The Business Value of VMware Avi Load Balancer

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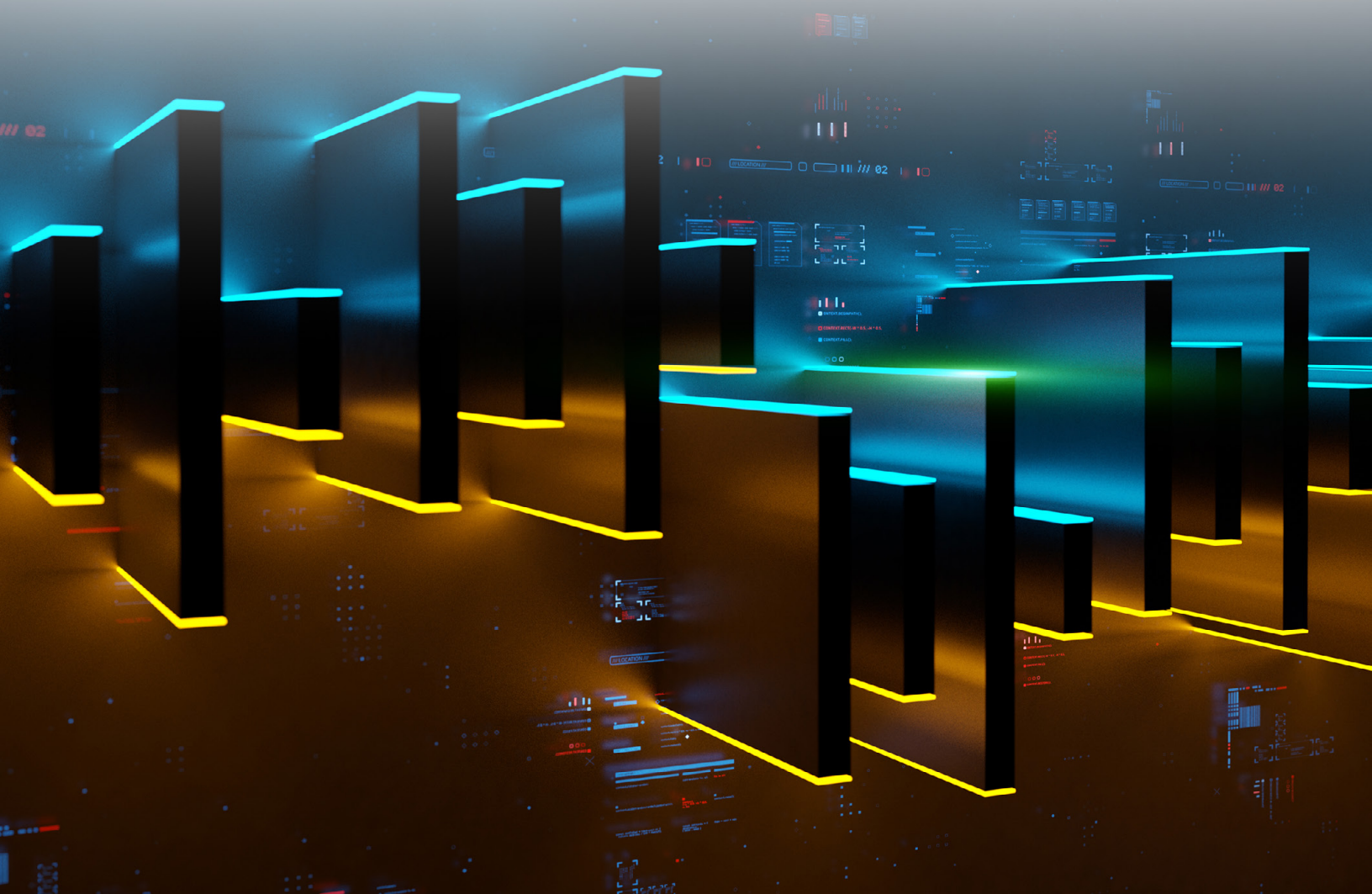


Table of Contents

CLICK ANY HEADING TO NAVIGATE DIRECTLY TO THAT PAGE.

Executive Summary

As organizations transform increasingly into digital businesses, applications have never been more important to success. In the cloud era, traditional applications address long-standing back-office requirements, while microservices-based modern applications have emerged as the face of the business, providing agility for customers, employees, and partners.

Applications, however, depend on robust application delivery and security infrastructure. Application delivery controllers (ADCs) and load balancers ensure that applications perform optimally, delivering the availability, responsiveness, reliability, security, and elastic scalability that applications and digital businesses require.

IDC interviewed organizations using VMware Avi Load Balancer to understand its impact on their application delivery infrastructure costs, staff time requirements, scalability, and business results. Study participants described achieving strong value with VMware Avi Load Balancer by establishing more cost-effective, elastic, and agile application delivery environments that more readily support their business activities.

Based on interviews with VMware customers, IDC calculates that they will achieve benefits worth an annual average of $6.78 million per organization ($630,300 per 100 applications) by:

- **Increasing revenue** by better serving existing customers and winning more new business by addressing opportunities in a timely and complete manner
- **Scaling application delivery and security infrastructure rapidly** due to hyper-automation and simplicity to meet changing business requirements
- **Empowering development teams** to work more directly to address business demand through self-service access to load balancing infrastructure due to DevOps tool chain integrations
- **Optimizing ADC, application security, and load balancing infrastructure total costs** by moving away from appliance-based architectures that require the purchase of hardware to expand to

Business Value Highlights

Click the highlights below to navigate to content within this document.

Top-Line Impact

$13.6 million average higher revenue per year

27% application developer productivity

Day 2 Operations

90% faster to scale capacity

54% fewer outages

Lower Cost of Operations

6-month payback

43% cost of operations savings

distributed software-based architecture and integrated platform of app delivery and multilayered app security

- **Requiring less staff time** to manage, scale, and support networking activities by leveraging software-driven automation, analytics, and self-healing capabilities

Situation Overview

An indisputable fact associated with digital transformation is the primacy of applications. In the digital era, applications are not only essential to business but also synonymous with doing business.

This is particularly true of custom applications created by enterprise development teams to achieve meaningful business outcomes and competition differentiation. Whereas traditional applications primarily addressed back-office requirements, modern cloud applications deliver digital experiences and critical communication with customers, partners, employees, and other stakeholders. Increasingly, enterprises recognize that applications make or break their digital engagements and ultimately determine whether they succeed or fail in increasingly dynamic industries and markets.

At the same time, applications are undergoing an architectural metamorphosis. Monolithic applications are being displaced gradually by modern cloud-native architectures characterized by containers and microservices, and serverless technology (function as a service) is quickly emerging to take full advantage of hybrid architectures. Application modernization, including the adoption of cloud-native application architectures and the migration of new and existing applications to clouds, provides tremendous business opportunities but also potential risks for digitizing organizations.

Modern applications, built with cloud-native containers and microservices, further accentuate the need for application delivery and security to be end to end, full stack, and software defined, with intelligent automation and application layer visibility delivering unprecedented agility, flexibility, and workload protection for modern and traditional application environments. This automated functionality should extend to the provisioning and management of elastic north–south and east–west load balancing, traffic management for continuous integration/continuous delivery processes, and blue/green and canary deployment scenarios. The application delivery network must now support container-based microservices with global server load balancing, web application firewall, north–south ingress controllers, and multi-cluster and intra-cluster service meshes that provide east–west connectivity and security.

Modern approaches to load balancing must enable and support workload portability and digital resiliency, providing a flexible fulcrum for hybrid IT and multicloud. Through virtualization, software-defined load balancing can provide an extensible, elastically scalable fabric that ensures the definition and enforcement of consistent policies regardless of application architecture or workload placement. These load balancing capabilities allow application owners to place workloads where they belong at any point in time, with the flexibility to move them as needed and to create redundant virtual networks to support digital business resilience and application continuity.

Load balancing is integral to the support and delivery of cloud-era applications, which are distributed across an increasingly complex landscape of datacenters, colocation facilities, clouds, and edge environments. Integrated application security is a critical consideration. Another important factor, given the inherent complexity of providing effective load balancing across a distributed application environment, is simplicity of operation extending from deployment through to day-to-day management (Day2/N). A consistent approach, with uniform policy and centralized management, serves to significantly mitigate the considerable complexity that would otherwise accompany the deployment and operation of fragmented application delivery infrastructure spanning disparate clouds and heterogenous infrastructure.

VMware Avi Load Balancer

VMware Avi Load Balancer offers functionality for on-premises, hybrid, and multicloud load balancing, including global server load balancing, web application firewall, DDoS protection, bot management, and container ingress services (ingress controller) for cloud-native Kubernetes environments.

Avi Load Balancer is designed to provide flexible deployment and simplified operations through automation and centralized management. With a software-defined approach to application delivery infrastructure, Avi Load Balancer decouples the control plane from the data plane and provides consistent application delivery services across clouds and heterogeneous infrastructure, including bare metal servers, virtual machines, and containers.

Centralized policies extend operational consistency across on-premises datacenters and public clouds, including VMware Cloud, OpenStack, AWS, Microsoft Azure, and Google Cloud Platform. Pervasive analytics provide end-to-end visibility for actionable insights into real-time network and application performance, end-user application experience, and security issues, facilitating faster troubleshooting and remediation of issues that threaten application performance. Closed-loop analytics, supported by machine learning, allow for continual optimizations, allowing operators to take a more proactive approach to the provision and management of application delivery infrastructure.

Full life-cycle automation is built into Avi Load Balancer, providing intelligent automation from day 0 through Day 2/N, allowing infrastructure teams to eliminate repetitive manual tasks, and making it possible for platform and DevOps teams to provide self-service capabilities to developers. Automation toolkits for application delivery support integrations with Python SDK, RESTful APIs, Ansible, and Terraform. Considerable cost savings, as well as other business benefits, can accrue from the greater agility and efficiencies that this functionality provides.

In addition, Avi Load Balancer offers a range of features and functionality for web application security, including web application firewall, bot management, and API protection, as well as DDoS protection and SSL/TLS encryption support. VMware has designed its web application security stack to be both comprehensive and simple to use, leveraging the elastic scalability of the integrated application delivery infrastructure and security platform to which it belongs.

As previously noted, Avi Load Balancer also bridges the lab-to-production gap through functionality as a north–south ingress controller for cloud-native applications in Kubernetes and OpenShift environments. In this sense, Avi Load Balancer has been developed to enable organizations to address the availability and performance of traditional and modern applications.

The Business Value of VMware Avi Load Balancer

Study Demographics

IDC interviewed seven organizations with an enterprise profile from around the world about their experiences using VMware Avi Load Balancer. Interviews were in depth in nature and focused on obtaining an understanding of the practical impact of use of VMware Avi Load Balancer on study participants' costs, staff time requirements, scalability, performance, and business results.

Study participants had a large enterprise profile in the aggregate, with an average of 55,679 employees and annual revenue of $16.5 billion (medians of 40,000 employees and $6.2 billion in revenue). The VMware customer sample was diverse from both a geographic perspective, with representation from North America, EMEA, and APAC, and an industry vertical perspective, with participants from financial services (2), software as a service (SaaS) (2), insurance, technology, and travel. See **Table 1** (next page) for additional details.

TABLE 1

Demographics of Interviewed Organizations

	Average	Median
Number of employees	55,679	40,000
Number of IT staff	9,246	5,000
Number of business applications	1,264	375
Revenue per year	$16.5B	$6.2B
Countries	United States (3), Australia, Belgium, France, Ireland	
Industries	Financial services (2), software as a service (2), insurance, technology, travel	

n = 7; Source: IDC Business Value In-Depth Interviews, June 2022

Use of VMware Avi Load Balancer

Study participants deployed VMware Avi Load Balancer after concluding that their existing network, application delivery and security, and load balancing environments no longer provided a viable platform for growth in terms of cost, scalability, and performance. They realized that they needed a software-driven solution that could scale horizontally and vertically in a cost-effective and timely manner to match the needs of their businesses. Their legacy environments, often based on hardware appliances, were costly to run and expand and lacked inherent agility. Thus, interviewed organizations assessed VMware Avi Load Balancer and chose it on their conclusion that it would enable them to overcome these types of challenges.

Interviewed VMware customers described their selection criteria in their own words:

Best combination of cost efficiencies and strong performance:

"We were looking to have a private cloud with the most possible cost efficiency, so we looked at all the different solutions to see which offered the best balance between total cost of ownership and performance and chose VMware Avi. We wanted to have enough orchestration of self-management of these solutions so that we can get a lot of agility into introducing new features, applications, and services."

Need for scalability and cost efficiency:

"We had several drivers for choosing VMware Avi, but the primary one was scalability. We were looking for something that horizontally scaled quicker, faster, and cheaper than what we were running previously. We were also looking for better cost efficiency from a transactional standpoint."

Superior features and automation capabilities:

"VMware Avi's features were in comparison far superior. For example, the analytics and logging visibility is much better. Also, advanced analytics and logging offers the ability for the application team to investigate their own issues, without involving network support for troubleshooting."

Visibility, flexibility, cost:

"One reason we chose VMware Avi is the visibility, so when we have incidents, we can troubleshoot more easily. And the other thing is the flexibility to scale the capacity on demand. And the third thing is cost, compared with our legacy load balancing solution."

Table 2 provides details about study participants' use of VMware Avi Load Balancer. It demonstrates that they are using the VMware solution across distributed operations that include seven datacenters and 24 business sites on average. The significance of their use is also demonstrated by the number of applications (1,076 on average) and the traffic supported, with many millions of transactions supported on an hourly, and daily, basis (9.8 million transactions per hour per load balancer).

TABLE 2

VMware Avi Load Balancer Use by Interviewed Organizations

	Average	Median
Number of datacenters	7	4
Number of sites	24	16
Transactions per hour per VMware Avi Load Balancer	9.8M	1.5M
Number of applications	1,076	130

n = 7; Source: IDC Business Value In-Depth Interviews, June 2022

Business Value and Quantified Benefits of VMware Avi Load Balancer

Study participants described realizing significant operational efficiencies through their use of VMware Avi Load Balancer by establishing more cost-effective and efficient application delivery and security platforms. Further, they have taken advantage of software-driven automation and flexibility to improve their ability to react to business needs, helping them better support their development and business operations.

Interviewed VMware customers spoke to the value they have achieved through use of Avi Load Balancer:

Speed of deployment, traffic visibility:

"The main benefits for us of using VMware Avi are rapid deployment using automation, enhanced analytics, and logging. … From a business point of view, it's user experience and enhanced client traffic visibility."

Ease of management, scalability, automatic failover:

"We don't have any hardware to maintain or to refresh with VMware Avi. We have also the scalability, so we can easily add any new load balancer and we don't need to make any changes. The failover is globally automatic, so when the load balancing goes down, everything moves automatically to another VM."

Visibility, cost, scalability:

"The most significant benefits for us of using VMware Avi are the visibility, the reduction of the costs, and the scaling on demand. If we still had the legacy solution and we had to scale, we'd have to order the equipment and wait for up to six months."

IDC assessed the value that study participants will realize through their use of VMware Avi Load Balancer at an annual average of $6.8 million per organization ($630,300 per 100 applications) in the following areas (refer to **Table 6**, in **Appendix 2**, for details):

IT staff productivity benefits:

Study participants benefit from both staff efficiencies in running and troubleshooting their application delivery and security environments and significant gains in productivity levels for their development teams. IDC estimates that they will realize value worth an average of $4.3 million per organization per year ($396,800 per 100 applications).

Business productivity benefits:

Interviewed organizations better address business opportunities through enhanced scalability, elasticity, and performance of their application delivery and security platforms. IDC projects that they will earn higher net revenue worth an annual average of $1.80 million per organization ($167,600 per 100 applications).

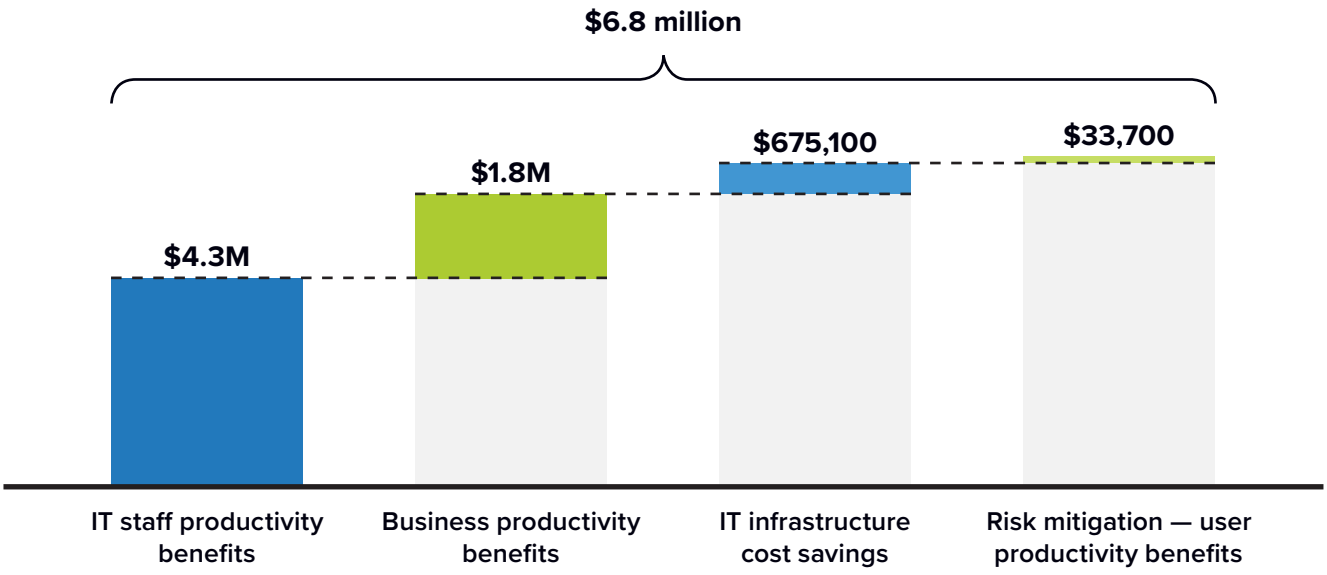
IT infrastructure cost reductions:
Study participants optimize the cost of providing load balancing infrastructure capacity, which IDC calculates will lead to direct cost savings and avoidances with an average annual value of $675,100 per organization ($62,700 per 100 applications).

Risk mitigation — user productivity benefits:
Interviewed organizations face fewer business interruptions and disruptions related to load balancer availability and performance. As a result, their employees are more productive, with IDC calculating that they will see average productivity gains per year of $33,700 per organization ($3,100 per 100 applications).

FIGURE 1

Average Annual Benefits per Organization

($)



n = 7; Source: IDC Business Value In-Depth Interviews, June 2022

For an accessible version of the data in this figure, see Figure 1 Supplemental Data in Appendix 3.

Business Revenue Benefits

Study participants connected enhanced scalability, performance, and flexibility with VMware Avi Load Balancer to business gains. They often have high stakes but time-sensitive opportunities to convert them to business wins and thus require the ability to deliver in a way that meets customer expectations. Interviewed organizations noted that their previous application delivery and security environments too often let them down but that they have better addressed these opportunities with VMware Avi Load Balancer.

Interviewed VMware customers provided examples of how they can now better execute in support of business objectives:

Scalability in support of business:

"The biggest business impact of using VMware Avi is scalability. This means being able to dynamically and quickly scale up or scale down just from a cost–benefit perspective, as well as efficiency in terms of how we're leveraging the hardware."

Improved ability to meet demand of traffic spikes:

"There are a whole bunch of things that go into hardware considerations. You've also got to build out for your peak because 90% of the time we're running at 50%, but there's one month, during Christmas, where it spikes up to 80%, so we have to buy a lot more hardware for very minimal time. With VMware Avi, we have enough compute licensing where we can spin them up quickly if we need them and then spin them back down once it's done. So it's a lot faster."

Study participants gain from both improved overall performance and reliability with VMware Avi Load Balancer. For example, they reported reducing the frequency of unplanned outages by an average of 54% and resolving outages by an average of 65% faster. As a result, their business operations are less likely to see impactful disruption from traffic-related outages.

Interviewed organizations reported leveraging both improved performance and scalability to improve their business results. IDC calculates that study participants will realize revenue gains of an average of $13.6 million per organization per year ($1.3 million per organization) (see **Table 3**). For purposes of its financial model, IDC applies a 15% margin assumption, meaning that it projects that interviewed VMware customers will achieve net revenue gains worth an average of $2.0 million per organization ($190,000 per 100 applications).

TABLE 3

Business Productivity Benefits — Higher Revenue

	Per Organization	Per 100 Business Applications
Total additional revenue per year	$13.6M	$1.3M
Assumed operating margin	15%	15%
Total additional net revenue per year — IDC model*	$2.0M	$0.2M

n = 7; Source: IDC Business Value In-Depth Interviews, June 2022

* IDC assumes a 15% operating margin for each additional dollar of revenue gained.

Agility and Scalability Benefits

Study participants reported that use of VMware Avi Load Balancer has changed to a significant degree their ability to move with speed and agility to deliver new applications and security infrastructure as required by their businesses. Whereas they previously often had to go through prolonged approval and delivery processes for hardware-based appliances, they can now much more readily add capacity as needed. By abstracting their ability to add to their environments, they minimize delays and ensure their ability to move at the same speed as their businesses.

Interviewed VMware customers provided examples of how they can now scale to meet elastic business demand:

Automation means much faster delivery of new capacity as needed:

"Everything is automated with VMware Avi, so our users can order a service to have a virtualserver. We have what we call a global application environment, and they can have it in two hours. With our legacy environment, they would have to wait four weeks."

Self-service access to load balancing capacity enables faster time to market:

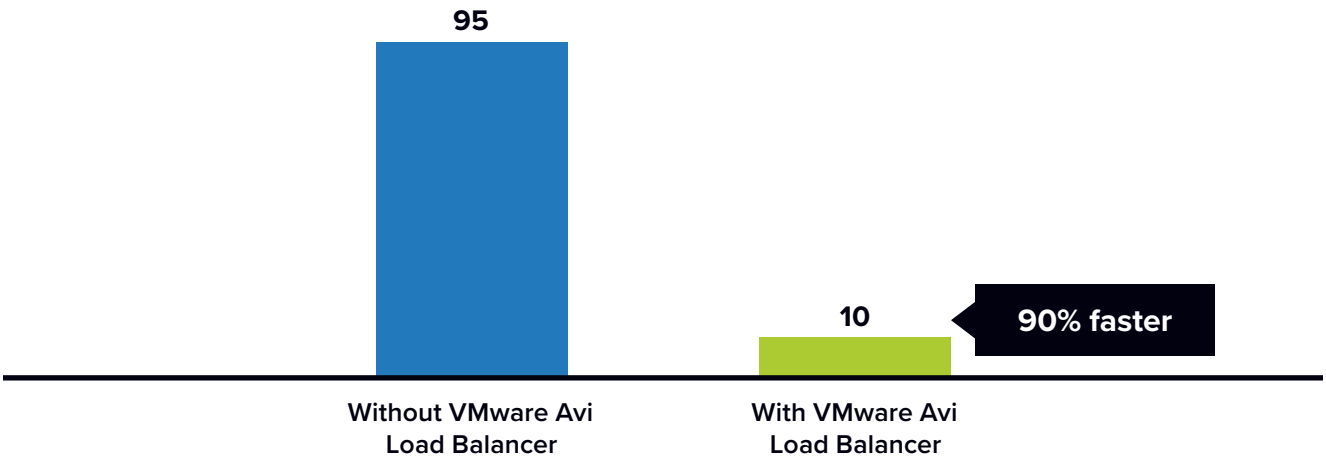
"Self-service with VMware Avi allows users to provision the load balancer, and we give them more insight about what's happening for their application. … It allows them to go to market faster when it's seen as the last part of their deployment. … They save a few weeks because it no longer has to go to another team."

Figure 2 (next page) shows the average impact for study participants of using VMware Avi Load Balancer in terms of total time — including planning, requisition, and deployment — of new application delivery and security capacity. As indicated, interviewed organizations reported reducing the time required by 90% — thereby increasing their scalability substantially — and shaving almost three months on average from the total time required to extend their load balancing environments.

FIGURE 2

Total Average Time Required to Scale Load Balancing Capacity

(Number of days)



n = 7; Source: IDC Business Value In-Depth Interviews, June 2022

Software Developer Productivity Benefits

Enhanced scalability and agility with VMware Avi Load Balancer provide many benefits for study participants, with enablement of development activities chief among them. Development teams must respond with speed in delivering robust and high-quality digital applications and experiences to customers and employees. As such, friction caused by IT can hinder these teams' ability to work with maximum effectiveness. Because development teams require access to network capacity and other IT resources to do their work, study participants found that legacy load balancing environments that lacked scalability and direct access could materially slow development processes.

However, study participants confirmed that moving to a software-driven approach with VMware Avi Load Balancer has empowered their development teams. They explained that their development teams now more often have self-service access to resources and capacity, which limits the extent to which they must wait on IT teams to execute their requests.

Further, interviewed organizations noted that the ability to access capacity with little lead time enables more effective development activities. In addition, interviewed VMware customers appreciated the ability to integrate with development tools and platforms, with one study participant explaining: *"Our teams want to integrate their stand-up processes automatically with the load balancer layer, and we've been working with them to support Ansible and some of the other Pythons for the other automation tooling. There's been a significant improvement in observability with VMware Avi Load Balancer."*

Several interviewed VMware customers provided specific examples of development team enablement:

Development team benefits from quality of load balancing platform:

"VMware Avi has a good effect on our development team. They have a stable load balancing platform that they can rely on, which is important. Before, they had to plan around the possibility that the load balancing solution wasn't going to work and plan to handle a lot more errors."

Greatly reduces friction associated with bringing new services to market:

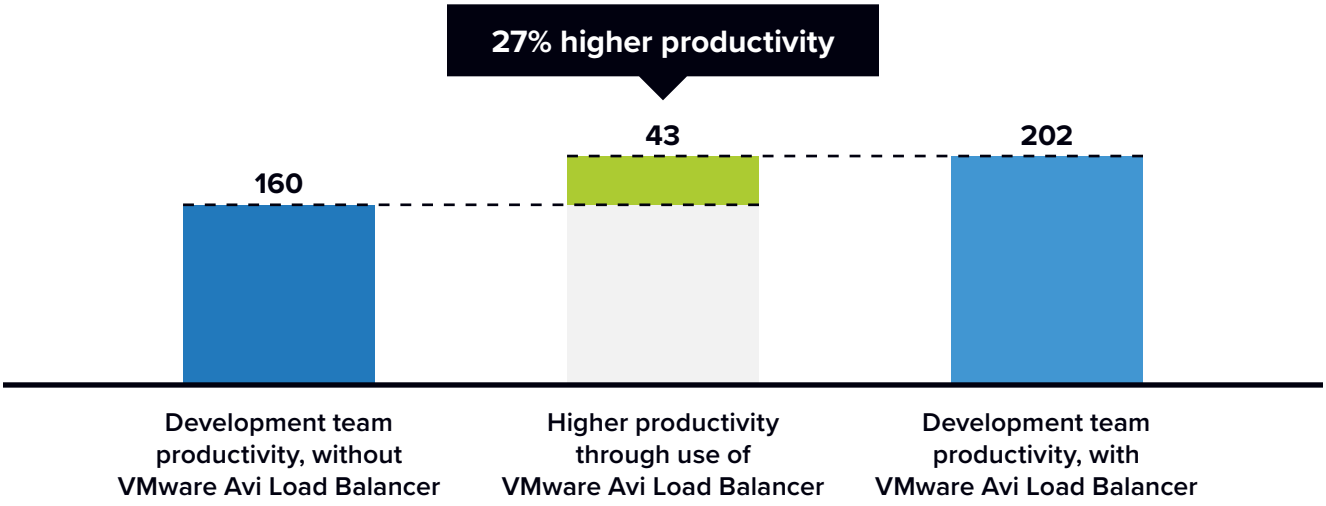
"The ease and engagement for our development has vastly improved with VMware Avi Load Balancer. Our team can be more innovative and come to us at the last minute and say, 'Hey, we need x amount of capacity, and we need it today.' It's far easier for us to address those at the last minute. Before, we added friction to the process because we'd have to say, 'Hey, wait, you need to pause. This is going to take us 3–6 months. You need to factor this into your development strategy.'"

When development teams can move at the actual speed of business, they are more effective and have higher value for their organizations. Study participants reported that use of VMware Avi Load Balancer has had a consequential impact on their development teams with an average 27% productivity gain (see **Figure 3**), which is worth an additional 43 full-time employees (FTEs) in terms of productivity. This reflects the ability of development teams to better serve their businesses through delivery of impactful, relevant, and timely new applications and functionalities.

FIGURE 3

Impact on Development Team Productivity

(Equivalent productivity, FTEs per organization)



n = 7; Source: IDC Business Value In-Depth Interviews, June 2022

For an accessible version of the data in this figure, see Figure 3 Supplemental Data in Appendix 3.

Cost Efficiencies

Study participants reported that VMware Avi Load Balancer has provided them with a more effective solution for extending their load balancing and network traffic operations. As previously noted, many of the interviewed customers migrated from appliance-based hardware solutions that required repeated capital investment cycles to ensure sufficient infrastructure capacity. Further, these legacy environments were often proprietary in nature, limiting study participants' ability to make use of less expensive commodity hardware capacity. As such, most interviewed VMware customers mentioned the need to find a simpler, highly automated, and more cost-effective solution as a significant driver to their consideration of VMware Avi Load Balancer.

Interviewed organizations explained that they can both better match infrastructure to demand and make more efficient use of existing capacity with VMware Avi Load Balancer. By adding infrastructure incrementally, they avoid needing to overprovision hardware-based solutions, and thus they reduce the total cost.

Study participants provided detailed examples of how they have leveraged VMware Avi Load Balancer to provision in a more cost-effective manner:

Cost efficiencies from leveraging commodity hardware:

"With VMware Avi, if we need to scale up to support a customer event or holiday traffic, rather than buying proprietary hardware, we're able to leverage existing hardware that we already have. … This makes use of existing investment as opposed to making some larger capex purchases, which, based on our run rate over the past couple of years, would probably cost millions more per year."

Cost-effective way to provide load balancing infrastructure capacity:

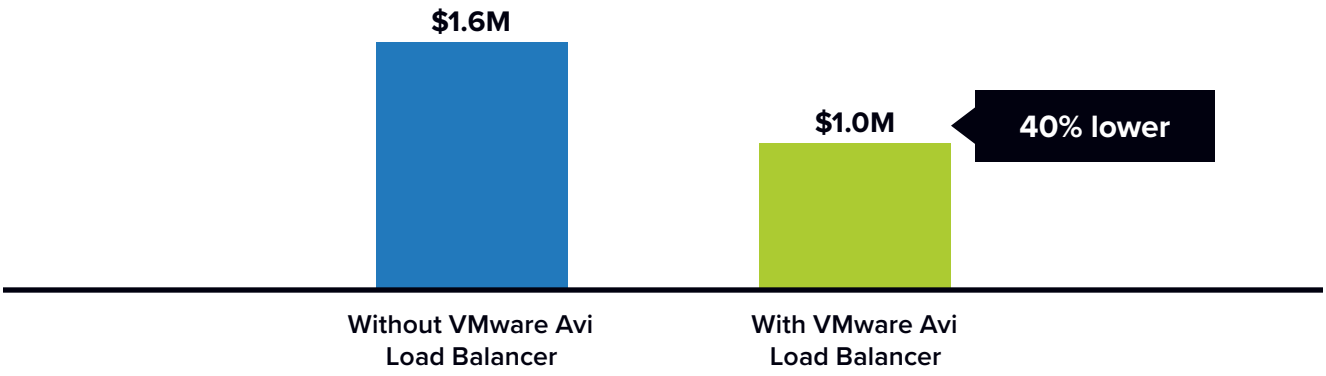
"We're avoiding costs with VMware Avi on buying physical infrastructure and more load balancers. We'd probably need twice as many load balancers with our legacy approach at four times the price."

Figure 4 (next page) demonstrates the extent to which study participants have optimized their application delivery and security platform costs with VMware Avi Load Balancer. IDC calculates that on average they will spend 40% less, saving $675,000 per organization on an annualized basis ($62,700 per 100 applications).

FIGURE 4

Annualized Cost of Load Balancing Infrastructure

(Cost per organization per year)



n = 7; Source: IDC Business Value In-Depth Interviews, June 2022

Staff Efficiencies

Study participants reported benefiting from the manageability of VMware Avi Load Balancer as well as reduced troubleshooting burden. In addition to direct load balancing costs that often scaled too linearly to capacity, interviewed organizations found it challenging to staff their growing network traffic volumes with their legacy application delivery and security solutions. This was especially the case with hardware-based appliances, which require additional staff time to deploy, manage, and support, often requiring more staff resources on a per unit basis. Thus, interviewed VMware customers found that their expanding network and data environments consumed increasing amounts of staff time just to maintain their load balancing infrastructures.

Study participants reported greatly reducing the burden on their load balancing and network traffic management teams with VMware Avi Load Balancer. They cited the ability to manage across their environments from a central console as a key efficiency, alongside automation and self-service access to configuration that reduces the amount of time that central network teams must spend on a day-to-day basis.

They provided examples of how ease of management with VMware Avi Load Balancer has benefited them:

Legacy environment too costly and time intensive:

"The management portion of [our previous solution] wasn't that great. We were having to manage each individual load balancer with a handful of people. We had hundreds of those load balancers, so it was very difficult to do upgrades, and it was difficult to do troubleshooting because there wasn't any analytics."

Configuration automation saves significant staff time, empowers users:

"The difference with VMware Avi compared with our legacy solution is that we can automate every configuration. … We just manage the infrastructure, and the automation and all configuration for the application is done by the application teams themselves. With automation, we have fewer people managing the solution."

Centralized management and automation:

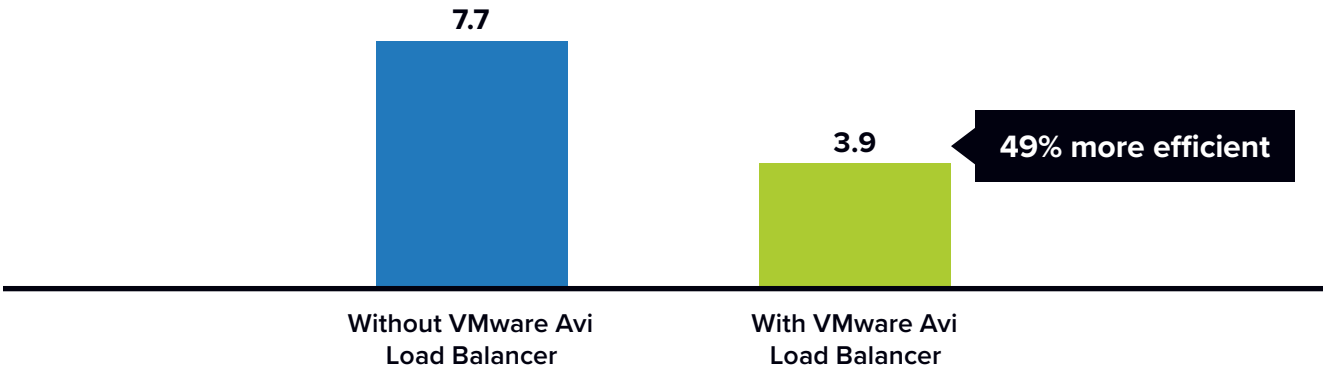
"Centralized cluster management with the VMware Avi controllers is a huge benefit — that is, being able to manage an entire location centrally, where before, it was not uncommon for us to have 15–20 pairs of load balancers. … Automation is a huge part of it with VMware Avi. Our teams want to integrate their stand-up processes automatically with the load balancer layer."

Figure 5 shows the impact in terms of staff time required to manage equivalent environments with VMware Avi Load Balancer. As noted, study participants have achieved strong efficiencies through centralization, consolidation, and automation, with IDC putting the average efficiency at 49%, thereby freeing up almost four FTEs per interviewed organization.

FIGURE 5

Load Balancing and Network Team Efficiencies

(Number of FTEs required)



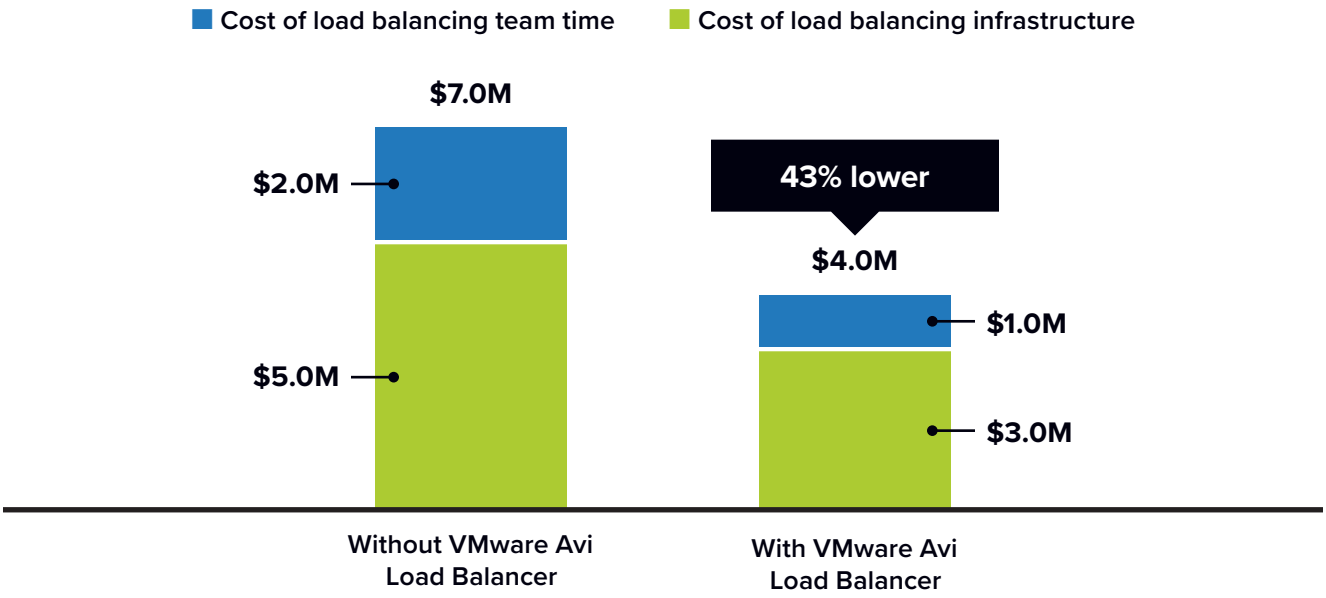
n = 7; Source: IDC Business Value In-Depth Interviews, June 2022

The combination of lower costs for load balancing infrastructure and direct staff efficiencies allows study participants to run these environments much more cost effectively. IDC finds that on average, study participants reduce these direct infrastructure and staff time costs by 43% over three years, thereby reducing their cost of operations by $3.0 million per organization in that time ($280,000 per 100 applications) (see **Figure 6**, next page).

FIGURE 6

Three-Year Cost of Operations

(Cost per organization for three years)



n = 7; Source: IDC Business Value Research, June 2022

For an accessible version of the data in this figure, see Figure 6 Supplemental Data in Appendix 3.

In addition to direct management efficiencies, study participants noted the extent to which VMware Avi Load Balancer enables troubleshooting efficiencies. They provided several reasons for needing to spend considerably less staff time on troubleshooting their application delivery and security environments, including access to actionable analytics, self-healing capabilities, and the ability to have application teams handle more initial support issues on their own. One interviewed organization explained, *"The major efficiencies we are getting from the move to VMware Avi is that the application teams do a lot more of their own troubleshooting, so it saves the network team 30 minutes or so on each incident."* As shown in **Table 4** (next page), IDC calculates that study participants will realize average troubleshooting efficiencies of 16%, thereby requiring almost two fewer FTEs per organization to support and run equivalent environments.

TABLE 4

Troubleshooting Team Efficiencies

	Without VMware Avi Load Balancer	With VMware Avi Load Balancer	Difference	Benefit
Equivalent FTEs required for same workloads	12	10	2	16%
Value of equivalent FTE time required ($ per organization per year)	$1.2M	$1.0M	$188,800	16%

n = 7; Source: IDC Business Value In-Depth Interviews, June 2022

ROI Summary

Table 5 provides IDC's analysis of the benefits and investment costs related to study participants' use of VMware Avi Load Balancer. IDC calculates that on average they will realize discounted benefits over three years in lower costs, staff efficiencies and productivity gains, and higher revenue worth an average of $16 million per organization ($1.5 million per 100 applications). These benefits compare with total three-year discounted investment costs of an average of $2.9 million per organization ($270,000 per 100 applications). This would result in an average three-year ROI of 449% for study participants, with breakeven on their investment in VMware Avi Load Balancer occurring in an average of six months from the beginning of their deployments.

TABLE 5

ROI Analysis

	Three-Year Average per Organization	Three-Year Average per 100 Applications
Benefit (discounted)	$16.0M	$1.5M
Investment (discounted)	$2.9M	$0.3M
Net present value (NPV)	$13.1M	$1.2M
Return on investment	449%	449%
Payback period	6 months	6 months
Discount rate	12%	12%

n = 7; Source: IDC Business Value In-Depth Interviews, June 2022

Customer Case Studies

As part of this study, IDC interviewed organizations in the financial services (2), software-as-a-service (2), insurance, technology, and travel industries. The case studies reflect only four of the seven organizations we interviewed.

EMEA Financial Services Organization

IDC interviewed a large EMEA-based financial services organization that deployed VMware Avi Load Balancer as part of its initiative to create a robust internal private cloud. It concluded that its legacy load balancing platform could not support a private cloud environment with sufficient agility or performance and so looked to a software-driven solution with VMware Avi Load Balancer to meet these needs. The financial services organization noted that it particularly liked that it *"can manage load balancing for multiple clouds with the same control plane with VMware Avi Load Balancer."*

The financial services organization cited moving away from a hardware-based load balancing approach as a key benefit of using VMware Avi Load Balancer. It explained that it benefits from having visibility into performance at an application level with VMware Avi Load Balancer. Further, it has consolidated and centralized its load balancing environment, thereby increasing its capacity without growing its costs at the same rate. The financial services organization also noted that automated configuration and deployment allows for much more efficient management of its load balancing environment.

From a business perspective, the financial services organization reported that VMware Avi Load Balancer has markedly improved the reliability, performance, and scalability of its networking environment. Its development organization benefits from near-immediate access to additional load balancing capacity, leveraging automation to reduce the time required to access capacity from days or weeks to a matter of hours. More generally, the financial services organization regards VMware Avi Load Balancer as integral to running a successful private cloud as *"it has an impact on IT and on business processes, which means that we can deliver faster to the business when they request anything."*

U.S. Insurance Company

IDC interviewed a U.S. insurance company that supports millions of members and deployed VMware Avi Load Balancer to address specific challenges that its legacy appliance-based load balancing platform presented. The company realized it needed to optimize costs, enable more efficient management, and allow for faster and more robust troubleshooting. It considered more than 10 solutions before choosing VMware Avi Load Balancer, noting that the ease of management weighed heavily in its decision: *"The major thing was central*

management and the ability to give specific rights to the application teams. We also valued centralized analytics that those application teams could use to troubleshoot their own production issues, which alleviates some of the strain on the network team."

The insurance company reported that it has optimized both direct load balancing costs and staff time requirements with VMware Avi Load Balancer. It can maintain a more streamlined load balancing environment because it previously needed to overprovision its appliance-based environment to ensure that it had excess capacity as required. Its distributed appliance-based environment also created management headaches because it acted *"as a bolt-on and didn't have analytics."* The insurance company has leveraged central management with VMware Avi Load Balancer to make its management efforts more efficient and has benefited from requiring network engineers to engage in less troubleshooting: *"The big gain that we've gotten is that now we can granularly give the application teams enough rights that they can troubleshoot their app before they engage the networking team."*

Improved agility and self-service access have served to allow the insurance company to enable its overall development activities. Whereas the development team previously had to log requests for load balancing capacity and then wait for the network team to fulfill such requests, they can now make changes on their own via self-service access rather than waiting up to a week. Meanwhile, its ability to more readily deploy and scale load balancing capacity is especially helpful during times of high traffic and customer volume, allowing it to not only better serve customers but avoid potentially needing to make capital investments to meet demand. The ability to scale in minutes with VMware Avi Load Balancer rather than days or weeks is critical to the insurance company's operational resiliency and success.

U.S. SaaS Company

IDC interviewed a company that provides SaaS and cloud-based remote work tools to its customers that deployed VMware Avi Load Balancer to help it grow its SaaS offering. It began considering new load balancing platform options because its legacy hardware-based platform was neither cost effective nor sufficiently agile. The company realized especially that it needed a more flexible solution for its OpenStack-based business platform. After considering options, it chose VMware Avi Load Balancer because it offered enhanced visibility to ease troubleshooting, greater flexibility through on-demand scalability, and a more cost-effective platform.

The SaaS company has achieved significant cost and operational efficiencies through its use of VMware Avi Load Balancer. From a cost perspective, it has deployed and extended its use of the VMware solution for essentially the same cost as annual support alone for its legacy environment. Meanwhile, it has gone from needing almost one-quarter of two engineers' time to run its load balancing platform to mere hours per month as the result of centralized management and automated patching and provisioning.

The SaaS company views its much improved ability to scale its load balancing environment to match business needs as among the most important areas of value it has achieved with VMware Avi Load Balancer. Previously, it struggled to scale at all because it had to go through an entire order process for new hardware, which left it with little choice but to intentionally overprovision capacity. With VMware Avi Load Balancer, it now carries out several deployments per year with a total time requirement of one to two months compared with six months or more with its legacy platform.

The SaaS company also explained that VMware Avi Load Balancer helps it improve the overall quality of its customer-facing platform. In turn, this encourages greater customer adoption of its services as it integrates the VMware solution with its OpenStack platform.

EMEA Market Intelligence Company

IDC interviewed an EMEA market intelligence company that needed a more robust load balancing platform to deliver market intelligence services to its clients. It discovered that its legacy appliance-based approach could no longer support its business activities in a cost-effective or efficient way. After considering options, it chose VMware Avi Load Balancer because of the platform's superior capabilities, including advanced analytics, self-service access for applications teams, and API-driven automation. The market intelligence company concluded that the VMware solution would allow it to not only avoid purchasing additional tools but also reduce the amount of staff time and resources required for ongoing management and support.

The market intelligence company linked its ability to dynamically provision load balancing capacity with VMware Avi Load Balancer to establishing and maintaining a more cost-effective business platform. Its appliance-based approach would have required the purchase of a significant number of additional appliances at a higher per unit cost. Further, capabilities of the VMware platform such as enhanced visibility and self-service tools and automation save staff a significant amount of time in troubleshooting and provisioning additional capacity: *"VMware Avi Load Balancer has made troubleshooting much easier, and we are quicker to solve problems because we can see things like HTTP traffic headers and inspect all of it without having to do a package capture."* The market intelligence service company reported that its troubleshooting team responsible for load balancing activities is around 50% more efficient as a result.

Enhanced flexibility with VMware Avi Load Balancer allows the market intelligence company to deliver new features and releases approximately 33% faster, thereby putting enhanced functionality in the hands of customers and employees sooner. Faster deployment of new services has in turn helped it speed up its overall cloud migration efforts, which in turn helps the company better serve its clients and address potential new business opportunities.

Challenges/Opportunities

Despite pursuing digital transformation, some organizations lack a widely understood and shared perspective on the evolution of their applications and application architectures. This knowledge gap sometimes results in a suboptimal approach to defining and modernizing application delivery infrastructure. In these instances, organizations sometimes assume that a traditional approach to load balancing and application delivery, often using an ADC hardware appliance, will suffice.

Similarly, some enterprises have a conservative IT culture or skills gaps in areas such as network automation or cloud services. In these instances, cloud initiatives, often led by DevOps and lines of business, are separate from traditional on-premises IT infrastructure and operations. Consequently, enterprises find themselves with parallel and disconnected sets of load balancing and application delivery infrastructure — one in the traditional on-premises environment and another (or others) in IaaS clouds. Such an approach entails inherent inefficiencies, not only in capex but also in overall operational agility, flexibility, security, and scalability.

The customer scenarios and personas associated with the aforementioned enterprises and IT organizations will represent challenges to VMware and its VMware Avi Load Balancer portfolio.

Conclusion

Success in running a digital business is fundamentally based on having modern applications that provide a timely, secure, and high-quality experience to customers and employees. For an increasing number of organizations, digital applications serve as the face of their business, which makes it imperative that they ensure the availability and resilience of applications and the quality of the digital experience they provide.

This is why applications require a robust application delivery and security infrastructure, with load balancing as a core capability. The growth and complexity of application environments, now distributed across on-premises and cloud environments, have strained many organizations' application delivery and load balancing infrastructures, even as that infrastructure has become critical to ensuring application performance, availability, responsiveness, reliability, security, and scalability. These pressures have pushed many organizations to look at new approaches to application delivery and load balancing infrastructures, including software-driven approaches that possess cloud-centric attributes such as elastic scalability and operational simplicity.

VMware Avi Load Balancer is one such software-driven solution that provides functionality for on-premises, hybrid, and multicloud load balancing as well as cloud-native Kubernetes environments. IDC's research shows that interviewed VMware customers are leveraging software-driven automation and flexibility to enable them to better react to business needs and to allow them to better support development and business operations. Further, they are realizing significant operational efficiencies by delivering a more cost-effective and efficient application delivery and security infrastructure platform on which their businesses can run.

For study participants, these business gains and efficiencies generate significant value in higher revenue, user and developer productivity gains, staff efficiencies, and cost savings. IDC puts the average value of benefits at almost 5.5 times investment costs for VMware Avi Load Balancer, which would result in an average three-year ROI of 449% and investment breakeven in six months.

Appendix 1: Methodology

IDC's standard Business Value/ROI methodology was utilized for this project. This methodology is based on gathering data from organizations currently using VMware Avi Load Balancer as the foundation for the model.

Based on interviews with organizations using VMware Avi Load Balancer, 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 using VMware Avi Load Balancer.** In this study, the benefits included cost savings, IT staff and development team efficiencies and productivity gains, reduced costs associated with risk, and higher revenue.
2. **Created a complete investment (three-year total cost analysis) profile based on the interviews.** Investments go beyond the initial and annual costs of using VMware Avi Load Balancer 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 VMware Avi Load Balancer over a three-year period. ROI is the ratio of the net present value 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 manager productivity savings. For purposes of this analysis, based on the geographic locations of the interviewed organizations, 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 three-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.
- IDC applies a net margin assumption (15%) for gross revenue gains attributed to interviewed organizations' use of VMware Avi Load Balancer resulting in the net revenue calculations applied to IDC's model.
- Because use of VMware Avi Load Balancer 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.

Appendix 2: Quantified Benefits of Use of VMware Avi Load Balancer

Table 6 provides details about the areas of value that study participants will achieve through their use of VMware Avi Load Balancer.

TABLE 6

Annual Quantified Financial Benefits

Category of Value	Average Quantitative Benefit	15% Margin Assumption Applied	Calculated Average Annual Value
Direct load balancer cost savings	Saving 40%, annualized value of $675,100 savings	No	$675,100
Load balancing team efficiencies	49% team efficiency worth 3.7 FTEs, $100,000 salary	No	$329,600
Troubleshooting team efficiencies	16% team efficiency worth 1.9 FTEs, $100,000 salary	No	$167,300
Application development team productivity gains	27% productivity gain worth 42.6 FTEs, $100,000 salary	No	$3.8M
Productivity gains, reduced unplanned downtime	62% less productive time lost, saving 0.5 FTEs per organization per year, $70,000 salary	No	$33,700
Higher net revenue	$13.6M total revenue per year, 15% margin applied	Yes	$1.8M
Total annual benefits, use of VMware Avi Load Balancer	**$6.8M per organization**		

n = 7; Source: IDC Business Value In-Depth Interviews, June 2022

Note: All numbers in this document may not be exact due to rounding.

Appendix 3: Supplemental Data

This appendix provides an accessible version of the data for the complex figures in this document. Click "Return to original figure" below each table to get back to the original data figure.

FIGURE 1 SUPPLEMENTAL DATA

Average Annual Benefits per Organization

	Per organization
IT staff productivity benefits	$4.3M
Business productivity benefits	$1.8M
IT infrastructure cost reductions	$675,100
Risk mitigation — user productivity benefits	$33,700
Total	**$6.8M**

n = 7; Source: IDC Business Value In-Depth Interviews, June 2022

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FIGURE 3 SUPPLEMENTAL DATA

Impact on Development Team Productivity

	Development team productivity, without VMware Avi Load Balancer	Higher productivity through use of VMware Avi Load Balancer	Development team productivity, with VMware Avi Load Balancer
Equivalent productivity, FTEs per organization	160	43	212
Additional		**27% higher productivity**	

n = 7; Source: IDC Business Value In-Depth Interviews, June 2022

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Appendix 2: Supplemental Data (continued)

FIGURE 6 SUPPLEMENTAL DATA

Three-Year Cost of Operations

	Without VMware Avi Load Balancer	With VMware Avi Load Balancer
Cost of load balancing team time	$2.0M	$1.0M
Cost of load balancing infrastructure	$5.0M	$3.0M
Total	**$7.0M**	**$4.0M**
Difference		**43% lower**

n = 7; Source: IDC Business Value Research, June 2022

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About the IDC Analyst

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Matthew is responsible for carrying out custom business value research engagements and consulting projects for clients in a number of technology areas with a focus on determining the return on investment of their use of enterprise technologies. Matthew's research often analyzes how organizations are leveraging investment in digital technology solutions and initiatives to create value through efficiencies and business enablement.

More about Matthew Marden

Message from the Sponsor

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