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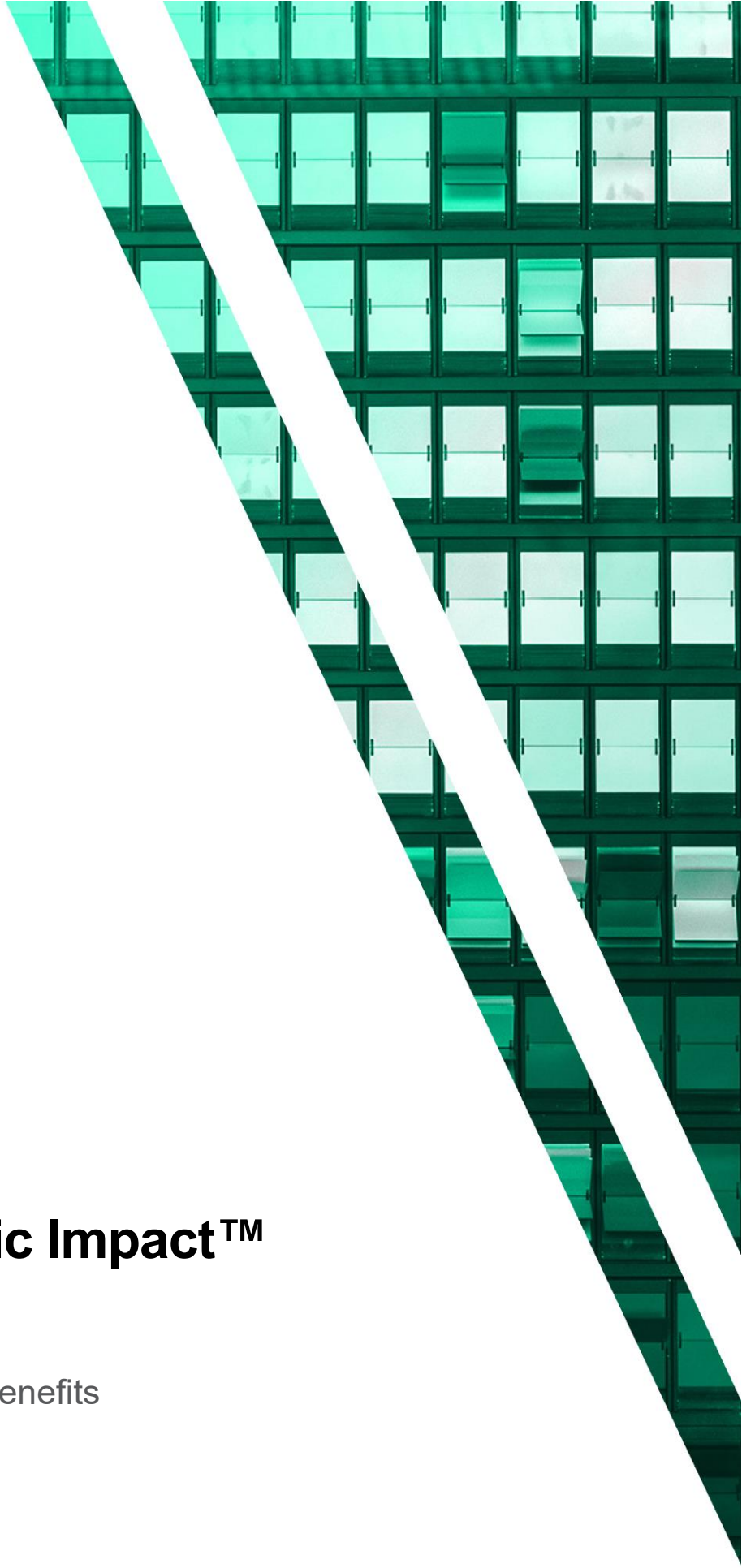

# The Total Economic Impact™ Of VMware SASE

## Cost Savings And Business Benefits Enabled By SASE

**FEBRUARY 2022**

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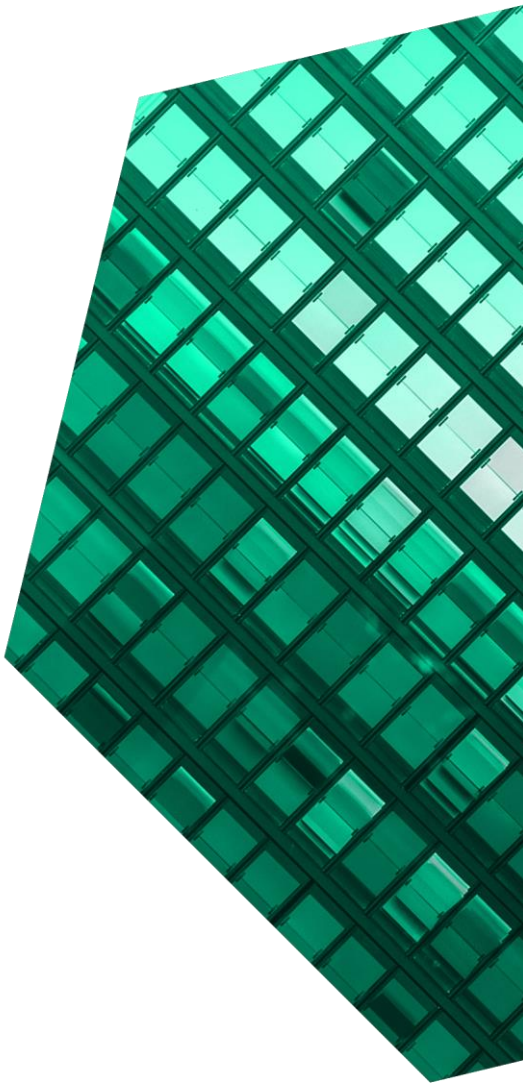


ABOUT FORRESTER CONSULTING

Forrester Consulting provides independent and objective research-based consulting to help leaders succeed in their organizations. For more information, visit forrester.com/consulting.

## Executive Summary

VMware SASE provides software-defined networking and security that enable organizations to respond to the increase in remote work and cloud services usage while improving both network performance and security posture. VMware SASE replaces expensive on-premises hardware and cost models with cheaper and flexible licensing while reducing the work to manage network and security. Importantly, VMware SASE enables firms to quickly scale their network and security when demand changes.

VMware offers Secure Access Service Edge (SASE) solutions that combine software-defined networking and security in a single platform. VMware SASE enables secure and performant network usage regardless of end users' locations or the type of services being accessed (on-premises or cloud-based).

VMware commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying VMware SASE.[1] The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of SASE on their organizations.

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed five decision-makers with experience using VMware SASE, pairing VMware SD-WAN with a secure web gateway. For the purposes of this study, Forrester aggregated the interviewees' experiences and combined the results into a single composite organization.

Total benefits

**$5 million**

**KEY STATISTICS**

Return on investment (ROI)
**218%**

Net present value (NPV)
**$3.4M**

Prior to using VMware SASE, the interviewees had hub-and-spoke network architectures, leveraged on-premises network and security appliances, and ran data through the data center before it headed out to the Internet and vice versa. These environments were expensive to invest in and maintain from both an infrastructure and a telecommunications standpoint while providing little flexibility and scalability. They also introduced inefficiency and latency into the access of cloud services.

After the investment in VMware SASE, the interviewees shared that their organizations reduced capital expenses related to traditional networking and security infrastructure and reduced their expensive MPLS-based telecommunications costs. Costs to scale also decreased, while employees became more productive thanks to the improved reliability and resiliency of organizations' networks. Furthermore, interviewees noted that their overall security posture improved while network and security professionals

saved time on managing network and security infrastructure on an ongoing basis.

**KEY FINDINGS**

**Quantified benefits.** Risk-adjusted present value (PV) quantified benefits include the following. Interviewees:

- **Decommissioned $17,300 worth of expenses per site.** VMware SASE enabled the interviewees to transition from expensive on-premises network and security appliances and replace costly MPLS connectivity with dual broadband while improving network performance and security and reducing management costs.
- **Reduced costs per new site by more than $85,000.** The interviewees created new sites more cheaply and quickly with VMware SASE. Firms saved $18,300 per new site on technology costs such as routers, WAN optimizers, and MPLS and almost $13,500 per site on labor costs. Additionally, sites deployed 80% faster with VMware SASE than with legacy infrastructure, enabling improved time-to-value for these new sites.
- **Reduced time-to-manage-network-and-security by 50%.** Increased visibility and control enabled network and security professionals to reinvest 50% of prior time spent managing on-premises network and security infrastructure in higher-value work.
- **Avoided 32 hours of downtime annually.** The added resilience of networks built on VMware SASE enabled interviewees to avoid one data center outage lasting an average of 8 hours and 12 site outages lasting an average of 2 hours per year.
- **Reduced the risk of a material breach by 10%.** Thanks to the added visibility and network control from software-defined networking and security, the interviewees reduced the risk of a material security breach by 10%, saving almost $120,000 annually.

> **It was the least complicated and most straightforward solution we evaluated, for both networking and security. It had the resiliency our network needed and the maturity to enable secure remote access.**
>
> — Director of network operations, financial services

**Unquantified benefits.** Benefits that are not quantified for this study include improved:

- **Performance and connectivity.** By moving network access points closer to the edge with points of presence (POPs), interviewees improved the performance of their networks, decreasing latency from 2 to 15 milliseconds.
- **Compliance.** The secure web gateway also helped improve compliance, enabling Zero Trust networking and better protection of sensitive customer or patient data from unwarranted access.
- **Scalability and agility.** VMware SASE helped interviewees become more scalable and agile. When employee numbers grew or an acquisition took place, networks securely scaled at a speed that matched growth rates of interviewees.
- **Enablement of remote work.** Pairing VMware SD-WAN with a secure web gateway enabled remote working. Interviewees provided nearly as much security to employees accessing networks remotely as they did for employees accessing networks from inside the office.

**Costs.** Risk-adjusted PV costs include:

- **VMware SASE licensing costs.** For an organization with two data centers requiring 5 GB of throughput and 100 sites requiring 100 MB of throughput, VMware SASE cost less than $1.6 million for a three-year license at list price.
- **Implementation and deployment costs.** Time and labor costs to implement and deploy VMware SASE required a 20% full-time employee (FTE) for predeployment application and network analysis and a 0.6% FTE for deploying each location.
- **Costs of training and ongoing management.** VMware SASE required 1 hour to train network and security professionals and approximately 30 minutes annually of ongoing management per site.

The decision-maker interviews and financial analysis found that a composite organization experiences benefits of $5 million over three years versus costs of $1.6 million, adding up to a net present value (NPV) of $3.4 million and an ROI of 218%.

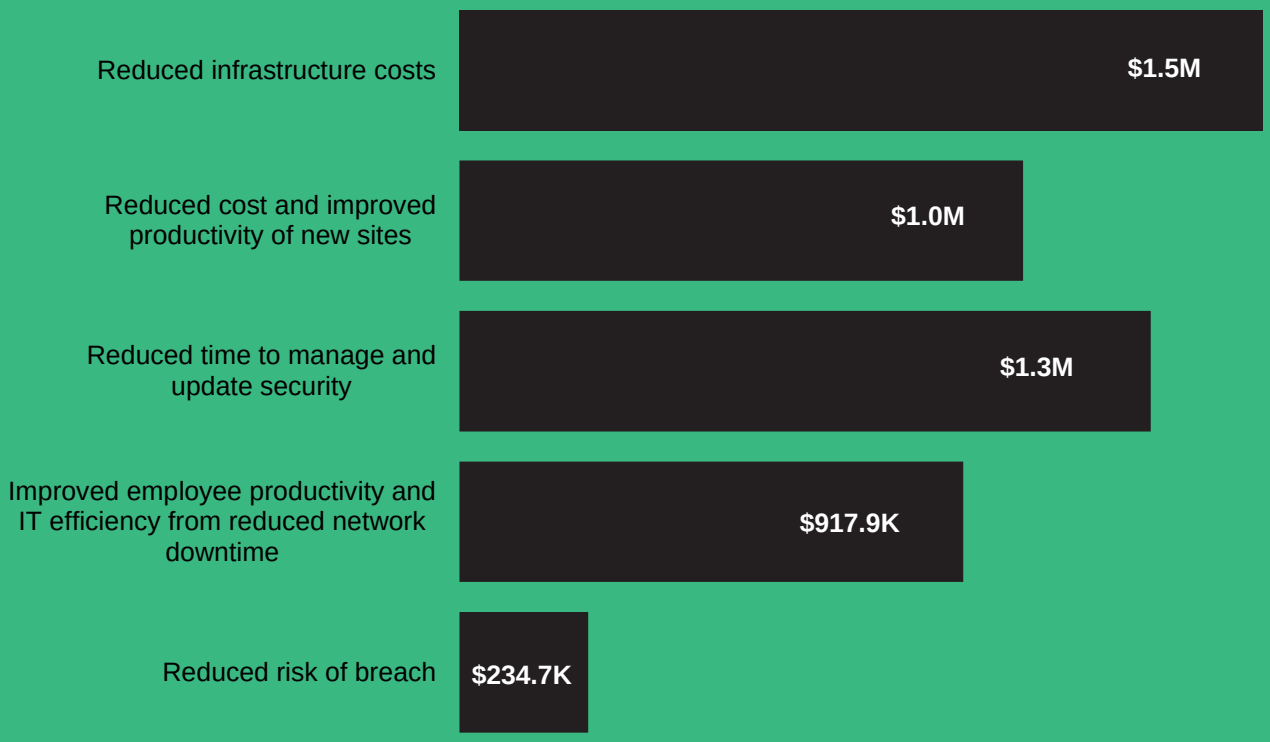
ROI
**218%**

BENEFITS PV
**$4.97M**

NPV
**$3.41M**

PAYBACK
**<6 months**

**Benefits (Three-Year)**



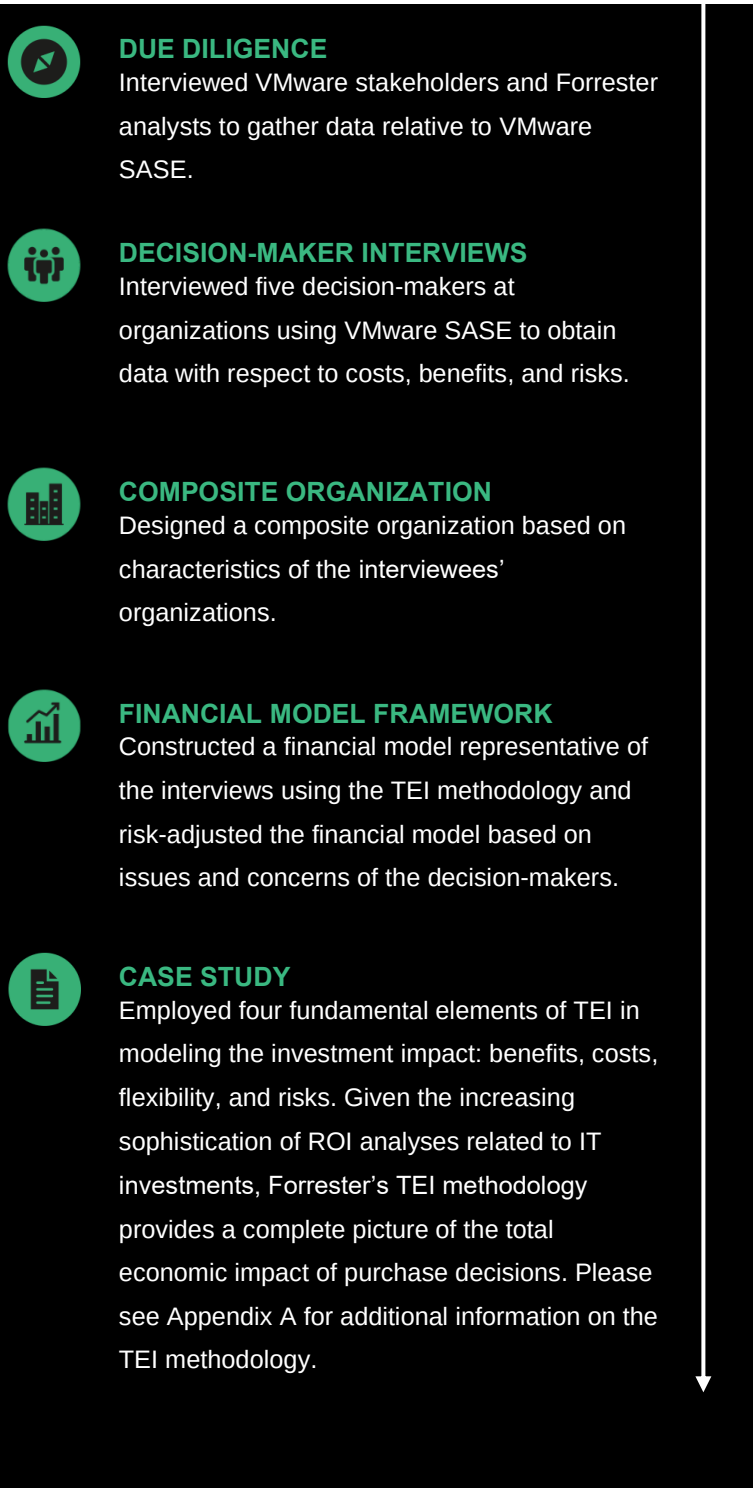
## TEI FRAMEWORK AND METHODOLOGY

From the information provided in the interviews, Forrester constructed a Total Economic Impact™ framework for those organizations considering an investment in VMware SASE.

The objective of the framework is to identify the cost, benefit, flexibility, and risk factors that affect the investment decision. Forrester took a multistep approach to evaluate the impact that VMware SASE can have on an organization.

Forrester Consulting conducted an online survey of 351 cybersecurity leaders at global enterprises in the US, the UK, Canada, Germany, and Australia. Survey participants included managers, directors, VPs, and C-level executives who are responsible for cybersecurity decision-making, operations, and reporting. Questions provided to the participants sought to evaluate leaders' cybersecurity strategies and any breaches that have occurred within their organizations. Respondents opted into the survey via a third-party research panel, which fielded the survey on behalf of Forrester in November 2020.





# The VMware SASE Customer Journey

Drivers leading to the VMware SASE investment

**Interviewed Decision-Makers**

| Interviewee | Industry | Region | Total Employees | Annual Revenue | SASE Solution |
|---|---|---|---|---|---|
| VP of technology | Financial services | North America | 700 | $100 million | SD-WAN with a secure web gateway |
| Senior network administrator | Utilities | North America | 1,500 | $330 million | SD-WAN with a secure web gateway |
| IT manager | Industrial organization | Global | 2,500 | $1.5 billion | SD-WAN with a secure web gateway |
| Director of network operations | Financial services | North America | 12,000 | $4.5 billion | SD-WAN, Secure Access, and a secure web gateway |
| Chief enterprise architect | Healthcare | North America | 30,000 | $8 billion | SD-WAN, Secure Access, and a secure web gateway |

## KEY CHALLENGES

Before investing in VMware SASE, interviewees used traditional on-premises networking and security infrastructure coupled with MPLS for transport. Architecturally, these firms' networks and security followed a hub-and-spoke model, routing traffic through a centralized data center potentially out to the cloud and then back through the data center to return to the branch, edge, or work-from-home sites.

The interviewees noted how their organizations struggled with common challenges, including:

- **Increasing use of cloud applications.** The interviewees noted that their legacy network architecture and MPLS connections did not lend themselves well to working with cloud-hosted solutions. In the legacy environment, Internet download data would first have to go through the data center before reaching any branch or site, while upload data would also have to travel from the site via the data center to Internet servers. This architecture introduced latency in network speeds.

> **"With VMware SASE, we're getting fast network speeds and still keeping our environment secure."**
> *IT manager, industrial organization*

- **High cost of transport.** Interviewees noted that MPLS connectivity comes at a relatively higher cost than the broadband connectivity the VMware SASE enables. Compounding this challenge, the interviewees reported that they were captive customers of their MPLS providers, leaving them little opportunity to switch providers when costs began to increase by as much as 10% annually. Furthermore, the transition to remote work increased bandwidth needs, making the expensive legacy MPLS model increasingly impractical.

**"VMware SASE enabled us to break the relationship with our single connectivity provider, introducing competition, increasing bandwidth, and providing redundancy, all without drastically increasing costs."**
*VP of technology, financial services*

- **Difficult and costly legacy environments to manage and expand.** Interviewees shared that their legacy environments also required a substantial amount of hands-on work to manage on an ongoing basis and significantly more work when expanding to new sites. The senior network administrator from the utilities organization noted that the org kept a relatively lean team and had difficulty managing the existing network and security environments, not to mention the challenges of adding sites during periods of high growth.

**"After deploying VMware SASE, the time to stand up a new branch or ATM became significantly shorter."**
*VP of technology, financial services*

## COMPOSITE ORGANIZATION

Based on the interviews, Forrester constructed a TEI framework, a composite company, and an ROI analysis that illustrates the areas financially affected. The composite organization is representative of the five decision-makers that Forrester interviewed and is used to present the aggregate financial analysis in the next section. The composite organization has the following characteristics:

**Description of composite.** The composite is a global business with approximately 4,200 FTEs spread across its corporate offices and branch sites. The organization is becoming increasingly cloud-centric as it undergoes a digital transformation. It relies on a number of cloud technologies for employee productivity and is seeking to improve its security operations specifically in relation to this increased cloud usage.

**Deployment characteristics.** The organization operates two data centers and 100 corporate and branch sites worldwide. It is experiencing a period of growth, opening an average of three new offices per year as it expands into new markets. It is shifting away from its traditional MPLS connectivity toward a Zero Trust edge network marrying SD-WAN with similarly architected security infrastructure.

**Key assumptions**

- **$3 billion**
- **4,200 employees**
- **100 existing edge sites**
- **3 new sites added annually**

# Analysis Of Benefits

Quantified benefit data as applied to the composite

| Total Benefits | | | | | | |
|---|---|---|---|---|---|---|
| **Ref.** | **Benefit** | **Year 1** | **Year 2** | **Year 3** | **Total** | **Present Value** |
| Atr | Reduced infrastructure costs | $727,380 | $549,000 | $549,000 | $1,825,380 | $1,527,445 |
| Btr | Reduced cost and improved productivity of new sites | $229,230 | $426,492 | $623,754 | $1,279,476 | $1,029,499 |
| Ctr | Reduced time to manage and update the network and security | $385,920 | $576,000 | $576,000 | $1,537,920 | $1,259,627 |
| Dtr | Improved employee productivity and IT efficiency from reduced network downtime | $281,220 | $419,731 | $419,731 | $1,120,682 | $917,890 |
| Etr | Reduced risk of breach | $71,905 | $107,321 | $107,321 | $286,546 | $234,694 |
| | Total benefits (risk-adjusted) | $1,695,655 | $2,078,544 | $2,275,806 | $6,050,005 | $4,969,155 |

### REDUCED INFRASTRUCTURE COSTS

**Evidence and data.** The interviewees shared that investing in VMware SASE enabled their firms to move away from their more expensive legacy network and security infrastructure. With VMware SASE, these organizations avoided the cost of new three- to five-year licenses associated with on-premises network devices, their associated ongoing maintenance fees, high monthly costs of MPLS, and even virtual private network (VPN) costs.

Regarding on-premises network infrastructure, VMware SASE decouples the value of the software from the hardware it runs on, enabling organizations to move away from expensive legacy network appliances where hardware and software are a package deal. By virtualizing network functions onto VMware SASE's SD-WAN overlay, customers consolidated the number of physical appliances they needed for the proper functioning of their networks, saving on network costs.

Some customers also noted similar savings related to decommissioning their on-premises security appliances. For example, the chief enterprise architect from the healthcare industry said: "[Our secure web gateway] gives us encryption, where our prior environment did not. We used to have to buy cards and manage these and firewalls, but overall we're probably saving 50% on security infrastructure now." The VP of technology from financial services shared: "We're evaluating replacing our firewalls with some that are lower in size. That should save on cost down the road."

**"We're currently only 50% through our deployment of VMware SASE, and we're already saving millions of dollars annually from reducing our legacy network infrastructure costs."**
*Chief enterprise architect, healthcare*

VMware SASE also enabled the interviewees' firms to move away from expensive MPLS connections

that traditionally connected branch sites to data centers. MPLS connections provide a high level of uptime and come at a higher cost than regular broadband connectivity. However, VMware SASE features dynamic multipath optimization, enabling the interviewees to have similar levels of connection reliability as MPLS while using ordinary less-expensive broadband connectivity. Because there is little competition for MPLS provision, interviewees experienced not only high telecom costs but also high annual increases in these costs, sometimes reaching 25% more than the prior year.

**"We're saving almost 40% of our previous telecom costs switching from MPLS to broadband with DMPO."**
*Director of network operations, financial services*

Interviewees leveraging VMware SASE's Secure Access technology also reduced their use of their VPNs. These organizations used legacy VPNs to allow employees working remotely to access company networks and data centers securely. Deploying VMware SASE enabled these organizations to move away from this architecture, and Secure Access specifically enabled remote employees to access corporate networks via the nearest point-of-presence (POP) securely.

**Modeling and assumptions.** For the composite organization, Forrester models the following:

- A one-time foregone cost of legacy network infrastructure for each site is $10,000 (estimated to be a WAN optimization appliance and router appliance).
- Two-thirds of sites get VMware SASE in Year 1, and the remainder get it in Year 2.
- Network appliances are replaced at 50 sites in Year 1 and an additional 15 sites each in Years 2 and 3.
- Annual legacy network device maintenance fees are 14% of the device cost.
- Avoided MPLS costs are $450 monthly, where an average of 50% of sites move away from all MPLS usage.
- Total avoided annual VPN costs are $50,000 at full deployment.

**Risks.** The reduction to infrastructure costs will vary with:

- The number and type of legacy network devices decommissioned and their maintenance fees.
- The decision to decommission any legacy security appliances.
- The extent to which MPLS is decommissioned.
- The extent to which VPN is decommissioned.

**Results.** To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year risk-adjusted total PV (discounted at 10%) of over $1.5 million.

**"With VMware SASE's Secure Access, our remote employees are using VPNs less and getting better performance and connectivity using their local POP."**
*Director of network operations, financial services*

| Reduced Infrastructure Costs | | | | | |
|---|---|---|---|---|---|
| **Ref.** | **Metric** | **Source** | **Year 1** | **Year 2** | **Year 3** |
| A1 | Foregone cost of legacy network device | Interviews | $10,000 | $10,000 | $10,000 |
| A2 | Unique number of existing sites where SD-WAN is deployed | Composite | 67 | 33 | 0 |
| A3 | Number of sites where legacy devices are decommissioned each year | Composite | 50 | 15 | 15 |
| A4 | Subtotal: foregone cost of legacy network appliances at existing sites | A1*A3 | $500,000 | $150,000 | $150,000 |
| A5 | Foregone cost of legacy network device maintenance fees | A1*14% | $1,400 | $1,400 | $1,400 |
| A6 | Annual cost of MPLS per site | $450/mo. | $5,400 | $5,400 | $5,400 |
| A7 | Percentage reduction in MPLS use | Composite | 50% | 50% | 50% |
| A8 | Cumulative number of existing sites where SD-WAN is deployed | A2 (cumulative) | 67 | 100 | 100 |
| A9 | Reduction in VPN costs | Composite | $33,500 | $50,000 | $50,000 |
| A10 | Subtotal: reduced ongoing costs of infrastructure | ((A5+A6*A7)*A8)+A9 | $308,200 | $460,000 | $460,000 |
| At | Reduced infrastructure costs | A4+A10 | $808,200 | $610,000 | $610,000 |
| | Risk adjustment | ↓10% | | | |
| Atr | Reduced infrastructure costs (risk-adjusted) | | $727,380 | $549,000 | $549,000 |
| | **Three-year total: $1,825,380** | | | **Three-year present value: $1,527,445** | |

### REDUCED COST AND IMPROVED PRODUCTIVITY OF NEW SITES

**Evidence and data.** The interviewees saved not only on infrastructure costs associated with existing sites but also on these costs for establishing new sites. As with existing sites, the interviewees noted saving on network infrastructure, security infrastructure, MPLS, and VPN costs at newly established sites.

Additionally, the interviewees noted that sites were also faster to establish with VMware SASE, generating time-to-value benefits. The interviewees reported establishing sites in one day with VMware SASE versus one week in their prior environments.

**"VMware SASE gives us the better ability to bring on new sites. This is really important as our business is quite acquisitive right now. We're saving at least 50% of prior costs to establish a new site now."**
*Chief enterprise architect, healthcare*

**Modeling and assumptions.** For the composite organization, Forrester models:

- Avoided legacy network appliances worth $10,000 at each site.
- Reduced implementation costs by 96%, moving from four FTEs at $80 per hour for 6 hours to one FTE at $80 per hour for 1 hour.
- Three new sites established each year.
- Avoided legacy network appliance maintenance fees of 14% annually.
- Foregone costs of MPLS of $450 per month.
- Foregone VPN costs of one site's share of $50,000 total.
- Saved ongoing management costs of 10% of one FTE.

**Risks.** The reduced costs and improved productivity of connecting new sites will vary with:

- The number of sites established annually.
- The value of legacy network appliances and their associated maintenance fees.
- The decision to invest in legacy security infrastructure for new sites or not.
- The prior cost of MPLS and the decision to move to direct internet connections at new sites.

**Results.** To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year risk-adjusted total PV of almost $1.1 million.

**"We're now establishing new sites in a single day versus a week in our prior environment. That means we're bringing on 1,000 to 2,000 clinicians a year faster than we could before."**
*Chief enterprise architect, healthcare*

| Reduced Cost And Improved Productivity Of New Sites | | | | | |
|---|---|---|---|---|---|
| **Ref.** | **Metric** | **Source** | **Year 1** | **Year 2** | **Year 3** |
| B1 | Foregone cost of legacy network device | A1 | $10,000 | $10,000 | $10,000 |
| B2 | Reduced implementation costs | Interviews | $1,840 | $1,840 | $1,840 |
| B3 | Number of new sites established each year | Interviews | 3 | 3 | 3 |
| B4 | Foregone cost of legacy network maintenance fees | A5 | $1,400 | $1,400 | $1,400 |
| B5 | Foregone cost of MPLS per site | Interviews | $5,400 | $5,400 | $5,400 |
| B6 | Foregone cost of VPN per site | Interviews | $500 | $500 | $500 |
| B7 | Foregone cost of managing legacy network | Interviews | $12,000 | $12,000 | $12,000 |
| B8 | Improved time-to-value of employee productivity at edge sites | Interviews: 4 days of productivity added per employee per site | $53,760 | $53,760 | $53,760 |
| B9 | Cumulative number of new sites | B2 (cumulative) | 3 | 6 | 9 |
| Bt | Reduced cost and improved productivity of new sites | ((B1+B2)*B3)+ ((B5+B4+B6+B7)*B9) | $254,700 | $473,880 | $693,060 |
| | Risk adjustment | ↓10% | | | |
| Btr | Reduced cost and improved productivity of new sites (risk-adjusted) | | $229,230 | $426,492 | $623,754 |
| | **Three-year total: $1,279,476** | | | **Three-year present value: $1,029,499** | |

### REDUCED TIME TO MANAGE AND UPDATE THE NETWORK AND SECURITY

**Evidence and data.** The interviewees reported reducing the amount of time their network and security staff spent managing and updating their networks and network security after deploying VMware SASE. Regarding network management, the interviewees noted that VMware SASE provided a single pane of glass with which to manage all network devices, helping them see what devices needed to be updated and enabling them to run updates remotely rather than on site.

Interviewees noted similar savings regarding security management workflows. Thanks to the secure web gateway's improved, consolidated visibility into network security policies, management and updates could be done remotely and more quickly.

**"There's definitely improved ease of management with VMware SASE. Overall management has been reduced by 50%."**
*Chief enterprise architect, healthcare*

**Modeling and assumptions.** For the composite organization, Forrester models the following:

- Ongoing management for the network takes 8,000 hours annually, and ongoing management for security consumes 8,000 hours annually.
- The fully burdened hourly rate for NetSecOps professionals is $80.
- VMware SD-WAN with a secure web gateway saves 50% of the time spent on both network and security management.

**Risks.** The reduced time to manage and update security may vary with:

- The amount of time currently spent managing the network and security.
- The fully burdened hourly rate of network and security professionals.

**Results.** To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year risk-adjusted total PV of almost $1.3 million.

**"VMware SASE requires very little time to manage and update. Putting policies into place is much easier. You can control policy from a central location. It's much more user friendly."**
*Director of network operations, financial services*

**Reduced Time To Manage And Update The Network And Security**

| Ref. | Metric | Source | Year 1 | Year 2 | Year 3 |
|---|---|---|---|---|---|
| C1 | Total hours spent managing network and security | Composite | 16,000 | 16,000 | 16,000 |
| C2 | Fully burdened hourly rate for NetSecOps professionals | TEI standard | $80 | $80 | $80 |
| C3 | Reduction from SD-WAN and secure web gateway | Interviews | 50% | 50% | 50% |
| C4 | Percentage of organization covered by SASE | D10 | 67% | 100% | 100% |
| Ct | Reduced time to manage and update the network and security | C1*C2*C3*C4 | $428,800 | $640,000 | $640,000 |
| | Risk adjustment | ↓10% | | | |
| Ctr | Reduced time to manage and update the network and security (risk-adjusted) | | $385,920 | $576,000 | $576,000 |
| | **Three-year total: $1,537,920** | | | **Three-year present value: $1,259,627** | |

**IMPROVED EMPLOYEE PRODUCTIVITY AND IT EFFICIENCY FROM REDUCED NETWORK DOWNTIME**

**Evidence and data.** The interviewees also reported achieving productivity savings by reducing the amount of downtime their networks experienced after deploying VMware SASE. Despite the generally acknowledged high availability of MPLS, customers reported that they still experienced frequent downtime.

For example, the chief enterprise architect from the healthcare industry reported circuits failing several times a week, requiring manual intervention to failover. Each time a circuit failed, it took three to five employees from 20 minutes to 1 hour to accomplish a successful failover. Sometimes this would impact the entirety of a 1,000-employee hospital.

**"With VMware SASE, if there's a network failure, it fails over immediately. As it's software-defined, we don't need manual intervention, and we have the ability to bond multiple circuits."**
*Chief enterprise architect, healthcare*

Additionally, such circuit failures had an impact on the IT help desk who received multiple reports of the outage while duplicated reporting to the network operations team for troubleshooting occurred. The senior network administrator from the utilities sector noted that when a failure occurred, they received a help desk call from as many as 30% of employees at the site.

**"Before we might experience tens of sites down monthly, with average outage times as high as an hour and a half. In the past six months, we haven't seen a single serious outage with VMware SASE."**
*VP of technology, financial services*

**Modeling and assumptions.** For the composite organization, Forrester models:

- One data center outage averaging 8 hours in length occurring annually.
- Seventy-five percent of all employees impacted by a data center outage.
- Eighty percent of the impact of a data center outage avoided with VMware SASE.
- Twelve site outages occurring annually with an average length of 2 hours.
- All 42 average employees per site impacted by a site outage.
- A fully burdened hourly rate for general employees of $40.
- Fifty percent of productivity being recaptured.
- Four professionals needing to bring a site back up and spending 8 additional hours investigating each outage.
- A fully burdened hourly rate of NetSecOps professionals of $80.

**"We're seeing amazing resiliency with VMware SASE, compared with what we had before."**
*Chief enterprise architect, healthcare*

**Risks.** The improvements to uptime will vary with:

- The number of outages currently experienced in data centers and at sites.
- The length of these outages.

- The actual impact on employees from these outages.
- The time spent investigating outages.
- The fully burdened hourly rates of general employees and professionals responding to network failures.

**Results.** To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year risk-adjusted total PV of over $917,000.

**Improved Employee Productivity And IT Efficiency From Reduced Network Downtime**

| Ref. | Metric | Source | Year 1 | Year 2 | Year 3 |
|---|---|---|---|---|---|
| D1 | Number of annual data center outages | Interviews | 1 | 1 | 1 |
| D2 | Average length of data center outage (hours) | Interviews | 8 | 8 | 8 |
| D3 | Total number of employees impacted per data center outage | Composite: 4,200*75% | 3,150 | 3,150 | 3,150 |
| D4 | Impact to employees avoided by VMware SASE | Composite | 80% | 80% | 80% |
| D5 | Number of annual branch site outages | Interviews | 12 | 12 | 12 |
| D6 | Average length of branch site outage (hours) | Interviews | 2 | 2 | 2 |
| D7 | Total number of employees impacted per branch site outage | Composite: 42 employees per site | 42 | 42 | 42 |
| D8 | Average hourly fully burdened rate per employee | TEI standard | $40 | $40 | $40 |
| D9 | Productivity recapture rate | Composite | 50% | 50% | 50% |
| D10 | Percentage of organization covered by SD-WAN | A8/100 | 67% | 100% | 100% |
| D11 | Additional productivity from reduced network downtime | ((D1*D2*D3*D4)+(D5*D6*D7)) *D8*D9*D10 | $283,651 | $423,360 | $423,360 |
| D12 | Number of NetSecOps professionals needed to bring site back online | Interviews | 4 | 4 | 4 |
| D13 | Additional average labor hours to investigate outages | Composite | 8 | 8 | 8 |
| D14 | Average hourly fully burdened rate for NetSecOps | Composite | $80 | $80 | $80 |
| D15 | Improved efficiency of IT | ((D1*D2*D4*D12)+(D5*D6*D12) +(D12*(D1+D5)*D13))*D14*D10 | $28,815 | $43,008 | $43,008 |
| Dt | Improved employee productivity and IT efficiency from reduced network downtime | D11+D15 | $312,467 | $466,368 | $466,368 |
| | Risk adjustment | ↓10% | | | |
| Dtr | Improved employee productivity and IT efficiency from reduced network downtime (risk-adjusted) | | $281,220 | $419,731 | $419,731 |
| | **Three-year total: $1,120,682** | | | **Three-year present value: $917,890** | |

### REDUCED RISK OF BREACH

**Evidence and data.** Using VMware SD-WAN with a secure access gateway also enabled the interviewees to improve their security visibility and alerting, reducing their risk of a material breach. Interviewees shared that this provided:

- Improved visibility into what users were doing on their networks.
- Improved ability to do threat detection via network scanning.
- Improved alerting of internal and external potential threats.
- Enhanced protection against zero-day attacks. Protection against security gaps between software releases and patching.
- Improved ability to scan encrypted traffic.

**"It's a much more effective control for us because we can do a lot more scanning. We get some degree of protection from zero-day threats much faster, or from a vulnerability in the gap between software release and patch."**
*VP of technology, financial services*

The VP of technology from the financial services firm also shared: "VMware has got some really great tools that at a very quick glance of their quality-of-experience measurement, we can see if there's a problem. They're looking at a few different factors to kind of roll that up to a score. The score helps us a lot, compared with what we were having to do before with the legacy hardware. It just wasn't as easy to dig in and find and get alerted to problems."

**Modeling and assumptions.** For the composite organization, Forrester models:

- An average annual number of material breaches of 2.5.[2]
- Average total internal and external costs of a material breach of $254,226.
- Eighty percent of employees' time spent on cloud applications.
- VMware SD-WAN with a secure web gateway improving security by 10%.
- Prior downtime events lasting an average of 3.8 hours.
- Almost 86% of employees affected by such outages.
- Fifty percent of productivity being recaptured.

**Risks.** The reduced risk of a material breach will vary with:

- The average number of annual material breaches.
- The average total internal and external costs of a material breach.
- The extent of coverage of VMware SASE.
- The average hours of downtime per breach.
- The number of employees impacted by each breach.

**Results.** To account for these risks, Forrester adjusted this benefit downward by 10%, yielding a three-year risk-adjusted total PV of more than $200,000.

| Reduced Risk Of Breach | | | | | |
|---|---|---|---|---|---|
| **Ref.** | **Metric** | **Source** | **Year 1** | **Year 2** | **Year 3** |
| E1 | Average annual number of material breaches | Forrester data, industry | 2.5 | 2.5 | 2.5 |
| E2 | Average total internal and external costs of a material breach | Forrester data, total employees | $254,226 | $254,226 | $254,226 |
| E3 | Percentage of organization where SASE is deployed | D10 | 67% | 100% | 100% |
| E4 | Percentage of employees' time spent on cloud applications | D4 | 80% | 80% | 80% |
| E5 | Percentage risk improvement from SASE | Interviews | 10% | 10% | 10% |
| E6 | Subtotal: reduced risk of a security breach | E1*E2*E3*E4*E5 | $34,066 | $50,845 | $50,845 |
| E7 | Prior downtime hours per breach per employee annually | Forrester data, company size | 3.8 | 3.8 | 3.8 |
| E8 | Number of employees affected | Forrester data, company size | 3,600 | 3,600 | 3,600 |
| E9 | Average fully burdened hourly rate per employee | D8 | $40 | $40 | $40 |
| E10 | Productivity recapture rate | Composite | 50% | 50% | 50% |
| E11 | Subtotal: improved productivity from reduced downtime | E1*E3*E5*E7*E8*E9 *E10 | $45,828 | $68,400 | $68,400 |
| Et | Reduced risk of breach | E6+E11 | $79,894 | $119,245 | $119,245 |
| | Risk adjustment | ↓10% | | | |
| Etr | Reduced risk of breach (risk-adjusted) | | $71,905 | $107,321 | $107,321 |
| | **Three-year total: $286,546** | | | **Three-year present value: $234,694** | |

### UNQUANTIFIED BENEFITS

Additional benefits that customers experienced but were not able to quantify include the following:

- **Enhanced performance and connectivity.** The interviewees reported improving the performance of their networks and their employees' connectivity after deploying VMware SASE. For example, the chief enterprise architect from the healthcare sector reported reducing latency by 29% to 43%, or from 7 milliseconds to 4 to 5 milliseconds. The senior network administrator from the utilities organization also noted an improvement in latency but estimated the firm's improvement at a difference of 10 to 15 milliseconds.

**"Voice quality has improved. We're can now hold town hall meetings at all of our locations. In the past, we couldn't do that."**
*IT manager, industrial organization*

- **Improved employee satisfaction.** Interviewees noted an unquantified benefit stemming from improved uptime: Employees were more satisfied with their work experience. As the chief enterprise architect from the healthcare industry said, "The improved uptime and resiliency of our network have made everyone's life a lot easier, including IT and end users."
- **Higher compliance.** The same interviewee also noted that VMware SD-WAN with a secure web gateway helped improve the business's compliance: "With [SD-WAN and a secure web gateway], we now have the ability to become Zero Trust. This makes us even more HIPAA compliance than we were in the past."

**"[VMware SD-WAN with a secure web gateway] also helps us remain compliant regarding data loss prevention. We now can get alerts when anyone tries to upload a file with private or confidential data, and we can block that from happening."**
*VP of technology, financial services*

- **Better brand reputation.** The added resilience and protection against breaches from the VMware SD-WAN, Secure Access, and a secure web gateway also helped protect the brand reputation of the interviewees' organizations. The chief enterprise architect from healthcare said: "In terms of brand reputation, we have not been breached. We've had a few minor incidents before, but we haven't had any since we deployed [our secure web gateway]."

**FLEXIBILITY**

The value of flexibility is unique to each customer. There are multiple scenarios in which a customer might implement VMware SASE and later realize additional uses and business opportunities, including:

- **Scalability and agility.** VMware SASE helped the interviewees' organizations become more scalable and more agile. As the interviewee from healthcare said: "VMware SASE has made us more agile. We can scale our infrastructure to more users or to meet higher demand much quicker than before. We can add more employees because of it. Our infrastructure no longer constrains our hiring and vice versa."
- **Future-proofing.** Interviewees noted that moving toward a software-defined mode of networking and security helped future-proof their organizations. For example, the director of network operations at the financial services firm said: "VMware SASE helps us future-proof our organization by moving away from having different vendors to manage for different parts of our network. Now we have one place to manage network and security, at better performance, and the hardware itself matters less."
- **Enablement of work from home.** As more employees shifted to working from home, the interviewees reported that VMware SD-WAN, Secure Access, and a secure web gateway helped their organizations maintain and even improve their security postures. The director of network operations from the financial services firm noted: "Security could sometimes become an issue with our prior VPN. We were at a loss as to how to provide the same level of security that we do at our offices to our employees as they started working from home. Now we can do exactly that."

Flexibility would also be quantified when evaluated as part of a specific project (described in more detail in Appendix A).

# Analysis Of Costs

Quantified cost data as applied to the composite

| Total Costs | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Ref.** | **Cost** | **Initial** | **Year 1** | **Year 2** | **Year 3** | **Total** | **Present Value** |
| Ftr | Total licensing costs | $0 | $1,018,880 | $523,995 | $43,666 | $1,586,541 | $1,392,115 |
| Gtr | Cost of deployment and implementation | $33,000 | $92,400 | $47,520 | $3,960 | $176,880 | $159,248 |
| Htr | Cost of training and ongoing management | $440 | $3,036 | $4,488 | $4,488 | $12,452 | $10,281 |
| | Total costs (risk-adjusted) | $33,440 | $1,114,316 | $576,003 | $52,114 | $1,775,873 | $1,561,644 |

### TOTAL LICENSING COSTS

**Evidence and data.** VMware charges for SASE appliances and software subscriptions based on the throughput needed for data centers on the one hand and sites on the other. For this study, we have used list prices for both appliances and software subscriptions.

**Modeling and assumptions.** For the composite organization, Forrester models:

- Two data centers require 5 Gbps of throughput.
- One hundred sites each require 100Mbps of throughput.
- All 4,200 employees use VMware Secure Access.
- All solutions are accounted for in the same year as their deployment and for 36-month terms at list price.

**Risks.** The total licensing costs may vary with:

- The number of data centers and sites.
- The amount of throughput needed at each of these locations.
- The number of VMware Secure Access users.
- The terms of payment and the timeline for deploying VMware SASE.

**Results.** As Forrester priced the composite with VMware directly, this cost has not been discounted to account for risk, yielding a three-year, total PV (discounted at 10%) of just under $1.4 million.

| Total Licensing Costs | | | | | | |
|---|---|---|---|---|---|---|
| **Ref.** | **Metric** | **Source** | **Initial** | **Year 1** | **Year 2** | **Year 3** |
| F1 | Combined licensing and hardware costs for VMware SD-WAN, Secure Access, and Cloud Web Security SaaS and hardware | VMware | $0 | $1,018,880 | $523,995 | $43,666 |
| Ft | Total licensing costs | F1 | $0 | $1,018,880 | $523,995 | $43,666 |
| | Risk adjustment | 0% | | | | |
| Ftr | Total licensing costs (risk-adjusted) | | $0 | $1,018,880 | $523,995 | $43,666 |
| | **Three-year total: $1,586,541** | | | **Three-year present value: $1,392,115** | | |

### COST OF DEPLOYMENT AND IMPLEMENTATION

**Evidence and data.** The time to implementation and deployment of VMware SASE varied significantly by the size and resources of the interviewees' organizations. The time from engaging VMware to deploying VMware SASE varied from six months to three years. Total employees working on deployment also varied from two FTEs to 12 FTEs, albeit at a percentage of time.

**Modeling and assumptions.** For the composite organization, Forrester models:

- A 10-day network analysis period predeployment, requiring five FTEs at a daily rate of $600 each.
- An $800 third-party implementation fee per site, taking a conservative 1.5 days to complete.

**Risks.** The total time to implementation and deployment will vary with:

- The length of predeployment planning.
- The total number of sites needing VMware SASE.
- The amount of resources able to be utilized for implementation and deployment.

**Results.** To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year risk-adjusted total PV of less than $160,000.

**Cost Of Deployment And Implementation**

| Ref. | Metric | Source | Initial | Year 1 | Year 2 | Year 3 |
|---|---|---|---|---|---|---|
| G1 | Predeployment application and network analysis in days | Interviews | 10 | | | |
| G2 | Predeployment analysis team size | Interviews | 5 | | | |
| G3 | Predeployment analysis team daily cost per member | Interviews | $600 | | | |
| G4 | Third-party implementation daily fee | Interviews | | $800 | $800 | $800 |
| G5 | Third-party implementation contractors | Interviews | | 1 | 1 | 1 |
| G6 | Days to complete implementation | Interviews | | 1.5 | 1.5 | 1.5 |
| G7 | Total sites implemented in the year | A2+B3 | | 70 | 36 | 3 |
| Gt | Cost of deployment and implementation | G1*G2*G3;G4*G5*G6*G7 | $30,000 | $84,000 | $43,200 | $3,600 |
| | Risk adjustment | ↑10% | | | | |
| Gtr | Cost of deployment and implementation (risk-adjusted) | | $33,000 | $92,400 | $47,520 | $3,960 |
| | **Three-year total: $176,880** | | | **Three-year present value: $159,248** | | |

### COST OF TRAINING AND ONGOING MANAGEMENT

**Evidence and data**. The interviewees also noted incurring internal costs related to training and ongoing management. Training took 1 hour for each employee requiring it. Ongoing management was limited to upgrades and the occasional checking of network and security systems to ensure everything was working properly.

The IT manager from the industrial organization said, "VMware SASE is very easy to use, and the single pane of glass means it requires very little ongoing management. It also took very little training for my team to be able to support it."

**Modeling and assumptions.** For the composite organization, Forrester models:

- Five employees each require 1 hour of training initially, with an additional employee requiring training each year thereafter to account for turnover.
- Ongoing management took 1 hour every work week at a full deployment of VMware SASE at a fully burdened hourly rate of $80.

**Risks.** The cost of training and ongoing management will vary with:

- The number of employees needing training.
- The size of deployment.

**Results.** To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year risk-adjusted total PV of $10,000.

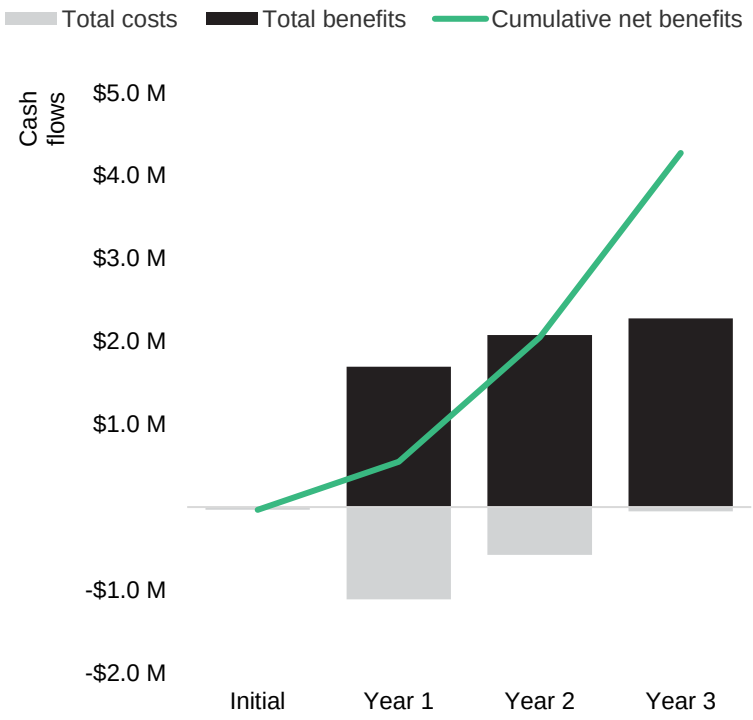
**Cost Of Training And Ongoing Management**

| Ref. | Metric | Source | Initial | Year 1 | Year 2 | Year 3 |
|---|---|---|---|---|---|---|
| H1 | Number of employees needing training | Composite | 5 | 1 | 1 | 1 |
| H2 | Hours of training needed | Interviews | 1 | 1 | 1 | 1 |
| H3 | Average fully burdened hourly rate for IT employees | D14 | $80 | $80 | $80 | $80 |
| H4 | Subtotal - Total cost of training | H1*H2*H3 | $400 | $80 | $80 | $80 |
| H5 | Annual hours needed for ongoing management | Interviews | 0 | 50 | 50 | 50 |
| H6 | Percentage deployment of SASE | D10 | 0 | 67% | 100% | 100% |
| H7 | Average fully burdened hourly rate for NetSecOps professionals | D14 | $80 | $80 | $80 | $80 |
| H8 | Subtotal - Total cost of ongoing management | H5*H6*H7 | $0 | $2,680 | $4,000 | $4,000 |
| Ht | Cost of training and ongoing management | H4+H8 | $400 | $2,760 | $4,080 | $4,080 |
| | Risk adjustment | ↑10% | | | | |
| Htr | Cost of training and ongoing management (risk-adjusted) | | $440 | $3,036 | $4,488 | $4,488 |
| | **Three-year total: $12,452** | | | **Three-year present value: $10,281** | | |

# Financial Summary

## CONSOLIDATED THREE-YEAR RISK-ADJUSTED METRICS

### Cash Flow Chart (Risk-Adjusted)




The financial results calculated in the Benefits and Costs sections can be used to determine the ROI, NPV, and payback period for the composite organization's investment. Forrester assumes a yearly discount rate of 10% for this analysis.

**These risk-adjusted ROI, NPV, and payback period values are determined by applying risk-adjustment factors to the unadjusted results in each Benefit and Cost section.**

**Cash Flow Analysis (Risk-Adjusted Estimates)**

| | Initial | Year 1 | Year 2 | Year 3 | Total | Present Value |
|---|---|---|---|---|---|---|
| Total costs | ($33,440) | ($1,114,316) | ($576,003) | ($52,114) | ($1,775,873) | ($1,561,644) |
| Total benefits | $0 | $1,695,655 | $2,078,544 | $2,275,806 | $6,050,005 | $4,969,155 |
| Net benefits | ($33,440) | $581,339 | $1,502,541 | $2,223,692 | $4,274,131 | $3,407,511 |
| ROI | | | | | | 218% |
| Payback (months) | | | | | | <6 |

# Appendix A: Total Economic Impact

Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

### TOTAL ECONOMIC IMPACT APPROACH

**Benefits** represent the value delivered to the business by the product. The TEI methodology places equal weight on the measure of benefits and the measure of costs, allowing for a full examination of the effect of the technology on the entire organization.

**Costs** consider all expenses necessary to deliver the proposed value, or benefits, of the product. The cost category within TEI captures incremental costs over the existing environment for ongoing costs associated with the solution.

**Flexibility** represents the strategic value that can be obtained for some future additional investment building on top of the initial investment already made. Having the ability to capture that benefit has a PV that can be estimated.

**Risks** measure the uncertainty of benefit and cost estimates given: 1) the likelihood that estimates will meet original projections and 2) the likelihood that estimates will be tracked over time. TEI risk factors are based on "triangular distribution."

The initial investment column contains costs incurred at "time 0" or at the beginning of Year 1 that are not discounted. All other cash flows are discounted using the discount rate at the end of the year. PV calculations are calculated for each total cost and benefit estimate. NPV calculations in the summary tables are the sum of the initial investment and the discounted cash flows in each year. Sums and present value calculations of the Total Benefits, Total Costs, and Cash Flow tables may not exactly add up, as some rounding may occur.

### PRESENT VALUE (PV)

The present or current value of (discounted) cost and benefit estimates given at an interest rate (the discount rate). The PV of costs and benefits feed into the total NPV of cash flows.

### NET PRESENT VALUE (NPV)

The present or current value of (discounted) future net cash flows given an interest rate (the discount rate). A positive project NPV normally indicates that the investment should be made, unless other projects have higher NPVs.

### RETURN ON INVESTMENT (ROI)

A project's expected return in percentage terms. ROI is calculated by dividing net benefits (benefits less costs) by costs.

### DISCOUNT RATE

The interest rate used in cash flow analysis to take into account the time value of money. Organizations typically use discount rates between 8% and 16%.

### PAYBACK PERIOD

The breakeven point for an investment. This is the point in time at which net benefits (benefits minus costs) equal initial investment or cost.

# Appendix B: Endnotes

[1] Total Economic Impact is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists vendors in communicating the value proposition of their products and services to clients. The TEI methodology helps companies demonstrate, justify, and realize the tangible value of IT initiatives to both senior management and other key business stakeholders.

[2] Source: Forrester Consulting Cost Of A Cybersecurity Breach Survey, Q4 2020.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