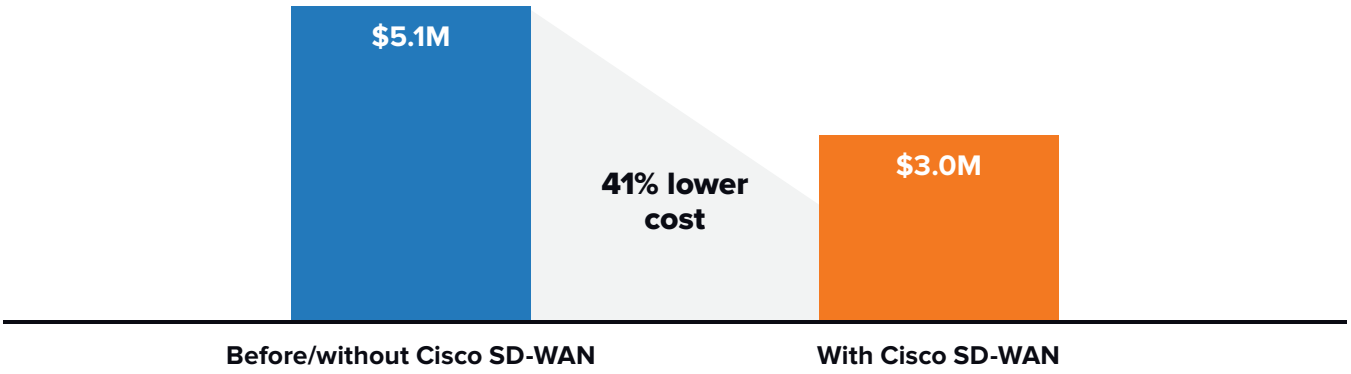
n = 8, Source: IDC Business Value Research, April 2022

IDC then looked at impacts associated with the cost of WAN connectivity. In this area, study participants reported that even with a substantial increase in bandwidth, costs still decreased. **Figure 4** (next page) shows the annual cost of WAN connectivity per organization indicating that, after adoption, connectivity costs were significantly lower (41%).

FIGURE 4

Cost of WAN Connectivity per Year per Organization

($)



n = 8, Source: IDC Business Value Research, April 2022

Cisco SD-WAN provides an array of functions designed to simplify network management with accompanying benefits for network teams. The SD-WAN dashboard helps network managers and staff connect datacenters, core and campus locations, branches, and colocation facilities and provides automated provisioning for easily making changes and updates to network infrastructure.

Table 3 quantifies these benefits, showing a substantial 38% productivity boost with 4.4 FTEs out of a team of 11.9 freed up. IDC further calculated that these enhancements provided a business value of $444,600 annually for each organization.

TABLE 3

Network Management Staff Impact

IT Infrastructure Impact	Before/Without Cisco SD-WAN	With Cisco SD-WAN	Difference	Benefit
Staff time to manage WANs (FTEs)	12	7	4	38%
Equivalent value of IT networking staff time to manage per organization per year	$1.2M	$741,100	$444,600	38%

n = 8; Source: IDC Business Value Research, April 2022

Study participants further reported that the process of updating their geographically distributed networks was easier and more efficient. **Figure 5** quantifies these benefits. After adoption, organizations reduced the network staff time needed for software upgrades by 46%. In addition, the number of sites that were able to be remotely covered with those upgrades increased by 25%.

FIGURE 5
Network Update Impact

(% improvement)

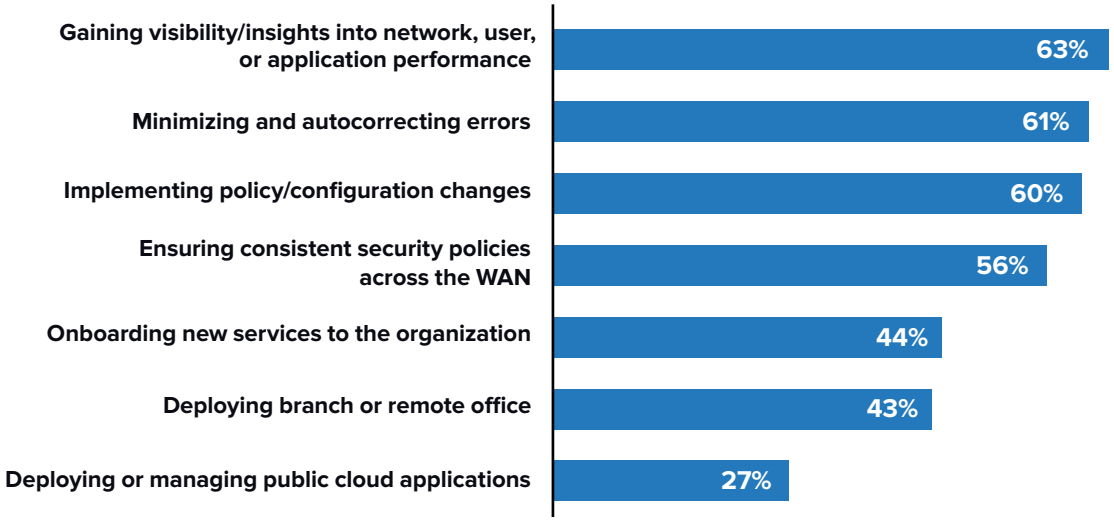
n = 8; Source: IDC Business Value Research, April 2022

IDC drilled down further to look at impacts on network agility. SD-WAN is designed to easily extend to any environment, whether in the cloud or on premises, and automatically discovers, authenticates, and provisions new and existing devices. Study participants reported that after adopting Cisco SD-WAN and leveraging its automated capabilities, their network teams were better able to adjust and extend the network across sites to meet business needs.

IDC took a granular look at these improvements by identifying a number of typical tasks and measuring post-adoption impacts (see **Figure 6**). The greatest improvements were seen in gaining visibility/insights into network, user, or application performance (63%); minimizing and autocorrecting errors (61%); and implementing policy/configuration changes (60%). Additional metrics are presented.

FIGURE 6
Network Agility Impact

(% improvement)



n = 8; Source: IDC Business Value Research, April 2022

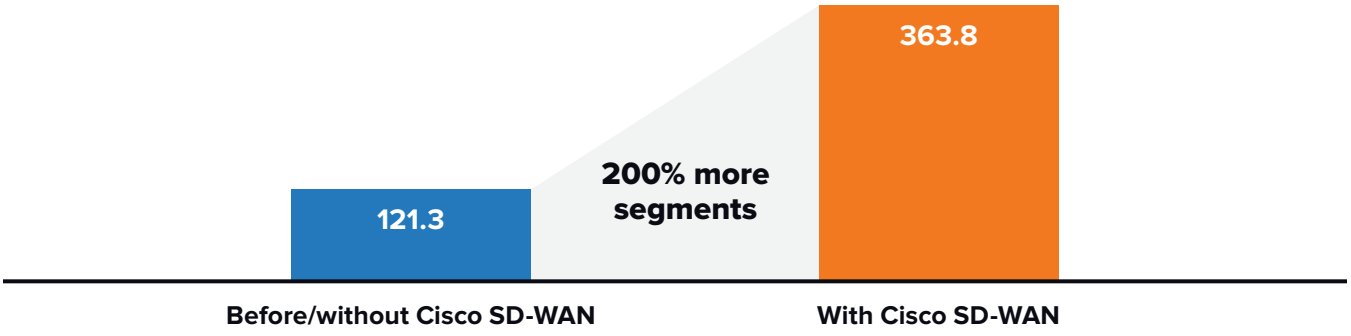
Improvements were also identified for operations involving network segmentation. Interviewed companies reported that they could support approximately three times more segmentations while reducing the time needed to segment by 29%. Commenting on this benefit, one study participant noted, *"We might have six segments per site now, whereas before there were two. We can segment more granularly because WAN segmentation helps when you're dealing with PCI-type traffic. So it allows you to segment in a way that keeps end users and devices segregated from other end users and other devices that don't need to be connected."*

Figure 7 quantifies these benefits showing that, after adoption, as many as three times more segments could be configured into the networks of interviewed organizations. SD-WAN enables the ability to centrally set and automatically enforce network segments over a distributed network, which can increase the efficiency of managing the network, as well as the security of having standard segmentation policies across the WAN.

FIGURE 7

Network Bandwidth per Organization

(Number of segments)



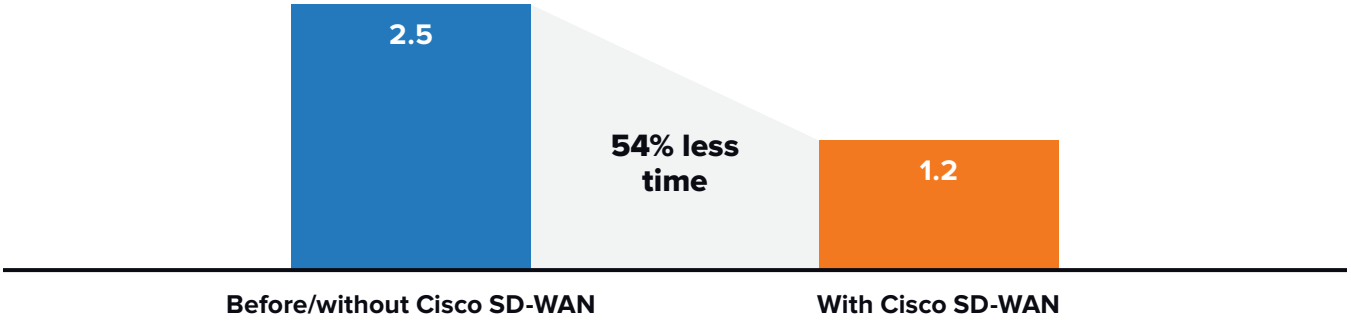
n = 8, Source: IDC Business Value Research, April 2022

Improved network management translated into less troubleshooting and corrective action required by network management teams. Participants reported that the improved visibility into network performance provided by Cisco SD-WAN meant that their network troubleshooting teams were able to identify and resolve issues 54% faster (see **Figure 8**).

FIGURE 8

Time Required to Troubleshoot Issues

(Hours)



n = 8, Source: IDC Business Value Research, April 2022

Along similar lines, IDC evaluated how better network reliability translated into beneficial impacts for help desk teams dedicated to working on networking issues and anomalies. After adoption, these teams were able to identify and solve more networking tickets and calls. Commenting on how improved visibility improved help desk issues, one study participant noted, *"This platform is easier to manage and monitor and allows us to see things from a preventive maintenance standpoint better than the old system. With the old routers, we couldn't see what we see now. And that means it's less time to resolve issues that occur."*

As shown in **Table 4**, there were substantial reductions in both the number of tickets and calls logged annually (53%) and the time needed to resolve those problems (37%). These reductions resulted in an average annual productivity improvement of 71% for each organization.

TABLE 4

Help Desk Impact

	Before/Without Cisco SD-WAN	With Cisco SD-WAN	Difference	Benefit
Number of tickets/calls per year	979	456	522	53%
Time to resolve ticket/call	2.0	1.0	1.0	37%
Equivalent value of IT networking staff time to manage per organization per year	1.0	0.3	1.0	71%
Equivalent value for help desk staff	$99,600	$29,100	$70,500	71%

n = 8; Source: IDC Business Value Research, April 2022

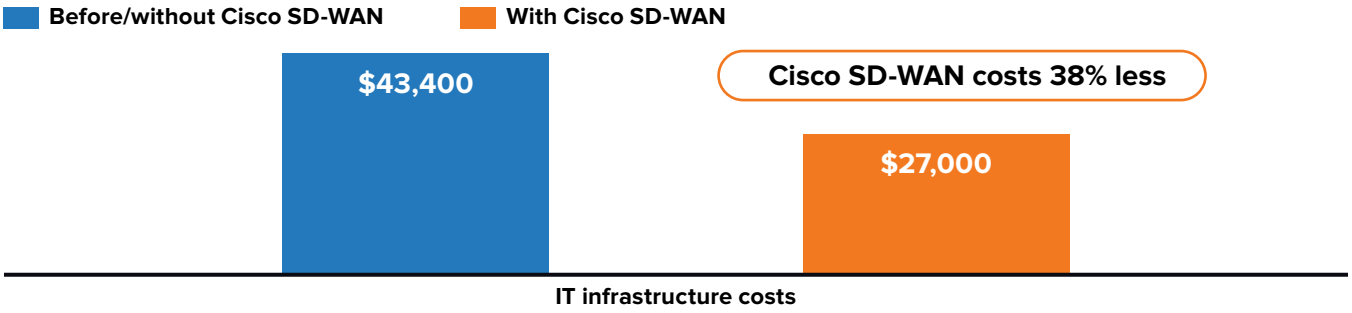
With regard to cost benefits with SD-WAN, organizations told IDC that they were cutting their network infrastructure costs by more than a third. As one study participant noted, *"We were getting to a refresh with the old system, and we had older routers. We also had 3G connections to keep the MPLS. That would have been a more expensive approach, and it would have been harder to deploy. We also would have had to increase the bandwidth. So I'd say we're saving millions in capex as a result."*

Figure 9 (next page) illustrates IDC's five-year projections for network infrastructure savings per 100 users among organizations before and after implementing Cisco SD-WAN. As shown, after adoption, there was a 38% reduction in overall costs.

FIGURE 9

Network Infrastructure Savings per 100 Users over Five Years

($)



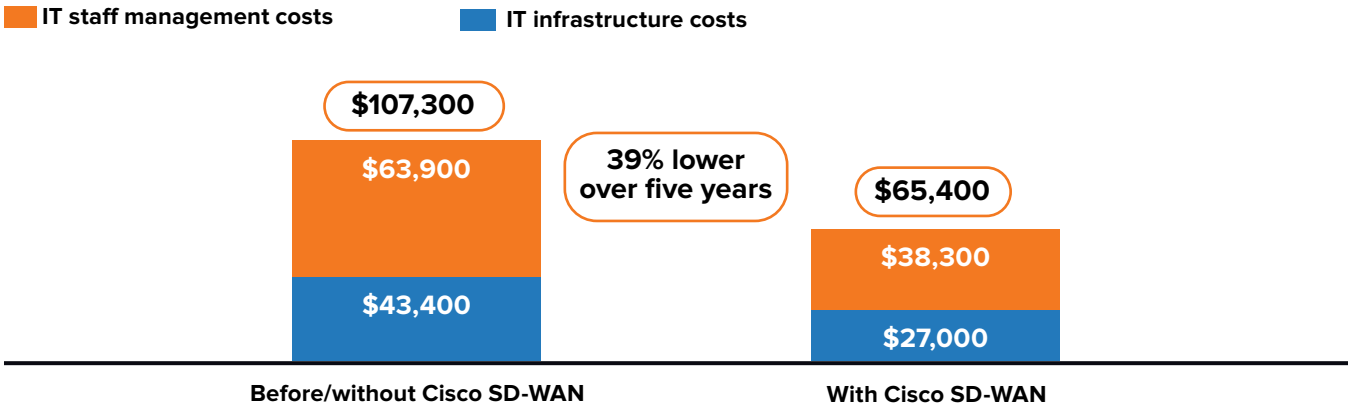
n = 8, Source: IDC Business Value Research, April 2022

Drilling down further at costs, IDC looked at total cost of operations from the vantage point of both IT staffing and infrastructure outlays. Based on Cisco customer data, IDC projects that organizations using Cisco SD-WAN will be able to reduce their total cost of network operations by 39% over a five-year period (see **Figure 10**).

FIGURE 10

Cost of Operations per 100 Users over Five Years

($)



n = 8; Source: IDC Business Value Research, April 2022

Improvements in Business Operations

Modern datacenters provide core functionality for business-critical applications that foster employee productivity and customer satisfaction. In this context, datacenter networks are tasked with providing robust and cost-effective support for those applications by leveraging the benefits of automated flexibility and programmability. With greater levels of network reliability and scalability, companies can deliver more personalized and interactive online experiences to their customers and quickly bring new products and services to market. Accordingly, optimal network management can play an important role in positively influencing business outcomes.

Interviewed companies reported that after adoption of Cisco SD-WAN, network management was simpler and easier, resulting in direct benefits for their business operations. They noted that employee digital experiences were improved because of reduced network degradation. In addition, they commented that SD-WAN helped their network teams work on more new projects and initiatives that directly supported the business. Others appreciated that the process of setting up sites was quicker, thereby having beneficial impacts for time to market involving new products, services, or locations.

Study participants commented on these and related benefits:

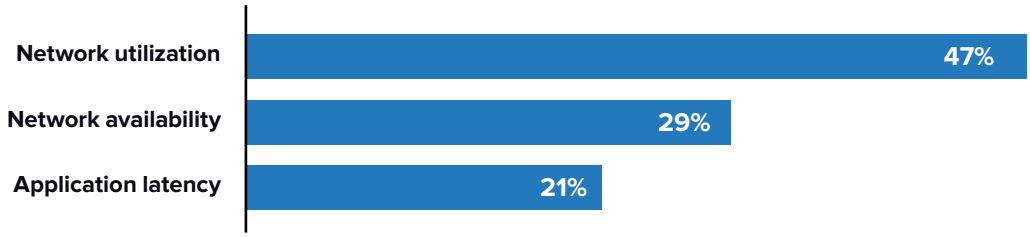
- **Able to work on new projects — LATAM financial services:**
  "Cisco SD-WAN has helped us grow in other business areas because we have been able to generate new services. We generated a service through the SD-WAN for Wi-Fi to provide Wi-Fi for external clients. We're working on many other business projects for implementation and to provide a service for managing indicators that are supported in the network. Overall, there are many projects that we have in that area."
- **Accelerate time to market, leading to more revenue — APAC retail:**
  "Because we can put up sites a lot quicker, we can generate more revenue. We can put up a new site in days instead of weeks, for example. It could be six weeks while you try and get a physical internet connection. With SD-WAN, you can quickly have a 4G connection in the device, so we get revenue for those weeks, possibly an addition of millions of dollars."
- **Able to reduce network degradation for users with Application-Aware Routing (AAR) — North America retail:**
  "We've been able to create application routing policies to route applications on the best performing path using Cisco SD-WAN AAR features. We could not have done that before with the old system."
- **Able to deploy new applications more efficiently — North America retail:**
  "We're seeing benefits for deploying new applications. The traffic engineering for onboarding or optimizing applications is easier due to the templates of the configurations we can use."

Because network performance was directly tied to business benefits, IDC further evaluated this correlation, as shown in **Figure 11**. The data shows that organizations realized enhanced network performance with SD-WAN with significant improvements in network utilization (47%), network availability (29%), and application latency (21%).

FIGURE 11

Network Performance–Related KPIs

(% improvement)



n = 8; Source: IDC Business Value Research, April 2022

Business resiliency is critical in today's volatile environments, including the need to keep unplanned downtime to a minimum. Study participants reported that they were able to reduce incidents for both end users and customers because of the more reliable network performance.

Table 5 shows that lost productivity was reduced 94%, with the overall number of outages cut 56%. When outages did occur, 54% less time was required to mitigate them. Combined, these benefits translated into an annual business value of $276,100 for each organization, or a 94% reduction in lost productivity due to unplanned downtime.

TABLE 5

Unplanned Downtime Impact

	Before/Without Cisco SD-WAN	With Cisco SD-WAN	Difference	Benefit
Frequency per year	14	6	8	56%
Time to resolve (hours)	3	2	2	54%
Hours lost per user	1	0.04	1	94%
Lost productivity due to unplanned outages (FTE impact)	4	0.2	4	94%
Value of lost productivity per year	$292,600	$16,500	$276,100	94%

n = 8; Source: IDC Business Value Research, April 2022

Cisco SD-WAN also helped organizations reduce the amount of revenue lost due to poor network performance and outages. As shown in **Table 6**, better network reliability and risk mitigation meant that, on average, Cisco customers received total additional annual revenue of $162,900.

TABLE 6

Unplanned Downtime Impact — Revenue

Three-year ROI analysis	Per Organization
Total additional revenue per year	$162,900
Assumed operating margin	15%
Total recognized revenue per year — IDC model*	$24,400

n = 8; Source: IDC Business Value Research, April 2022

* The IDC model assumes a 15% operating margin for all additional revenue.

Mitigating unplanned downtime is closely linked to keeping network performance from slowing the responsiveness of business-critical applications. One of the biggest value propositions for Cisco SD-WAN is being able to limit and reduce the amount of network degradation that end users and customers experience. Commenting on this, one study participant noted, *"For the employees, it centers around performance degradation. If you mitigate that, employees aren't down, and less downtime makes their experience better. And if we have more visibility into what's going on, that allows us to be able to look at other things in the network."*

Table 7 quantifies these benefits. Adoption of SD-WAN reduced the overall number of degradation events significantly (74%). When events did occur, they were able to be resolved 57% faster. As a result, end users in organizations surveyed saw a reduction of 77% for lost productive time annually. Combined, these benefits resulted in an annual productivity-based business value of $1,546,000 for each organization.

TABLE 7

Network Degradation Impact

	Before/Without Cisco SD-WAN	With Cisco SD-WAN	Difference	Benefit
Frequency per year	51	13	38	74%
Time to resolve (hours)	2	1	2	57%
Hours lost per user	5	1	4	77%
Lost productivity due to unplanned outages (FTE impact)	29	7	22	77%
Value of lost productivity per year	$2,015,000	$469,100	$1,546,000	77%

n = 8; Source: IDC Business Value Research, April 2022

Application development was identified as another key area where SD-WAN provided benefits. Study participants reported that, after adoption, their application developers had the levels of bandwidth and network performance they needed to develop and release more applications and features.

After adoption, average feature development life cycles were improved 16%. In addition, developers could release 13% more new applications and 4% more new features.

Further, IDC looked at additional revenue-related impacts. Study participants reported that Cisco SD-WAN helped their organizations generate more revenue by enabling their networking teams to focus on more business-enabling initiatives. This resulted in faster time to market for new products and services and $1,338,000 in total additional annual revenue (see **Table 8**, next page).

TABLE 8

Business Impact — Revenue from Better Addressing Business Opportunities

	Per Organization	Per 100 Users
Total additional revenue per year	$1.3M	$13,300
Assumed operating margin	15%	15%
Total recognized revenue per year — IDC model*	$200,000	$2,000

n = 8; Source: IDC Business Value Research, April 2022

* The IDC model assumes a 15% operating margin for all additional revenue

ROI Summary

IDC's analysis of the financial and investment benefits related to study participants' use of Cisco SD-WAN is presented in **Table 9**. IDC calculates a total discounted five-year benefit of $15.9 million per organization ($158,300 per 100 users) based on better network management, improved network performance, and cost savings. These benefits compare with projected total discounted investment costs of $3.2 million per organization ($31,600 per 100 users) over five years. IDC calculates that at these levels of benefits and investment costs, these organizations will achieve a five-year ROI of 402% and break even on their investment in approximately 15 months.

TABLE 9

Five-Year ROI Analysis

	Per Organization	Per 100 Users
Benefit (discounted)	$15.9M	$158,300
Investment (discounted)	$3.2M	$31,600
Net present value (NPV)	$12.7M	$126,800
ROI (NPV/investment)	402%	402%
Payback period	15.6 months	15.6 months
Discount factor	12%	12%

n = 8; Source: IDC Business Value Research, April 2022

Challenges/Opportunities

Cisco has a strong heritage in enterprise routing and was one of the initial vendors in the burgeoning SD-WAN market. In 2017, Cisco acquired Viptela, which has allowed the company to build its SD-WAN market share. Cisco's acquisition of ThousandEyes, which provides actionable WAN insights to facilitate predictive and proactive operations, and Cisco's integrations with Umbrella and Duo give the company's SD-WAN platforms strong visibility, analytics, and security capabilities. Cisco SD-WAN also has strong integrations for multicloud connectivity across the major SaaS and IaaS public cloud providers and interconnection vendors.

One challenge Cisco will face is positioning the company's two SD-WAN offerings in the Cisco portfolio. With Cisco SD-WAN powered by Viptela and Cisco SD-WAN powered by Meraki, Cisco can cover just about any use case, but it needs to provide clear guidance on which implementation is best for each to avoid confusing customers. Cisco also has an opportunity to further build integrations across its WAN and LAN portfolios, including across its SD-WAN portfolio and its line of popular Catalyst switches, WLAN equipment, and DNA Center software. The recent integration of Meraki and Catalyst switches is an example of the progress Cisco has made.

Conclusion

As organizations around the globe look to digitally transform, they are increasingly realizing the importance of transforming their networks. SD-WAN has been one of the key technologies that have helped organizations transform their networks. SD-WAN infrastructure enables organizations to ensure connectivity to all points in their distributed network, allows for security to be ingrained into the network, and can help organizations save money in their WAN operations. These benefits combine to make SD-WAN one of the fastest-growing technologies in the network infrastructure market and one that is forecast to continue to grow at a rapid pace in the years to come.

To those aforementioned points, organizations reported a number of benefits to IDC, such as reducing WAN-related infrastructure costs by 41% while still increasing WAN bandwidth by about 2.6 times. In spite of having to monitor the network at an average of 746 sites, organizations reported that network management was easier with Cisco, as illustrated by the 38% time savings realized by the main network management staff. These benefits also extended to the business as a whole in terms of improved network performance for users and better access to more business opportunities, thus allowing organizations to both protect current revenue streams and capture new revenue streams. These benefits in turn helped organizations achieve an average five-year ROI of 5:1.

Appendix

Methodology

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from current users of Cisco SD-WAN.

Based on interviews with these organizations, IDC performed a three-step process to calculate the ROI and payback period:

1. **Gathered quantitative benefit information during the interviews using a before-and-after assessment of the impact of Cisco SD-WAN.** In this study, the benefits included IT cost reductions and avoidances, staff time savings and productivity benefits, and revenue gains.
2. **Created a complete investment (five-year total cost analysis) profile based on the interviews.** Investments go beyond the initial and annual costs of using Cisco SD-WAN and can include additional costs related to migrations, planning, consulting, and staff or user training.
3. **Calculated the ROI and payback period.** IDC conducted a depreciated cash flow analysis of the benefits and investments for the organizations' use of Cisco SD-WAN over a five-year period. ROI is the ratio of the net present value (NPV) and the discounted investment. The payback period is the point at which cumulative benefits equal the initial investment.

IDC bases the payback period and ROI calculations on a number of assumptions, which are summarized as follows:

- Time values are multiplied by burdened salary (salary + 28% for benefits and overhead) to quantify efficiency and productivity savings. For purposes of this analysis, IDC has used assumptions of an average fully loaded salary of $100,000 per year for IT staff members and an average fully loaded salary of $70,000 per year for non-IT staff members. IDC assumes that employees work 1,880 hours per year (47 weeks x 40 hours).
- The net present value of the five-year savings is calculated by subtracting the amount that would have been realized by investing the original sum in an instrument yielding a 12% return to allow for the missed opportunity cost. This accounts for both the assumed cost of money and the assumed rate of return.
- Further, because Cisco SD-WAN requires a deployment period, the full benefits of the solution are not available during deployment. To capture this reality, IDC prorates the benefits on a monthly basis and then subtracts the deployment time from the first-year savings.

Note: All numbers in this document may be inexact due to rounding.

Message from the Sponsor

For many IT teams, the goal is quite simple; provide connectivity to users and mission-critical cloud applications while ensuring an optimal experience for every interaction. As an industry leader in connectivity and security, Cisco can help you manage the complexities of today's distributed IT landscape. Cisco SD-WAN solutions enable customers to deliver a secure, predictable experience for today's hybrid workforce and build dynamic, smart workspaces, and secure multicloud environments.

Cisco SD-WAN delivers consistent security policy whether deploying on-prem or in the cloud through Cisco Umbrella. Cisco delivers protection against the evolving threat landscape laying the foundation for your SASE journey.

Industry leading multicloud integrations, cloud-delivered security and enhanced visibility into network operations (with Cisco ThousandEyes) enable you to scale globally, drive business agility, deliver a superior user experience and benefit financially from the flexible consumption models.

With today's hybrid workforce, it's even more important to partner with a vendor that can enable you to meet the changes your business is undergoing.

Read more at Cisco SD-WAN

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Brandon Butler is a Research Manager with IDC's Network Infrastructure group covering Enterprise Networks. His research focuses on market and technology trends, forecasts, and competitive analysis in enterprise campus and branch networks. His coverage includes technologies used in local and wide area networking such as Ethernet switching, routing/SD-WAN, wireless LAN, and enterprise network management platforms. While contributing to ongoing forecast and market share updates, he also assists in end-user surveys, interviews, and advisory services and contributes to custom projects for IDC's Consulting and Go-To-Market Services practices.

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