The Business Value of VMware Horizon

RESEARCH BY:

Shannon Kalvar
Research Manager, IT Service Management and Client Virtualization, IDC

Matthew Marden
Research Director,
Business Value Strategy Practice, IDC

August 2021 | IDC Doc. #US48090721

Navigating this White Paper

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BUSINESS VALUE HIGHLIGHTS

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

518%
three-year ROI

8 months
to payback

49%
lower three-year cost of operations

22%
lower device costs

60%
more efficient device management

83%
faster deployment of new virtual desktops

92%
less overall application- and device-related unplanned downtime

4.5%
higher net productivity gain for users benefiting from access to more reliable and higher-performing applications

Executive Summary

Virtual desktop infrastructure (VDI), including both traditional on-premises deployments and Desktop-as-a-Service (DaaS), was one of the go-to solutions for remote work in 2020, delivering broadly on the need for fast, secure access to enterprise applications, collaboration spaces, and content across a wide range of devices. This led to rapid growth for the market as a whole (18.8% vendor revenue growth from 2019 to 2020, according to IDC *Software Tracker,* April 2021), but revenue growth and even broad deployment do not mean that individual customers received measurable, impactful return on their investments.

To determine the return on this investment, IDC interviewed organizations that have virtualized significant numbers of user devices and business applications with VMware Horizon. Study participants reported that VMware Horizon has enabled them to support their employees and business operations with access to more flexible, cost-effective, and high-performing critical applications and services.

Based on interviews with VMware customers, IDC calculates that they will realize average annual benefits of $4.50 million per organization ($356,200 per 100 VDI users) by:

- **Reducing the cost of procuring and provisioning devices for organizational use** by making more use of less expensive thin-client devices and optimizing costs associated with use of other devices and applications
- **Requiring less staff time to manage and support their device environments,** thanks to improved device and application performance and reliability as well as efficiencies of virtualization including centralization and automation of routine operations such as patching and updates

- **Improving user experience** by making remote access to critical applications more ubiquitous and allowing for fast and effective extension of virtualized environments
- **Capturing business benefits** that include substantial user productivity gains by providing employees with timely, robust, and flexible access to higher-performing applications

Situation Overview

Prior to the pandemic that started in 2020, there were long-term trends leading to a steady increase in the number of virtualized desktops and apps used by end users and supported by the IT department.

These trends included but were not limited to:

- Access to public and private clouds, which enabled greater flexibility in infrastructure provisioning
- Automation of optimization and performance improvement technologies, allowing for high-quality user experiences on less stable network connections and heterogeneous endpoint hardware
- Improvements in application and desktop operations technology, which allowed fewer, more skilled resources to manage a larger number of virtualized environments more efficiently
- Integrated products and licensing SKUs, which allowed for the acquisition, deployment, and operations of device management, security, workspace, and virtualization as a single activity
- Improved hyperconverged infrastructure, which allowed for optimized virtualization performance with on-premises enterprise applications

These factors were in place when worldwide lockdowns began to force enterprises to offer secure, stable access to enterprise and collaboration applications in March 2020.

In April 2020, IDC surveyed enterprises to determine their level of preparedness for disruptions caused by the pandemic (see *IT Challenges and Preparedness in the Face of COVID-19,* IDC #US46249020, May 2020). 74% of enterprise respondents indicated that enterprise applications take the most hours out of their day, 63% were concerned about securing remote access, and 57% had difficulty accessing enterprise resources. In addition, 85.6% of respondents indicated that conducting standard business operations in the new work-from-home model is somewhat more complex or much more complex than a year ago.

Virtual desktop infrastructure—particularly VDI that supports a hybrid cloud operating model including bespoke hardware, private clouds generally running on hyperconverged servers, and public clouds—was ideally suited to this sudden need because it provided secure access to critical enterprise applications and data:

- From any manageable device (important due to supply chain considerations)
- From most locations (through network and protocol optimization to improve performance over commercial networks)

Over the next year, enterprises will need to continue to adapt and expand employees' access to resources (technology, data, collaborators) needed to work remotely. According to a February 2021 IDC survey, only 14% enterprises offered widespread secure access and another 31% offered access to all critical resources (see *Access to Key Resources for Remote Workers: How Regions Differ,* IDC #US47616421, April 2021). This will present problems for enterprises as they shift to hybrid (part time on campus, part time working remotely) workstyles and as workers shift from working in one location to working, dynamically, in several locations, likely with different focuses and access requirements.

VMware Horizon Overview

VMware Horizon is a modern platform for secure delivery of virtual desktops and apps across the hybrid cloud. VMware's virtualization heritage provides Horizon with benefits and technologies that enable one-to-many provisioning and streamlined management of images, apps, profiles, and policies for an agile, lightweight, and modern approach that speeds, simplifies, and reduces costs. Enabled by a cloud control plane with enterprise-grade management capabilities and a deep VMware technology ecosystem, Horizon extends the Anywhere Workspace to all apps and secure productivity use cases.

Horizon provides customers choice and flexibility to run workloads from on premises to public cloud, including Horizon Cloud on Microsoft Azure, Horizon on Azure VMware Solution, Horizon on VMware Cloud (VMC) on AWS, Horizon on VMC on Dell EMC, and Horizon on Google Cloud VMware Engine.

The Business Value of VMware Horizon

Study Demographics

IDC conducted research that explored the value and benefits of using VMware Horizon as a platform for desktop and application virtualization. The project included eight interviews with IT executives at organizations using VMware Horizon with experience and knowledge about its benefits and costs. For purposes of quantitative analysis, IDC considered seven of these interviews. Study participants were asked a variety of quantitative and qualitative questions about VMware Horizon's impact on device and application costs, access, performance, and business activities.

Table 1 (next page) presents study demographics. The organizations that IDC interviewed had a base of 1,491 employees on average. This workforce was supported by an IT staff of 87 responsible for managing 191 business applications. Total average annual revenue was $1.07 billion.

The organizations are based in the United States (4), Germany, the Netherlands, and Israel and represent a variety of vertical markets: higher education (3), engineering, financial services, healthcare, and insurance.

TABLE 1

Demographics of Interviewed Organizations

Demographics	Average	Median
Number of employees	1,491	400
Number of IT staff	87	16
Number of business applications	191	200
Annual revenue	$1.07B	$150M
Countries	United States (4), Germany, Israel, and the Netherlands	
Industries	Higher education (3), engineering, financial services, healthcare, and insurance	

n = 7, Source: IDC In-depth Interviews, May 2021

Choice and Use of VMware Horizon

Interviewed organizations described how they are using VMware Horizon and discussed the rationale for choosing the platform. They stressed that, above all, they needed a solution that would enable them to support their employees and business operations with flexible, cost-effective, and high-performing access to critical applications and services. Their businesses and operations required continual, timely, and optimized access for almost all of their employees, and they concluded that VMware Horizon was the hybrid cloud desktop and application virtualization platform that would best allow them to meet this demand.

Study participants noted considering their ability with VMware Horizon to deliver virtual desktops and applications in near real time from on-premises and private and public cloud environments while being able to provide and maintain a secure and enhanced desktop virtualization user experience. They also saw platform adoption as an opportunity to overhaul and modernize their device bases and datacenter infrastructures while making their overall IT operations more agile.

Study participants commented on these benefits:

- **Deliver enhanced user experience:**
  "We wanted to have an environment that worked from any device anywhere to make it easier for our users. We also wanted to increase security and device efficiency, so we chose to virtualize with VMware Horizon."
- **Ensure strongest performance:**
  "From a desktop perspective, there really wasn't another solution that held a candle to VMware Horizon as far as desktop virtualization … At the time, the performance for graphics cards was very strong, which was important to us because we have a lot of 3D graphics."

- **Modernize infrastructure:**
  "Based on functional specs, we decided to use VMware. Having used it a bit in the past, we also had the advantage of some experience. We also used this as an opportunity to overhaul our infrastructure from the datacenter up to fully support this type of computing, including increased security, firewalls, and so forth."

Table 2 provides an overview of the scale and use of VMware Horizon by interviewed organizations, showing their substantial virtualization footprints. The total reported average number of users of virtual desktops or applications was 1,263, representing approximately 85% of the total workforce. In addition, the total average number of virtualized applications was 135, about 70% of their applications.

TABLE 2

VMware Horizon Environments of Interviewed Organizations

	Average	Median
Number of users of virtual desktops/applications	1,263	250
Number of virtualized applications	135	75
Number of remote/branch offices supported	3	2

n = 7, Source: IDC In-depth Interviews, May 2021

Business Value and Quantified Benefits

IDC research demonstrates the importance to interviewed organizations of establishing a robust and high-performing virtualized device and application environment for their employees and business operations with VMware Horizon. Study participants reported achieving significant value through their use of VMware Horizon by providing a better experience for users, including higher-performing, more reliable, and more flexible access to important business applications, while optimizing the costs and staff time requirements for running their device and application environments.

Interviewed VMware customers spoke to benefits that included:

- **Expanded access to devices and applications:**
  "The big benefit of VMware Horizon is being able to access applications from anywhere. Managing application licensing and updates is easier with a highly virtualized environment. It's much easier to deploy and keep software up to date."

- **Fast delivery of access during COVID-19:**
  "Over the space of about three days when COVID hit, we checked out every laptop we could find to employees and got them all virtualized in about 72 hours with VMware Horizon. That's not something I can do with other products. I'll say that straight up."

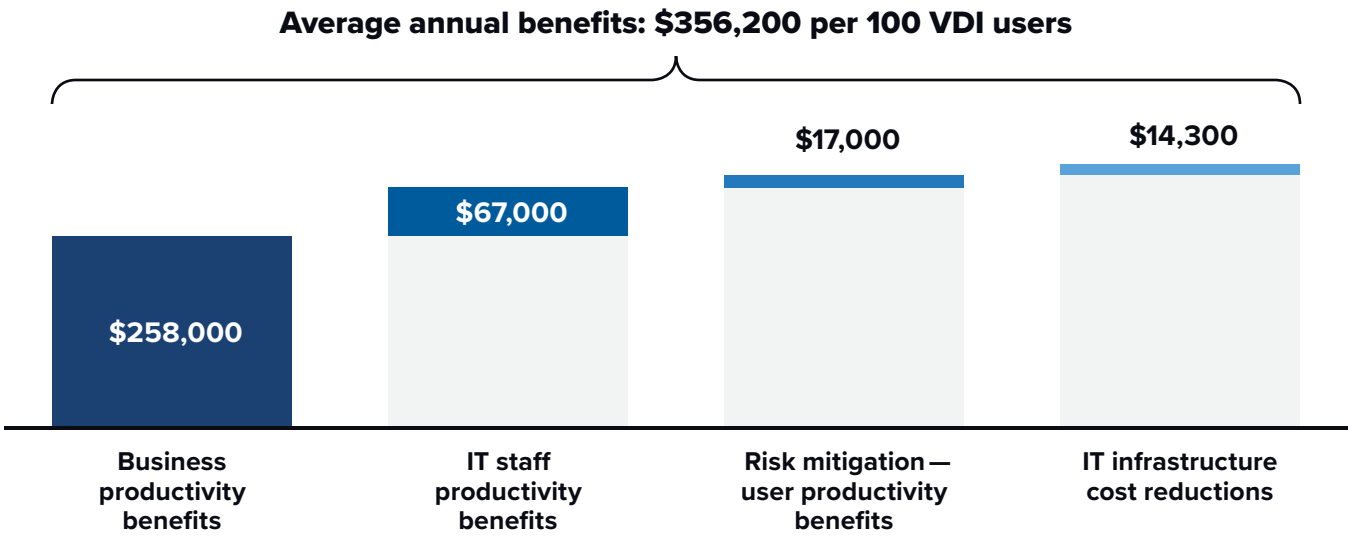
Based on interviews with VMware customers about their use of Horizon, IDC projects that they will realize average annual benefits of $4.50 million per organization ($356,200 per 100 VDI users) in the following areas (see Figure 1):

- **Business productivity benefits:**
  Study participants benefit from enhanced employee access to devices and applications as well as increased flexibility in carrying out business operations. IDC calculates that they will see higher user productivity worth an annual average of $3.26 million per organization ($258,000 per 100 VDI users).
- **IT staff productivity benefits:**
  Study participants require less staff time to manage and support device and application environments. This results in time savings and efficiencies that IDC projects will be worth an average of $846,100 per organization ($67,000 per 100 VDI users, which represents IT time savings and efficiencies of 1,260 hours per 100 VDI users per year).
- **Risk mitigation—user productivity benefits:**
  Study participants deliver higher-performing and more robust applications to their employees with VMware Horizon. As a result, they lose less productive time due to systemwide and device outages or substantial performance degradation, which will generate higher productivity worth an average of $214,300 per organization ($17,000 per 100 VDI users).
- **IT infrastructure cost reductions:**
  Study participants reduce the cost of providing employees with devices by moving to more cost-effective thin-client and other virtualized devices while optimizing storage and disaster recovery environments. As a result, IDC estimates that they will save an average of $180,400 per organization per year ($14,300 per 100 VDI users).

FIGURE 1

Average Annual Benefits per 100 VDI Users

($ per 100 VDI users per year)



n = 7, Source: IDC In-depth Interviews, May 2021

Device-Related Cost Efficiencies

The organizations that IDC interviewed reported leveraging VMware Horizon to optimize their device- and application-related costs. Savings were primarily tied to increased use of less expensive devices such as thin-client devices and more cost-effective laptops and desktops. One interviewed organization noted: *"We can use cheaper devices with VMware Horizon. For Horizon, a machine costs right around $600, whereas we would have to spend probably $800–1,000 per device otherwise."*

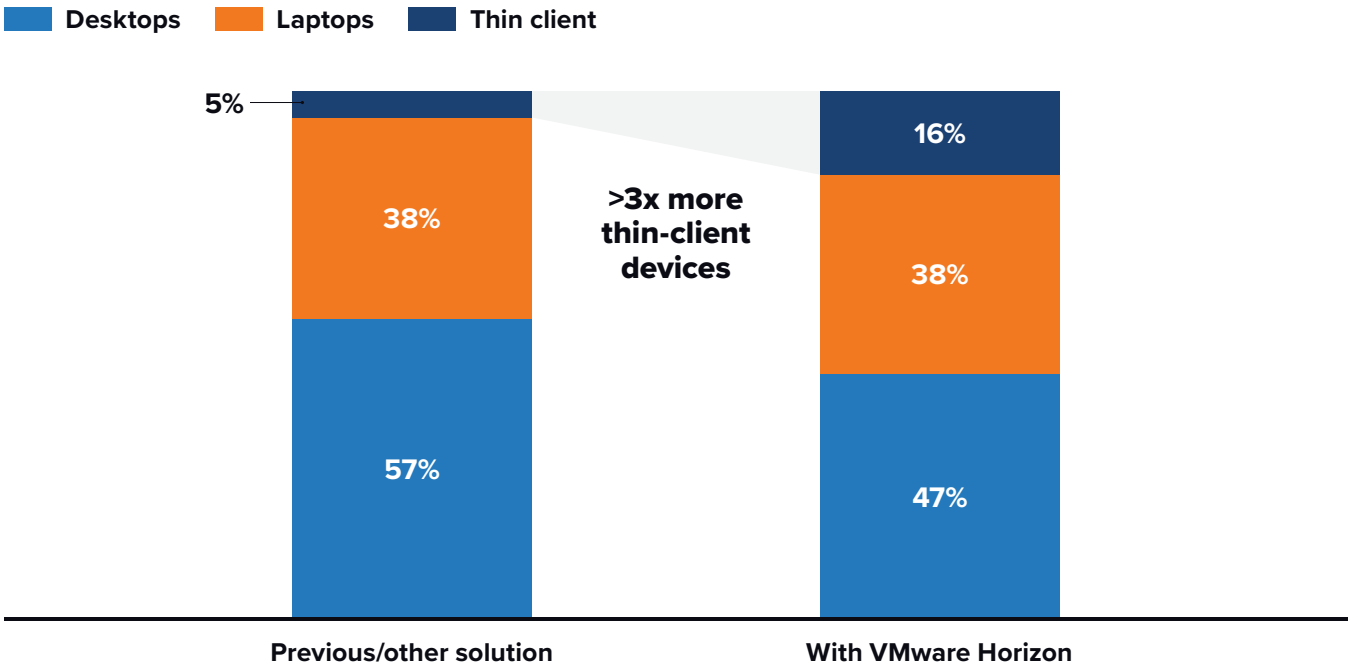
Study participants also linked their use of VMware Horizon to broader infrastructure savings, including for storage capacity, as well as their ability to cost effectively provide disaster recovery environments. One interviewed VMware customer explained: *"We are using Instant Clone technology with VMware Horizon. We're saving on storage as a result—we're probably saving $30,000 per year."* Several interviewed customers reported using VMware Horizon Cloud as a Desktop-as-a-Service solution, which brings additional IT infrastructure benefits. One interviewed organization using the VMware Horizon DaaS solution explained: *"The focus for this organization is on providing desktop services for our users, not managing datacenters."*

Figure 2 shows how VMware Horizon has affected the types of devices used at interviewed organizations, with the noteworthy finding that use of thin clients has increased from 5% to 16% of devices, representing more than a tripling of their relative share of all devices on the Horizon platform.

FIGURE 2

Device Use by Interviewed Organizations

(% of devices)



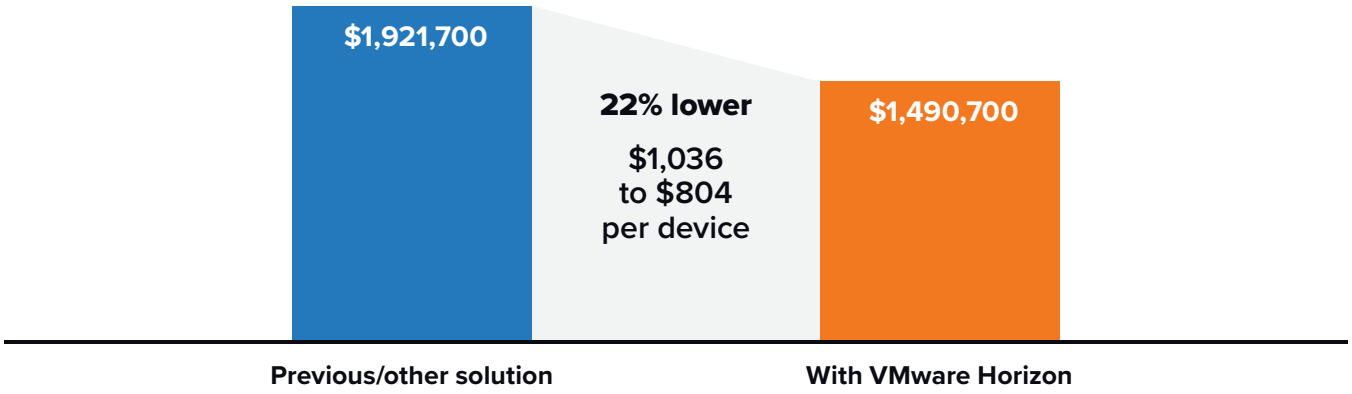
n = 7, Source: IDC In-depth Interviews, May 2021

The ability to provide more optimal devices to employees has helped interviewed organizations reduce the overall device cost in their VMware Horizon environments by an average of 22%. Thus they have reduced their overall average device cost from $1,036 to $804. With an average of 1,855 virtualized devices per organization, this results in direct device-related savings of more than $400,000 per organization over three years (see **Figure 3**).

FIGURE 3

Total Cost of Devices per Organization Over Three Years

($)



n = 7, Source: IDC In-depth Interviews, May 2021

IT Staff Efficiencies in Device and Application Management and Support

The IDC also looked at how adoption of VMware Horizon has affected IT teams responsible for managing and supporting device environments. Interviewed organizations reported that for both management and support efforts, VMware Horizon has generated substantial efficiencies. They linked time savings to streamlined and automated device management. Efficiencies included time savings for routine tasks related to device and application management such as patching, imaging, updates, and configuration management. Further, study participants cited time savings for these staff members in terms of deploying new devices and overall device life-cycle management efficiencies. With these benefits in place with VMware Horizon, study participants have freed up time for staff to work on other IT projects that more directly support business operations.

One study participant elaborated on the impact of centralized management with VMware Horizon on its team responsible for managing devices: *"Our devices are definitely more resilient because we've centralized with VMware Horizon since we can centralize management of the desktops … Things like updates get applied quicker and uniformly … We have five people managing our desktop environment at 50%, so call that 2.5 FTEs. If we weren't using VMware Horizon, it would be seven to eight people full time."*

Table 3 presents IDC's findings on efficiencies for device management teams. With VMware Horizon in place, study participants reported that these teams are an average of 60% more efficient, meaning that they can manage equivalent number of devices with an average of 2.7 FTEs compared with 6.7 FTEs without VMware Horizon.

TABLE 3

Device Management Team Efficiencies

Average per organization	Previous/Other Solution	With VMware Horizon	Difference	Change
Staff time to manage equivalent devices (FTEs per organization)	6.7	2.7	4.0	60%
Hours of staff time per 100 VDI users per year	992	400	592	60%
Equivalent value of staff time to manage devices per organization per year	$666,600	$268,900	$397,700	60%

n = 7, Source: IDC's Business Value Research, May 2021

IDC also asked about staff time requirements for providing direct support for device end users (i.e., the staff time required to respond to device-related problems and issues). Interviewed organizations reported that improved device management capabilities and enhanced performance with VMware Horizon resulted in less time spent supporting end-user devices once they were installed and up and running. As one study participant noted: *"Before virtualization with VMware Horizon, we had 2,500 users logging 6,500 calls per month with the help desk … After moving to VMware Horizon, we have 4,000 users making <600 calls per month."* Along the same lines, another participant noted a major decrease in the need for desktop visits: *"With a traditional setup across all of our locations, our technicians would visit desktops probably 50–60 times a week. For virtualized devices on VMware Horizon, it is around 3–5 desk visits across all of our locations."*

IDC quantified these improved device support efficiencies as shown in **Table 4** (next page). After adoption of VMware Horizon, interviewed companies experienced a 57% reduction in the annual number of tickets submitted by employees that required time and attention from IT support staff. This decrease in the number of tickets submitted contributed to a substantial average efficiency of 69% for these device support teams across interviewed organizations.

TABLE 4

Device Support Team Efficiencies

Average per organization	Previous/Other Solution	With VMware Horizon	Difference	Change
Number of tickets per year	16,706	7,239	9,467	57%
Staff time to provide support (FTEs per organization)	6.6	2.1	4.5	69%
Hours of staff time per 100 VDI users per year	979	307	672	69%
Equivalent value of staff time to manage devices per organization per year	$657,400	$206,200	$451,200	69%

n = 7, Source: IDC's Business Value Research, May 2021

Device and Application Agility Improvements

Another key benefit of VMware Horizon for interviewed organizations relates to measurable improvements in their ability to deploy new devices and applications to users with speed. While increased agility is always beneficial, this capability was especially impactful given COVID-19's far-reaching effects on how employees work and actions required to support changed work situations.

Given the sudden criticality of enabling remote access to key applications and workloads in response to COVID-19, interviewed VMware customers viewed their ability to ensure fast and robust remote access with the Horizon platform as a key benefit. One study participant noted: *"We debated as to whether or not we needed a virtualization strategy—until COVID-19. When this happened, we went on full lockdown. We were able to let people work from home very quickly with VMware Horizon. We didn't need to spend a dime on this migration, and it went off like a charm."*

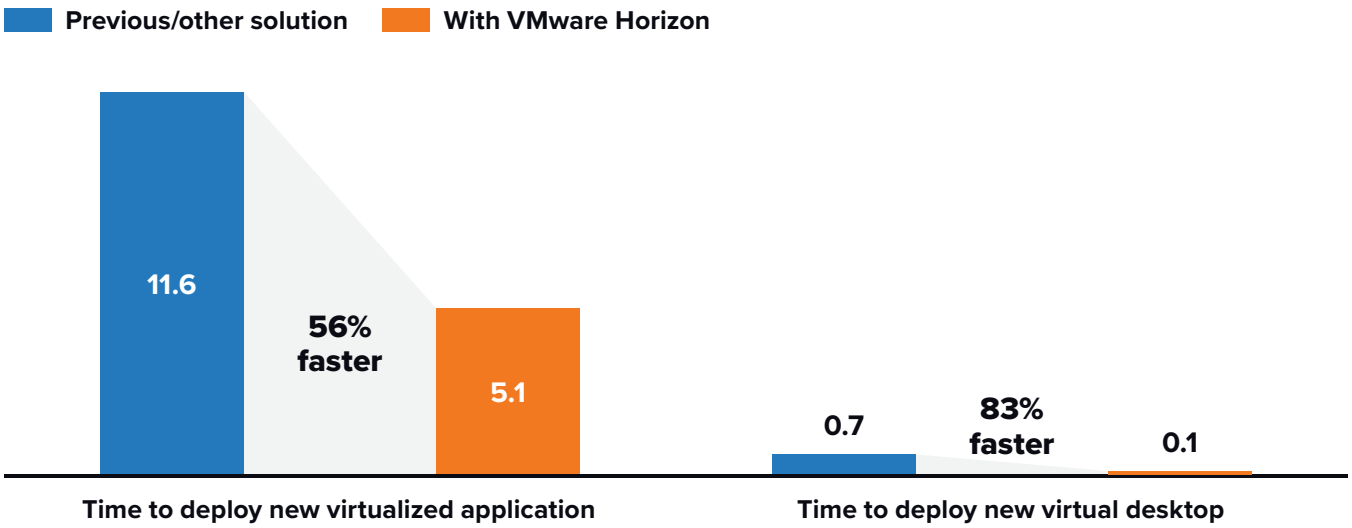
The benefit of enhanced agility with VMware Horizon goes well beyond COVID-19, though. Interviewed organizations must constantly find ways to optimize how their employees access applications and consume digital information. Thus, their ability to execute fast and timely deployments of new virtualized devices and applications with VMware Horizon is central to the platform's value proposition. As one study participant noted: *"The time to market for new applications and devices is greatly simplified with VMware Horizon. If we can manage the whole stack via APIs, our deployment can be dramatically faster."* Another participant described the ease with which it can perform updates: *"We can now turn around a big update within a couple of hours to deploy to the entire organization with VMware Horizon; previously, it would take days or weeks to do this physically across the entire organization."*

Figure 4 quantifies agility improvements in delivering virtualized devices and applications to employees. With VMware Horizon, study participants reported accelerating deployment of new virtualized applications by 56% and new virtual desktops by 83%.

FIGURE 4

Device and Application Agility Metrics

(Hours per deployment)



n = 7, Source: IDC In-depth Interviews, May 2021

Improved Reliability Leading to Reduced Risk

Study participants rely on their employees' ability to access important business applications and services at any time and from any location or device. This means that when employees do not have unfettered access to applications due to outages affecting IT systems or devices, they cannot work at full productivity. Interviewed VMware customers confirmed that use of the Horizon platform has allowed them to ensure a more robust and reliable experience for their users. As a result, they have greatly limited productivity losses associated with unplanned outages affecting applications and devices running on VMware Horizon. One study participant commented specifically on the resiliency features of VMware Horizon: *"Our employees are more productive with VMware Horizon because of better performance because the devices don't break … Also, in the virtual desktop environment, there are many layers of redundancy and resiliency that benefit the employee's ability to continue working."*

Table 5 (next page) quantifies the value for interviewed organizations of improved resiliency, higher availability, and fewer device-related outages, representing one of two types of value associated with user productivity gains that study participants are achieving with VMware Horizon. As shown, study participants have limited the frequency of both systemwide outages (35% fewer) and device-specific outages (41% fewer) and resolved outages that do occur significantly faster (79% faster). This has allowed them to reduce the overall impact of outages

related to the applications and devices virtualized on the Horizon platform by 92%, saving an average of 5.4 hours of lost productivity per user per year. Further, limiting outages affecting employees and other VDI users brings down overall operational risk for interviewed organizations; the inability to provide access to key applications or services can potentially create much more significant costs than direct productivity losses, including loss of business through poor customer experiences.

TABLE 5

Unplanned Downtime Metrics

Average per organization	Previous/Other Solution	With VMware Horizon	Difference	Change
Number of unplanned outages per year (systemwide)	1.9	1.3	0.7	35%
Number of unplanned outages per year (individual device level)	4,057	2,401	1,656	41%
MTTR (hours)	7.6	1.6	6.0	79%
Hours of lost productivity per user per year	5.9	0.5	5.4	92%
Productivity loss (FTEs per organization)	4.0	0.3	3.7	92%
Value of lost productive time per organization per year	$277,300	$21,200	$256,000	92%

n = 7, Source: IDC In-depth Interviews, May 2021

Improved Business Operations and Results

Interviewed organizations spoke in depth about how VMware Horizon has powered their overall business activities by enabling their employees to work more effectively. Specifically, they explained that they can offer more flexible and robust access to important business applications with VMware Horizon while improving the user experience through faster delivery and higher performance of virtualized applications. Productivity gains from improved application access and performance represent the second category of significant business-related value associated with interviewed organizations' use of VMware Horizon. For interviewed VMware customers, this results in measurable operational efficiencies in the form of higher employee engagement and productivity levels.

While customers have always valued that VMware Horizon enables remote work, the advent and continuance of COVID-19 brought home the criticality of quickly and effectively supporting new work patterns for employees. Several interviewed organizations linked their ability to execute

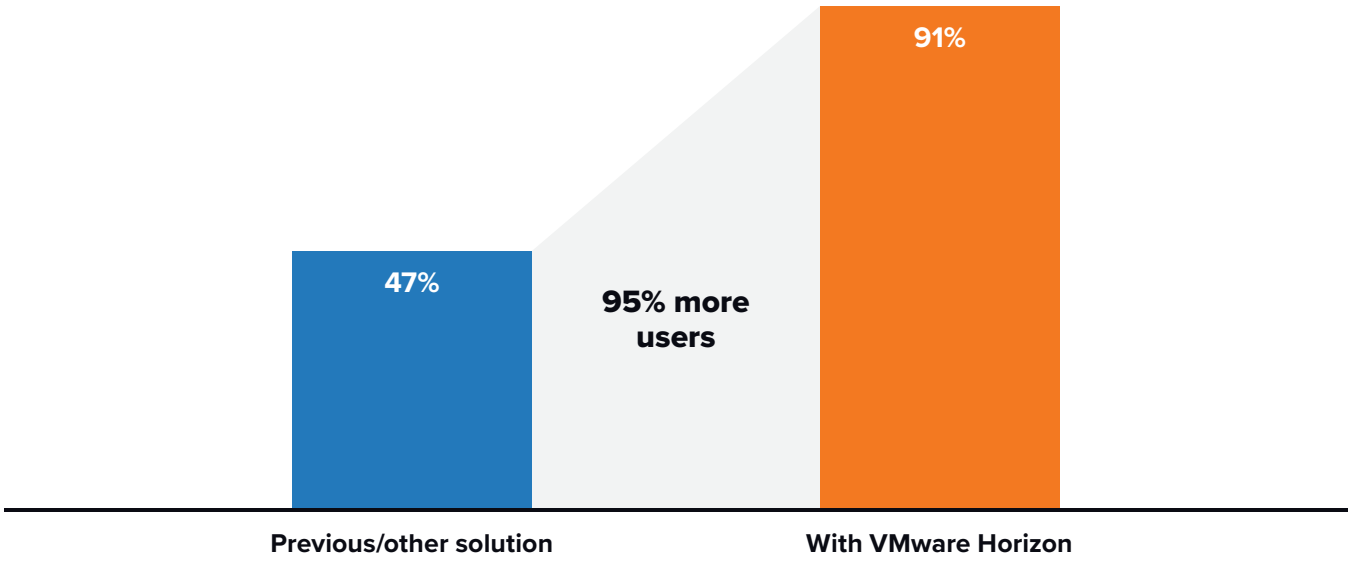
substantial extensions of remote access for hundreds or even thousands of additional employees with minimal disruption. As one study participant noted: *"Virtualization with VMware Horizon has let us to shift locations as needed in emergencies or during lockdown under COVID-19, enabling business continuity."*

Figure 5 reflects the extent to which study participants have increased remote access to systems and applications with VMware Horizon. On average, they have gone from offering remote access to just under half of the employees (47%) to nearly all employees (91%), marking a 95% increase in the number of users with remote access. While COVID-19 would have forced study participants to find ways to ensure remote access for many more employees, interviewed VMware customers were clear that they viewed the Horizon platform as instrumental to their ability to meet the sudden demands placed on their business operations by COVID-19.

FIGURE 5

Increase in Remote Access

(% of employees with remote access)



n = 7, Source: IDC In-depth Interviews, May 2021

Study participants defined a robust and broad-based business operations-related value proposition for VMware Horizon that extends well beyond COVID-19. Their employees' ability to access high-performing applications regardless of employees, location, or device used has become increasingly foundational to the organizations' broader operations and ability to serve customers and constituents. As one study participant in the medical sector noted: *"A key use case for us of VMware Horizon is being able to access your workloads from different locations with tap-and-go and fast-use switching. Doctors need to access the same data from different places—the office, clinics, and so forth. By facilitating this, they have more time to focus on patients."* When employees face access or performance limitations, they are inhibited from working at full productivity, which exerts a cost on their organizations in the form of inefficiencies.

Further, the higher education institutions interviewed for the study stressed that VMware Horizon has benefited them by providing nonemployees such as students with a better overall experience. One interviewed organization explained: *"Virtualization with VMware Horizon allows us to give students a fully functioning machine, virtually, that they can use for homework, for interviews, and for anything that they want, and there is not a ton of overhead or management for us."* Another interviewed university cited its ability to continue to serve its students during COVID-19: *"We sent all of our students home, but we've still been able to deliver all of our same resources with VMware Horizon."*

Study participants unanimously described VMware Horizon as an enabler for employee and operational performance, citing as beneficial:

- **Allowing employees, students, and other key parties to access applications with new types of devices,** including thin-client devices
- **Extending access to virtualized devices and applications** with relative ease
- **Reducing the time to deliver new virtualized applications and desktops,** enabling employees to begin using these tools faster
- **Ensuring the reliability and availability** of access to important applications across various device form factors
- **Improving performance levels** for performance-sensitive workloads

As shown in **Table 6,** study participants reported seeing significant across-the-board employee productivity gains with VMware Horizon. IDC calculates that users on the VMware Horizon platform gain an average of more than 78 productive hours per year—the equivalent of almost two weeks of additional productivity per user. This significant impact on productivity demonstrates the real and tangible value of providing employees flexible and high-performing access to critical business applications. For interviewed VMware customers, these productivity gains are not esoteric; rather they mark a differentiator in their ability to execute and adjust their strategies to match fluctuating business demands and market conditions. With VMware Horizon, employees are able to work in a more seamless, integrated, and uninterrupted fashion, which generates substantial value for study participants over the course of weeks, months, and years of using virtualized desktops and applications.

TABLE 6

Business Productivity Benefits: Improved User Access and Experience

	Per Organization	Per 100 VDI Users
Net productivity gain (FTEs)	52.7	4.2
Hours of additional productive time gained per user per year	78.5	7,847
Net productivity gain	4.2%	4.2%
Net productivity gain ($ of higher productivity per year)	$3.69M	$292,200

n = 7, Source: IDC In-depth Interviews, May 2021

Overall, combining productivity gains related to reducing unplanned outages and enabling employees through robust and timely access to virtualized applications results in an average 4.5% productivity gain for impacted VMware Horizon users. This equates to over 80 hours in total additional productive time per year per user, meaning that use of VMware Horizon creates productivity-related value that comes to an average of more than two weeks of additional productive time per year.

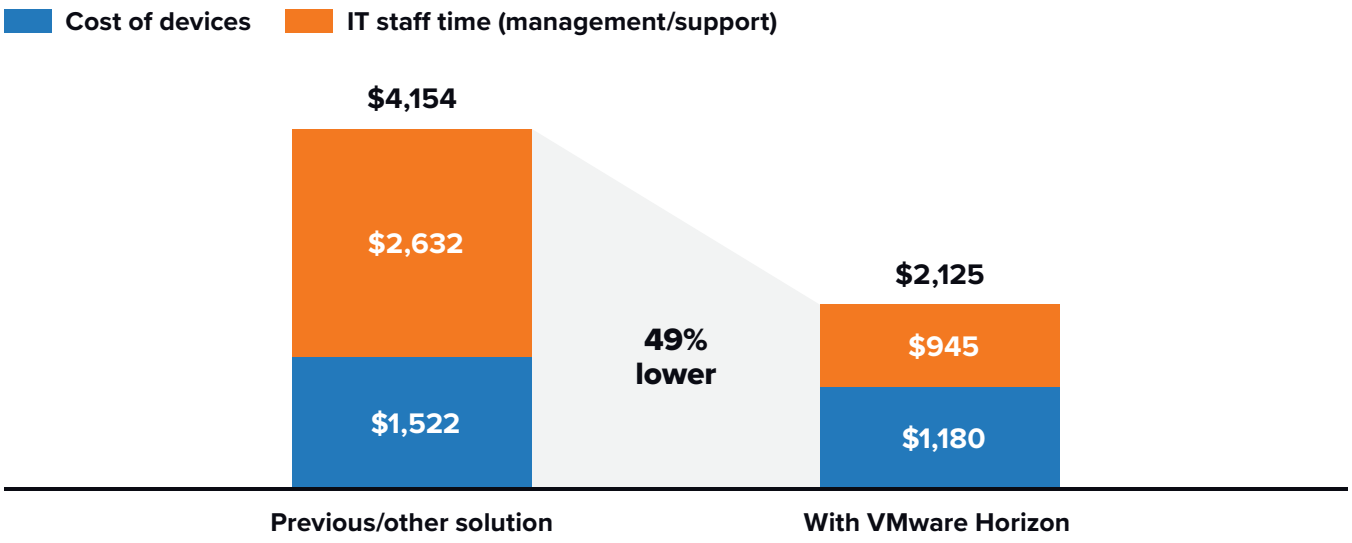
Cost of Operations and ROI Summary

Figure 6 breaks down the impact of using VMware Horizon on overall device costs for study participants. IDC research shows significant cost efficiencies in terms of both the cost of providing devices to users and the staff time to manage and support device environments. IDC calculates that overall, interviewed VMware Horizon customers will lower their cost of operations by an average of 49% over three years, saving more than $2,000 per device.

FIGURE 6

Three-Year Cost of Operations per VDI User

($)



n = 7, Source: IDC In-depth Interviews, May 2021

Table 7 (next page) presents IDC's ROI analysis for study participants' overall use of VMware Horizon. As shown, IDC projects that interviewed companies will achieve three-year discounted benefits worth an average of $10.57 million per organization ($837,000 per 100 VDI users) through device cost savings, IT staff efficiencies, reduced risk, and higher user productivity levels. These benefits compare with total three-year discounted costs of $1.71 million per organization ($135,500 per 100 VDI users). These levels of benefits and investment costs are projected to result in an average three-year ROI of 518% and a break-even point on investment in VMware Horizon of 8 months.

TABLE 7

ROI Analysis

Analysis	Three-Year Average per Organization	Three-Year Average per 100 VDI Users
Benefit (discounted)	$10.57M	$837,000
Investment (discounted)	$1.71M	$135,500
Net present value (NPV)	$8.86M	$701,500
Return on investment (ROI)	518%	518%
Payback period	8 months	8 months
Discount rate	12%	12%

n = 7, Source: IDC In-depth Interviews, May 2021

Challenges/Opportunities

As the world settles into a model of hybrid work, the burden of managing the hybrid technology infrastructure for a distributed workforce, which exists partially on campus and partially off campus, has become abundantly clear. The remaining operations staff is overworked; the systems put in place during the emergency are also generally proving to be more expensive to operate in the long run than initially determined. As a result, 35% of organizations worldwide are looking to automate the provisioning of "logical" workspaces (apps, data, etc.) and 40% are looking to automate customer (and employee) support (see *IDC Survey Spotlight: Enhancing CX, Workforce, and Operations with Automation Is a Priority in 2021,* IDC #US47563221, March 2021).

Similarly, although IT spending on servers for enterprises is expected to slow slightly over the next five years (five-year CAGR of -0.6% for blade servers and -1.2%% for large system and 1.8% tower; for more details, see *Worldwide Server Forecast, 2021–2025: Market Transformation Is Starting,* IDC #US47324121, May 2021), there will continue to be significant incentives for VDI to remain dispersed across bespoke hardware, private cloud, and public cloud. This increases the already formidable operational burden, both for the teams supporting VDI and for the enterprise teams supporting applications (custom, traditional, or SaaS), which employees need to serve their customers.

These two trends (automation and hybrid operations) are converging at the same time that the VDI user population has radically expanded. The need to access enterprise applications and collaboration tools from diverse locations, across unsecured and unoptimized networks and sometimes from unsecured devices, will not go away in the near future. In fact, it is likely to expand as organizations continue to create new and different digitally enabled services, adding further complexity to enterprise digital environments and placing new demands on employees.

These trends create an opportunity for a virtualization vendor to expand its offerings, or to bring in additional data from its existing products and partners, from a wide range of sources. If focused on operations, the virtualization vendor might bring in data and functions from its network and IT operations management suites to better optimize the operating environment; if focused on productivity, it might bring in functions such as workflow and teamwork to address value stream management concerns.

In addition, the increasingly complex and hybrid nature of VDI (as well as Desktop-as-a-Service), along with the exponentially increasing number of access devices, suggests that the security surface exposed by the system will also increase exponentially. This will correspond to an increasing number of security incidents as well as a need to impose some kind of order. This order will be imposed by either automation or (more effectively) a combination of traditional automation approaches and more adaptive artificial cognitive skills focused on sorting through and responding to the growing storm of security notifications (see *IDC Survey Spotlight: Enhancing CX, Workforce, and Operations with Automation Is a Priority in 2021,* IDC #US47563221, March 2021.)

Conclusion

The VMware Horizon family of products, along with VMware's broader portfolio of virtualization, security, and management tools, clearly delivers >40% reduction in operating costs over a three-year period compared with customers' original solutions. This improvement is impressive, but it slightly understates the changes customers went through during the transition to hybrid work. The dramatic increase in devices and resources under management, the rapid acceleration of the hybrid infrastructure underlying the system, and the increased security challenges were felt but did not overwhelm customers using these solutions.

The dramatic increase in requirements driven by the shift to hybrid work will seem small in comparison to the one driven by enterprises as they deploy digitally enabled goods and services to their customers. Virtual applications and desktops, interconnected through intelligent workspaces and enhanced with work management solutions, will be needed both by IT operations and by employees just to stay ahead. The operational efficiencies found today will lay the foundation for that, much more difficult, transition.

IDC's study demonstrates the value organizations can achieve by ensuring delivery of reliable and high-performing applications through use of VMware Horizon. Interviewed organizations acknowledged that they have no choice operationally but to provide their users with robust, flexible, and uninterrupted access to important applications. They linked their use of VMware Horizon to significant value gained through higher user productivity, even as they have optimized the costs and staff time requirements for deploying, running, and supporting their device and application environments. As a result, they have achieved significant value through their use of the VMware Horizon platform, with IDC projecting that study participants will realize an average three-year ROI of 518%.

Appendix: Methodology

IDC's standard Business Value methodology was utilized for this project. This methodology is based on gathering data from organizations currently using VMware Horizon to virtualize devices and applications.

Based on interviews with organizations using VMware Horizon, 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 Horizon.** In this study, the benefits included IT cost reductions and avoidances, staff time savings and productivity benefits, user productivity benefits, and revenue gains.
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 Horizon 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 Horizon over a three-year period. ROI is the ratio of the net present value (NPV) and the discounted investment. The payback period is the point at which cumulative benefits equal the investment up until that time.

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

- Time values are multiplied by burdened salary (salary + 28% for benefits and overhead) to quantify efficiency and productivity savings. For purposes of this analysis, IDC has used assumptions of an average fully loaded salary of $100,000 per year for IT staff members and an average fully loaded salary of $70,000 per year for non-IT staff members. IDC assumes that employees work 1,880 hours per year (47 weeks x 40 hours).
- The net present value of the three-year benefits 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.
- Because using VMware Horizon requires a deployment and migration period, the full benefits of the solution are not available during deployment and migration. To capture this reality, IDC prorates the benefits on a monthly basis and then subtracts the deployment time from the first-year savings.

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

About the Analysts

Shannon Kalvar
Research Manager, IT Service Management and Client Virtualization, IDC

Shannon Kalvar is research manager for IDC's IT Service Management and Client Virtualization program, responsible for delivering research and advisory for IT executives, vendor management teams, and investment executives. Shannon's research coverage includes IT service management, Desktop-as-a-Service (DaaS), virtual client computing, cost transparency tools, software asset management, and the use of AI and natural language processing for service management.

More about Shannon Kalvar

Matthew Marden
Research Director, Business Value Strategy Practice, IDC

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 (ROI) 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

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