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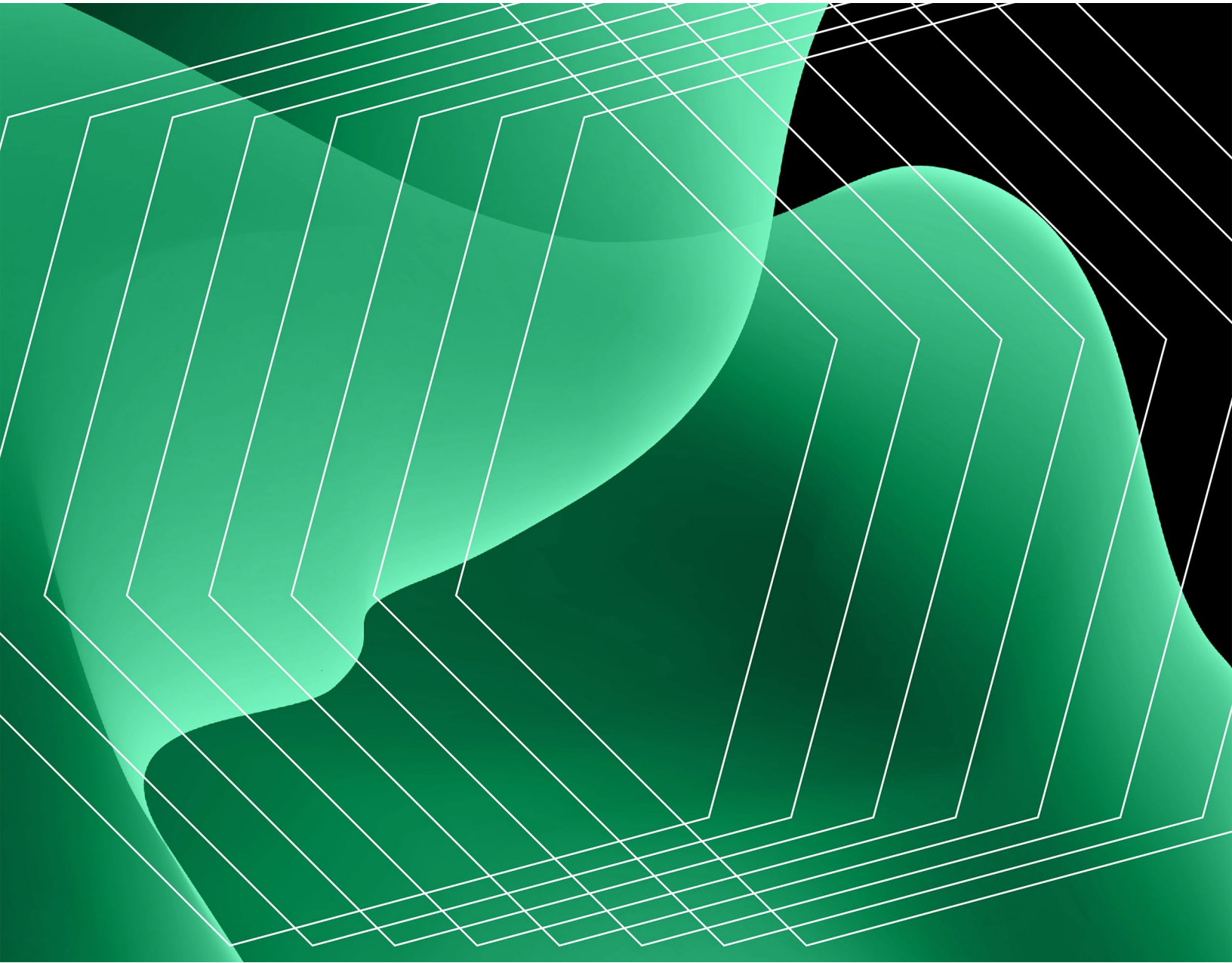
New Technology: The Projected Total Economic Impact™ Of Windows 365 And Azure Virtual Desktop

Cost Savings And Business Benefits Enabled By Windows 365 And Azure Virtual Desktop

A FORRESTER NEW TECHNOLOGY PROJECTED TOTAL ECONOMIC IMPACT™ STUDY
COMMISSIONED BY MICROSOFT, MARCH 2025



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ABOUT FORRESTER CONSULTING

Forrester provides independent and objective research-based consulting to help leaders deliver key outcomes. Fueled by our customer-obsessed research, Forrester's seasoned consultants partner with leaders to execute their specific priorities using a unique engagement model that ensures lasting impact. For more information, visit forrester.com/consulting.

Executive Summary

The combined effects of increased distributed workforces and continual pressure for cost-effective IT solutions, simplified management processes, and seamless and robust security measures underscore the need for a comprehensive digital workplace strategy. Using both Windows 365 and Azure Virtual Desktop can enable organizations to harness the strengths of each platform to optimize their virtualization deployments according to varying business demands and user requirements.

Windows 365 and Azure Virtual Desktop are cloud-based solutions from Microsoft that provide desktop virtualization environments to organizations. They enable users to securely access their personalized desktop, apps, settings, and content from the Microsoft cloud on any device, and they cater to different use cases and organization structures.

Windows 365 is a fully managed service that operates on a fixed per-user pricing model regardless of usage, and this can simplify budgeting and eliminate concerns about fluctuating costs based on resource consumption. Microsoft is responsible for the underlying infrastructure, including endpoint management and security, which can make it easier for organizations with limited IT resources or teams that lack virtual desktop infrastructure (VDI) expertise to deploy and manage virtual desktops.

Azure Virtual Desktop is available to organizations as part of a set of eligible licenses they have and use with physical PCs. Microsoft uses a consumption-based pricing model for Azure Virtual Desktop, and the solution provides more extensive flexibility and customization options, albeit with more complex management. Organizations must manage their own Microsoft Azure subscriptions — which includes virtual machine (VM) configurations, networking, storage, and quota — and this may require more advanced technical skills and resources. Azure Virtual Desktop allows for more granular control over the environment, including multisession capabilities and specific application streaming options.

Microsoft commissioned Forrester Consulting to conduct a Total Economic Impact™ (TEI) study and examine the potential return on investment (ROI) enterprises may realize by deploying Windows 365 together with Azure Virtual Desktop.[1] The purpose of this study is to provide readers with a framework to evaluate the potential financial impact of deploying, using, and maintaining Windows 365 and Azure Virtual Desktop on their organizations.

Projected return on investment (ROI)
94% - 217%

Projected net present value (NPV)
$3.2M - $7.4M

To better understand the benefits, costs, and risks associated with this investment, Forrester interviewed four decision-makers in organizations using both Windows 365 and Azure Virtual Desktop, and surveyed 207 respondents with experience using one or both of the solutions at their organization. For the purposes of this study, Forrester aggregated the experiences of the interviewees and survey respondents and combined the results into a single composite organization that is a multibillion-dollar global organization with a distributed workforce of 2,000 people including contractors, users with specialized workload needs, and employees who join through acquisition.

Interviewees said that prior to using Windows 365 and Azure Virtual Desktop, their organizations heavily relied on their on-premises infrastructures. They found it difficult to scale and integrate legacy remote and virtual solutions, especially for remote employees, contractors, and third-party partners. Providing secure access to specific tools and systems required complex and often cumbersome solutions, and it was difficult to retain control over shadow IT and ensure consistent security and compliance across various departments and partners.

Interviewees said that after investing in Windows 365 and Azure Virtual Desktop, their organizations were able to simplify their endpoint management processes, lower infrastructure costs, and improve end-user productivity while helping provide security controls. Key results from the investment include enhanced end-user productivity from faster and more effective provisioning that results in fewer service tickets and reducing latency and outages. The investment also reduced IT infrastructure and PC lifecycle management costs significantly and streamlined security workflows.

KEY FINDINGS

Quantified projected benefits. Three-year, risk-adjusted present value (PV) quantified benefits for the composite organization include:

- **End-user productivity gains from reduced latency and outages.** Employees and contractors at the composite organization who use Windows 365 and Azure Virtual Desktop save 6 to 12 minutes per day from avoided outages and latency compared to their previous environments. Over three years, the projected PV associated with these productivity gains range from $3.1 million to $6.2 million.

- **Reduced PC lifecycle management costs.** After deploying Windows 365, the composite organization sets up a bring-your-own-PC (BYOPC) program for its contractors and avoids purchasing, provisioning, shipping, maintaining, and reclaiming physical laptops for these users. Over three years, the projected PV associated with these savings ranges from $1.1 million to $1.2 million.
- **End-user productivity gains from faster provisioning.** By using virtual desktops enabled by Windows 365, the composite's new employees and contractors can start working within hours, and this rapid setup is particularly valuable for the organization's overseas teams and external partners. Over three years, the projected PV associated with these productivity gains ranges from $1.6 million to $1.8 million.
- **Reduced IT infrastructure costs.** The composite organization reduces costs associated with on-premises operations after migrating to these two Microsoft cloud services. Over three years, the savings associated with this benefit yield a projected PV ranging from $722,000 to $1.5 million.
- **Improved security.** The composite organization relies on Microsoft-managed services, which reduces the need for extensive on-premises security infrastructure and personnel. Over three years, the savings associated with this benefit yield a projected PV ranging from $60,000 to $122,000.
- **Savings from a reduction to the number of service tickets opened.** The composite organization's Windows 365 and Azure Virtual Desktop users are able to resolve many common issues without needing to contact IT support. Over three years, the savings associated with this benefit yield a projected PV ranging from $39,000 to $64,000.

Unquantified benefits. Benefits that provide value for the composite organization but are not quantified for this study include:

- **Increased agility/flexibility.** The composite organization experiences increased agility and flexibility as a result of the reduced dependence on physical hardware.
- **Savings from pooled services.** The composite organization takes advantage of the multisession capability of Azure Virtual Desktop to consolidate users on less infrastructure to manage costs more effectively.

- **Conservation of bandwidth during large-scale events.** By using Windows 365 and Azure Virtual Desktop, the composite organization saves on the network bandwidth needed to host companywide events.
- **Backup plan for cyberattacks.** The composite organization establishes an arrangement with Microsoft so that in the event of a cyberattack, it can increase Windows 365 or Azure Virtual Desktop capacity on an emergency basis to keep employees working.
- **Relationship with Microsoft.** The composite organization benefits from close, collaborative relationships with Microsoft account and product teams.

Costs. Three-year, risk-adjusted PV costs for the composite organization include:

- **Microsoft costs.** The composite organization provides standard access to Windows 365 to its contractors and employees and access to Azure Virtual Desktop to a subset of employees with specialized workload needs. These licensing costs plus compute, storage, and networking costs add up to a risk-adjusted PV of $3.2 million over three years.
- **Migration and ongoing management costs.** The composite's initial deployment of Windows 365 and Azure Virtual Desktop requires the effort of five FTEs working on the project over three months. Ongoing management of the combined environment initially requires 20% of the effort of four FTEs, but this effort increases over time to accommodate the organization's growing numbers of users. Over three years, the risk-adjusted PV comes to $233,000.

Forrester modeled a range of projected low-, medium-, and high-impact outcomes based on evaluated risk. This financial analysis projects that the composite organization accrues the following three-year net present value (NPV) for each scenario by enabling Windows 365 and Azure Virtual Desktop:

- Projected high impact of a $7.4M NPV and ROI of 217%.
- Projected medium impact of a $5.3M NPV and ROI of 156%.
- Projected low impact of a $3.2M NPV and ROI of 94%.

> “Allowing for both [Windows 365 and Azure Virtual Desktop] to run gives us this holistic approach and solution for an enterprise that has complexity in its architecture and in the ways that it has to communicate internally and with its customers. I don’t think anyone at a large scale — like a Fortune 50 [company] — can go astray from this because it would be very difficult to run operations otherwise.”
>
> **INNOVATION ARCHITECT, HEALTHCARE**

Projected return on investment (PROI)

94% - 217%

Projected benefits PV

$6.6M - $10.8M

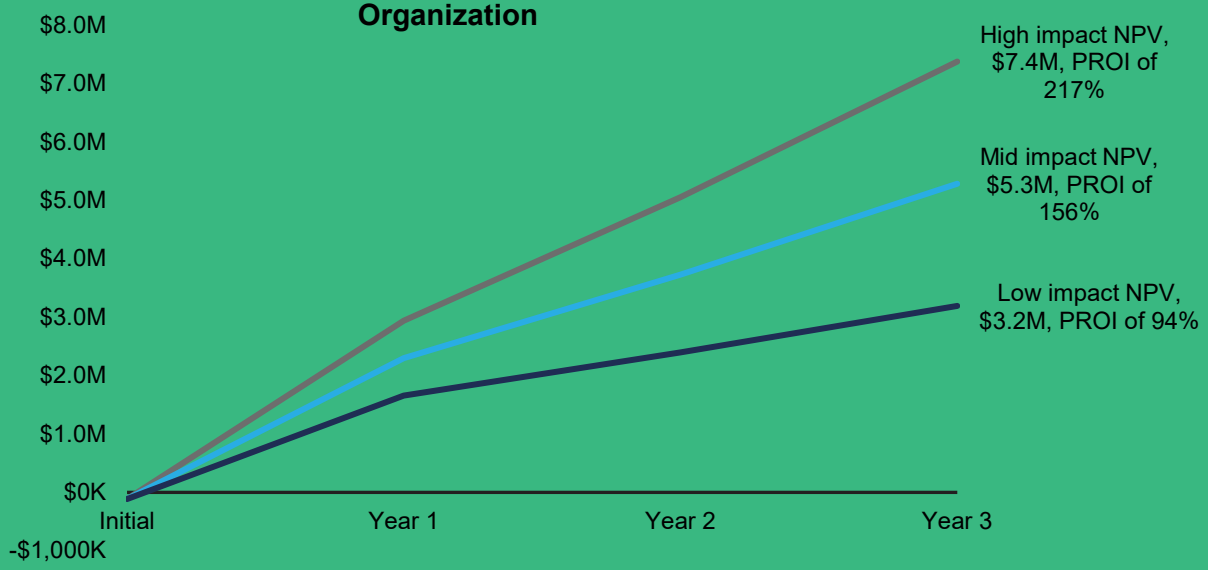
Projected net present value (PNPV)

$3.2M - $7.4M

Total costs

$3.4M

Three-Year Projected Financial Analysis For The Composite Organization



NEW TECH TEI FRAMEWORK AND METHODOLOGY

From the information provided in the interviews and survey, Forrester constructed a New Technology: Projected Total Economic Impact™ (New Tech TEI) framework for those organizations considering an investment in Windows 365 and Azure Virtual Desktop.

The objective of the framework is to identify the potential cost, benefit, flexibility, and risk factors that affect the investment decision. Forrester took a multistep approach to evaluate the projected impact that using Windows 365 and Azure Virtual Desktop together can have on an organization.

DISCLOSURES
Readers should be aware of the following:

This study is commissioned by Microsoft and delivered by Forrester Consulting. It is not meant to be used as a competitive analysis.

Forrester makes no assumptions as to the potential ROI that other organizations will receive. Forrester strongly advises that readers use their own estimates within the framework provided in the study to determine the appropriateness of an investment in Windows 365 and Azure Virtual Desktop.

Microsoft reviewed and provided feedback to Forrester, but Forrester maintains editorial control over the study and its findings and does not accept changes to the study that contradict Forrester's findings or obscure the meaning of the study.

Microsoft provided the customer names for the interviews but did not participate in the interviews.

Forrester fielded the double-blind survey using a third-party survey partner.

Due Diligence
Interviewed Microsoft stakeholders and Forrester analysts to gather data relative to Windows 365 and Azure Virtual Desktop.

Early-Implementation Interviews And Survey
Interviewed four decision makers and surveyed 207 respondents at organizations using Windows 365 and/or Azure Virtual Desktop to obtain data about projected costs, benefits, and risks.

Composite Organization
Designed a composite organization based on characteristics of the interviewees' and survey respondents' organizations.

Projected Financial Model Framework
Constructed a projected financial model representative of the interviews and survey using the New Tech TEI methodology and risk adjusted the financial model based on issues and concerns of the interviewees and survey respondents.

Case Study
Employed four fundamental elements of New Tech TEI in modeling the investment's potential impact: benefits, costs, flexibility, and risks. Given the increasing sophistication of ROI analyses related to IT investments, Forrester's TEI methodology provides a complete picture of the total economic impact of purchase decisions. Please see Appendix A for additional information on the TEI methodology.

The Microsoft Windows 365 And Azure Virtual Desktop Customer Journey

Drivers leading to the Windows 365 and Azure Virtual Desktop investment

Interviews			
Role	**Industry**	**Region**	**Number of VDI users**
Digital modern workplace manager	Food/pharmaceuticals	Global (Europe HQ)	280
Manager of endpoint services	Technology services	APAC (Japan HQ)	4,700
CIO	Healthcare technology	Global (US HQ)	4,000
Innovation architect	Healthcare	US	300,000

KEY CHALLENGES

Forrester interviewed four decision-makers whose organizations use both Windows 365 and Azure Virtual Desktop and surveyed an additional 207 respondents with experience using one or both of the solutions at their organization. For more details on these individuals and the organizations they represent, see Appendix B.

Both interviewees and survey respondents noted how their organizations struggled with common challenges, including:

- **On-premises limitations.** Due to heavy reliance on on-premises infrastructure including Active Directory and physical servers, it was difficult to scale and integrate remote and virtual solutions, especially for contractors and third-party companies. The innovation architect at a healthcare company told Forrester: “Before, we were on-prem for most things. But when you’re expanding beyond the scope of full-time employees with lots of contractors and third-party companies, we need to create secure solutions that allow us to continually keep all our employees and our contractors communicating seamlessly.”
- **Regulatory compliance.** Interviewees from highly regulated industries such as healthcare said it’s crucial to protect data and ensure no sensitive information resides on

local devices. The CIO of a healthcare technology company explained: “A lot of the time when we talk about protecting data, I have to think outside the box. If there’s a way that I have no data residing on people’s laptops, that’s great. I’m lucky Microsoft has this product.”

- **Costs and logistics.** High costs associated with purchasing, shipping, and retrieving physical computers along with the risk of damage and the need for replacements added significant expenses. The CIO of a healthcare technology company told Forrester: “Computers cost $1,000 to $2,000. Shipping them out and retrieving them add more costs. After you retrieve a computer, is it still workable? A lot of contractors bang the box around and damage the USB port, so I cannot deploy it again. I can’t always write off the expense.”
- **Technology management.** Interviewees explained that using traditional, on-premises setups made it challenging to manage diverse technology stacks to support new hires, projects, or mergers and acquisitions (M&A). They also said it was difficult to gain control over shadow IT and ensure consistent security and compliance across various departments and external partners. The CIO of the healthcare technology company said: “We still have VDM (legacy virtual development environment) [solutions] because certain divisions still use them and are more comfortable with them. We’re trying to modernize those, but some processes and operations are still running on [legacy VDM] clouds and on-prem.”
- **Complexity of remote access.** Providing contractors and third-party partners with secure remote access to specific tools and systems (e.g., specialized maintenance tools) required complex and often cumbersome solutions. The digital modern workplace manager for a food/pharmaceuticals company said: “Before, we had built a remote desktop system with a DMZ (demilitarized zone) and things like this. It was completely crazy, with connections here and there, and we wouldn’t store [contractors’] tools on our servers. At the end, we stopped this and provisioned a VDI to let them access only what they needed.”
- **Geopolitical and security issues.** Interviewees explained that rapidly relocating operations due to geopolitical events (e.g., conflicts, elections) requires secure and quick connectivity for external partners using any PC. The digital modern workplace manager for a food/pharmaceuticals company told Forrester: “We were doing a trial of [Azure

Virtual Desktop] for our level one support for infrastructure in Russia. When Russia attacked Ukraine, we were ordered to close all activity in Russia and to move it to India. The first thing was to connect all these people in India — our external partners — to our system in a secure way with any PC."

> "Before we switched to [Windows 365 and Azure Virtual Desktop], our growth was constrained by the need to wait to purchase and install additional servers. Now, that issue is resolved, and we can quickly expand capacity to add new users."
>
> **MANAGER OF ENDPOINT SERVICES, TECHNOLOGY SERVICES**

Windows 365 Key Use Cases And Benefits

Interviewees told Forrester that Windows 365 provides the best solution for certain types of users and use cases because it delivers the same experience as a dedicated PC but does not require expert IT resources to create, deploy, or maintain it. Interviewees said the following:

For users who are not technical experts, Windows 365 provides access to all the Microsoft productivity tools they are accustomed to using in a familiar environment. This helps reduce help desk calls and tickets.

Windows 365 delivers a dedicated personal desktop experience for users who want or need it.

For certain contractors or remote workers, Windows 365 supports a BYOPC policy, allowing organizations to avoid the cost and risk of provisioning and shipping PCs.

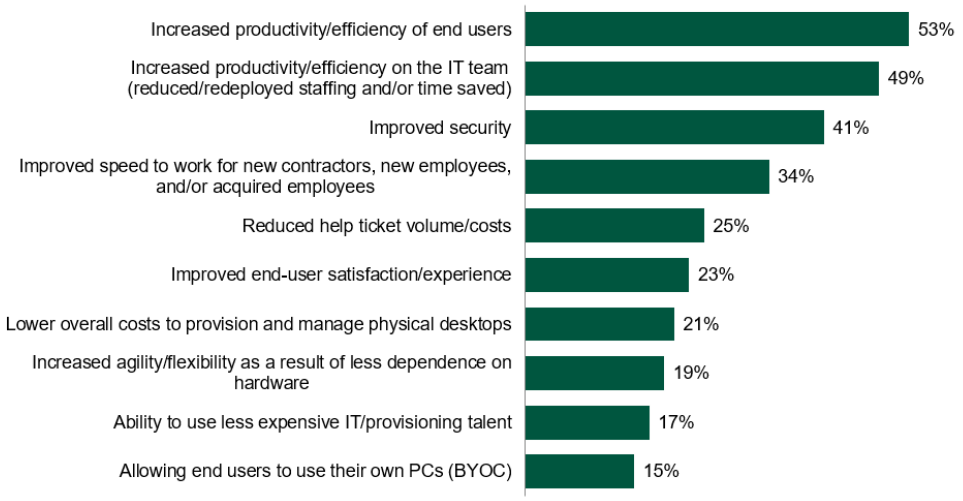
In a situation in which an organization acquires a company and its workforce, Windows 365 provides a quick ramp-up solution to allow access to the parent company's systems and applications on the PCs the acquired company's employees already use at work.

As a SaaS product, organizations' existing provisioning teams can easily deploy and maintain Windows 365 without needing to make additional investment in developers or other advanced IT specialists.

When asked about the benefits of Windows 365, survey respondents cited "increased productivity/efficiency of end users," "increased productivity of IT teams," and "improved security" as the top three.

Interviewees told Forrester that in situations in which the key goal is to provide mainstream users secure access to everyday tools that allow them to do their jobs without supplying them with physical PCs, Windows 365 is the appropriate solution.

“What are the most valuable benefits your organization has experienced from Windows 365?”



Base: 146 respondents with experience using Windows 365 at their organization
Note: Respondents chose up to three benefits.
Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024

Azure Virtual Desktop Key Use Cases And Benefits

Interviewees told Forrester that Azure Virtual Desktop provides different benefits for different users and use cases than Windows 365 does and that for their organizations, choosing the solution to use was not an either/or decision. They explained that using both Windows 365 and Azure Virtual Desktop makes their organizations more agile and empowers virtual workforces to do their jobs efficiently and securely. Interviewees said the following:

Using Azure Virtual Desktop allows engineers, developers, and technically savvy users to create more customized interfaces and to work together in the familiar Azure environment to create, test, deploy, and maintain applications.

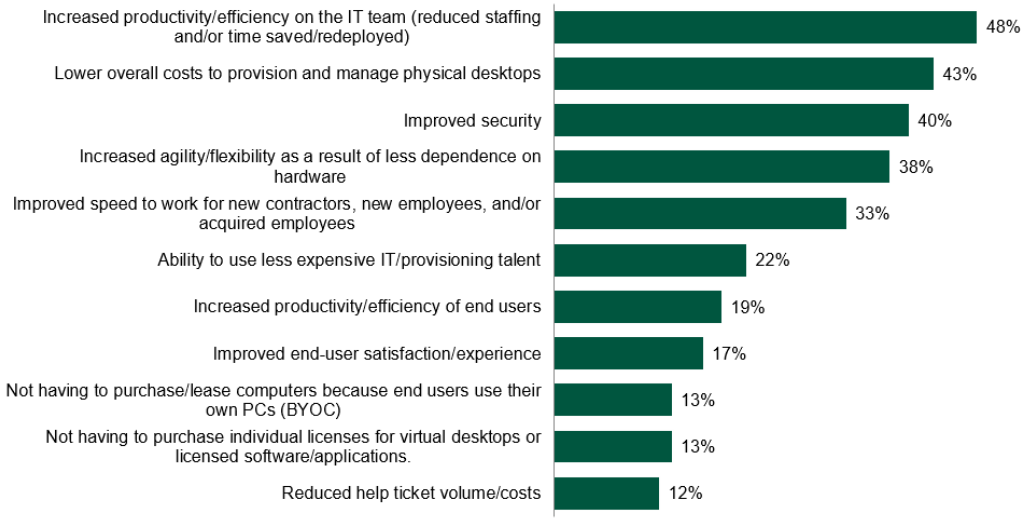
In situations in which employees access an application infrequently, using Azure Virtual Desktop reduces risk and costs for the organization by providing pooled access only as needed.

If employees do not require persistent desktops, Azure Virtual Desktop delivers the functionality users need at a lower operating cost than other solutions through multisession pooled access rather than individual licenses.

Survey respondents said the most important benefit of Azure Virtual Desktop is that it improves the productivity of IT teams because they are the most likely to use it. Lower costs associated with pooled usage was the second biggest benefit and the value of minimizing security risk was third.

Survey respondents also said their companies use Azure Virtual Desktop for a number of other use cases. Fifty-nine percent said their organization uses it to provide access to users on a multisession hosted/pooled basis.[2] Forty-five percent said their organization uses Azure Virtual Desktop to create customized interfaces for specialized work applications. And 35% said their organization uses Azure Virtual Desktop to provide access to applications that are used infrequently.

“What are the most valuable benefits your organization has experienced from Azure Virtual Desktop?”



Base: 143 respondents with experience using Azure Virtual Desktop 365 at their organization
Note: Respondents chose up to three benefits.
Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024

INVESTMENT OBJECTIVES

The interviewees’ and survey respondents’ organizations searched for a solution that could support:

- **Integration and resource management.** Interviewees and survey respondents said their organizations wanted seamless communication and resource management. The innovation architect at a healthcare company said: “It made sense for us to integrate both Azure Virtual Desktop and Windows 365. We needed a lot of apps in our library of resources to keep different subsidiaries and different types of employees communicating seamlessly with one another, creating nonproduction and production environments and keeping them running. We have many applications and different life cycles that need to be monitored, and this allowed us to do that seamlessly with a configurable, out-of-the-box solution that minimizes the amount of customization required by the organization.”
- **Rapid deployment without complexity.** The digital modern workplace manager in food/pharmaceuticals said their organization needed to move quickly while ensuring security, even with limited knowledge of Azure, and they recounted that deploying

Windows 365 based on standard images provided by Microsoft did not require complex management. The interviewee said: “We considered acquiring PCs in India and sending them by post, but we realized there would be challenges and felt it would be a nightmare. We then decided to move to [Windows 365 Cloud PCs]. At that moment, my management said we have two months. We had just released Windows 365. We tested it, and in one month, we were ready to deploy the first Windows 365 Cloud PC. We were able to deploy Cloud PCs in one month based on the standard image provided by Microsoft. It did not require complex management to do this.”

- **Scalability.** Interviewees said it was critical for their organizations to gain the ability to scale quickly when hiring and expanding into new verticals. The CIO of a healthcare technology company said: “If we see a vertical market that we want to go after where we need to build more new software, I have to hire more people. I can scale so fast with the concept of BYOPC.”
- **Enhanced security.** Interviewees said their organizations needed multifactor authentication (MFA) and virtual networks with firewalls to provide secure access. The digital modern workplace manager of a food/pharmaceuticals company explained: “To ensure security, we wanted users to connect with MFA by an application or a web link. We created a series of virtual networks where, for each network, users are passed through firewalls with the access we decide. This was exactly what we were looking for. Three months later, 140 Cloud PCs were up and running.”
- **Special use cases.** The interviewees said their organizations had specific use cases in mind when looking for a solution. The digital modern workplace manager at the food/pharmaceuticals company said: “We realized we could use [Windows 365 and Azure Virtual Desktop] for an external partner that did specialized maintenance in our factories. Thanks to the firewall for these resources where I need to do maintenance, we covered the external partner scenario. … We are now working on other scenarios, [such as] M&A. At the beginning of M&A, people in the target company need to connect to our systems to do monthly financial reporting. Because our systems are protected, they cannot be placed on the internet. I can set up a security level VDI to give them direct access to the system. We have several scenarios like this — some for a long time and others just for a moment. [Virtualization] is helping us a lot.”

> "There are certain aspects of Azure [Virtual Desktop] versus software as a service offered by Windows 365. Different divisions need different aspects of these services, so we try to have it where the IT teams that are designated to each of the divisions have the capability to implement either or both."
>
> INNOVATION ARCHITECT, HEALTHCARE

COMPOSITE ORGANIZATION

Based on the interviews and survey, Forrester constructed a TEI framework, a composite company, and an ROI analysis that illustrates the areas financially affected. The composite organization is representative of the four interviewees' organizations and the 207 survey respondents' organizations, and it is used to present the aggregate financial analysis in the next section. The composite organization has the following characteristics:

Description of composite. The global organization is a multibillion-dollar company with 2,000 employees, and it grows by 5% each year. The organization employs an additional 500 contractors, and turnover for these contractors averages 25% per year. The composite provides individual company-owned laptops to contractors and employees of acquired firms and uses another on-prem VDI solution to meet its needs for virtual desktops.

The "employee" group includes a subset of approximately 200 users, including graphic designers, video production staff, customer service representatives, developers, and data scientists with specialized workload needs. In line with the rest of the organization, the number of these users grows 5% per year.

The organization is undergoing rapid growth and makes one acquisition per year. The number of employees of acquisition targets who need immediate access to internal financial systems starts at 100 and grows 5% per year in subsequent years.

In its prior environment, the composite organization deployed laptops to contractors and new employees acquired via M&A activity. M&A employees experienced a delay in corporate access

until a desktop computer arrived. Users with specialized workload needs only had access to local computing resources.

Deployment characteristics. The composite organization begins its migration to a Windows 365 and Azure Virtual Desktop environment by establishing a BYOPC program for its current contractors and offering Windows 365 to new hires and employees of acquisition targets who need immediate access to internal financial systems. Over time, the organization extends Windows 365 to existing employees, eventually migrating more than 50% of the workforce to Windows 365. It offers Azure Virtual Desktop to employees with specialized workloads who would benefit from the platform.

KEY ASSUMPTIONS

2,000 employees

200 users with specialized workload needs suitable for Azure Virtual Desktop

500 contractors

100 new employees from M&A per year

Quantified benefit data as applied to the composite

Analysis Of Benefits

Quantified benefit data as applied to the composite

Total Projected Benefits					
Projected Benefits	**Year 1**	**Year 2**	**Year 3**	**Total**	
Total projected benefits (low)	$2,947,455	$2,216,588	$2,757,209	$7,921,252	$6,582,927
Total projected benefits (mid)	$3,654,460	$3,048,590	$3,770,285	$10,473,335	$8,674,403
Total projected benefits (high)	$4,361,465	$3,880,593	$4,783,361	$13,025,419	$10,765,881

END-USER PRODUCTIVITY GAINS FROM REDUCED LATENCY AND OUTAGES

Evidence and data. Interviewees said reducing latency and outages significantly enhanced end-user productivity by minimizing downtime and speeding up troubleshooting processes. Constant monitoring and tech support resolved issues quickly — often within an hour — to ensure critical operations functioned without prolonged interruptions. This support was crucial for global teams working at all hours, as it prevented extended downtimes and allowed for faster recovery.

- Increasing end-user productivity was the most cited benefit of Windows 365 among survey respondents with experience using the platform (53%). Nineteen percent of respondents with experience using Azure Virtual Desktop also cited this as one of the most valuable benefits of that solution.[3]
- The innovation architect at a healthcare company said: “It’s much faster, and the downtime is quite limited. We have had some outages, but it’s much easier to troubleshoot when you have a team at Microsoft that’s constantly monitoring with you. Their tech support works with us one-on-one, and they jump on regardless of the time of the day. Obviously, that’s beneficial for us because we do have a worldwide workforce. People are sometimes in Azure Virtual Desktop instances at 3 a.m. If we had to troubleshoot all these things, we would never leave the office.”

Modeling and assumptions. Based on the interviews and survey, Forrester assumes the following about the composite organization:

- In Year 1, the composite organization migrates 1,700 contractors and new employees to Windows 365 with or without Azure Virtual Desktop. It adds another 630 users in Year 2 and 661 more in Year 3.
- The employees and contractors who use Windows 365 and Azure Virtual Desktop save 6 to 12 minutes per day from avoided outages and latency compared to their previous environments.
- The average fully burdened hourly rate for one of these users is $45.
- Of the time saved, 50% is recaptured for work on other tasks.

Results. This yields a three-year projected PV ranging from $3.1 million to $6.2 million.

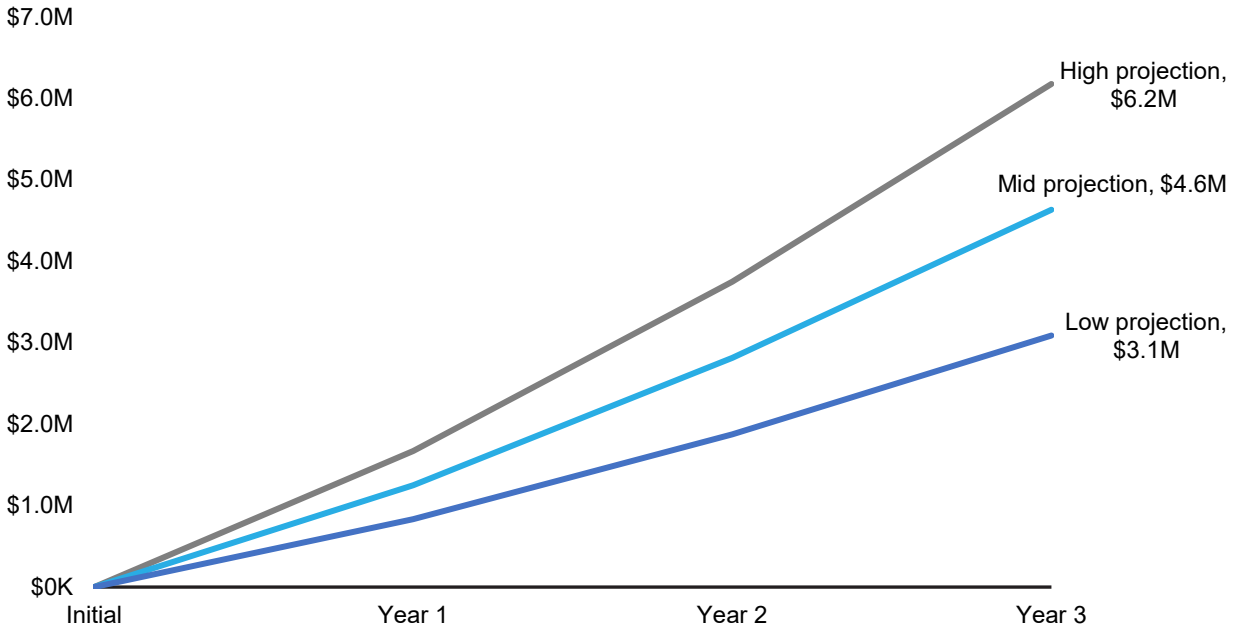
6 to 12 minutes

Daily time saved per user

"It's very beneficial to have these types of systems and services because we never have too long of a downtime. And if we do, everything is up and running much faster than us attempting to troubleshoot."

INNOVATION ARCHITECT, HEALTHCARE

End-User Productivity Gains From Reduced Latency And Outages Module: Range Of Three-Year Cumulative Impact, PV



End-User Productivity Gains From Reduced Latency And Outages					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
A1	Employees and contractors who use Windows 365 (with or without Azure Virtual Desktop)	Composite	1,700	2,330	2,991
$A2_{Low}$			24	24	24
$A2_{Mid}$	Avoided downtime from latency and outages per user (hours)	Interviews	36	36	36
$A2_{High}$			48	48	48
A3	Average fully burdened hourly rate for a user	Research data	$45	$45	$45
A4	Productivity recaptured	TEI methodology	50%	50%	50%
At_{Low}			$918,000	$1,258,200	$1,615,140
At_{Mid}	End-user productivity gains from reduced latency and outages	A1*A2*A3*A4	$1,377,000	$1,877,300	$2,422,710
At_{High}			$1,836,000	$2,516,400	$3,230,280
Three-year projected total: $3,087,859 to $6,175,718			**Three-year projected present value: $3,087,859 to $6,175,718**		

REDUCED PC LIFECYCLE MANAGEMENT COSTS

Evidence and data. The interviewees said their organizations reduced PC lifecycle management costs by allowing contractors and select groups of employees to use their own devices with Windows 365, which eliminated the need for frequent hardware replacements, extensive shipping logistics, and inventory management. This approach also minimized the time and resources needed to set up and maintain physical machines, leading to significant cost savings and increased efficiency. Interviewees said that because Windows 365 is a SaaS product, it was easy for their organizations' existing provisioning teams to deploy and maintain it with no additional investment in developers or other advanced IT specialists.

- More than half of the survey respondents with experience using Windows 365 (58%) said their organization was able to save $1,000 or more per user/desktop by issuing virtual desktops rather than physical hardware.[4] In addition, survey respondents with experience using Azure Virtual Desktop reported similar savings with that solution, but the savings were generally confined to smaller groups of technicians.[5]
- On average, survey respondents with experience using Windows 365 said their organization's IT team saved 15% of total working time with the solution.[6]
- The digital modern workplace manager for a food/pharmaceuticals company said: "[Before,] we would have to have a [company-issued] PC in front of them, and you would have to manage replacement of the device every four years because it reached the end of life or there would be an issue where you needed to replace it earlier. It was a nightmare to handle. With [Windows 365 and Azure Virtual Desktop], there is no more question of PC management."

  When asked how long it would take to provision a contractor in India, the same interviewee replied: "[It would be] five days minimum, and that's if the PC is in stock. [We would] need two days to prepare it. [We would have to] open the box, get out [the PC], install everything, prepare the account, close [the PC] into the box, and send it by post … and [that would take a minimum of three days. It would be a miracle if the PC would be] in India [in] five days. Instead of waiting five days, now we wait 2 hours."
- The CIO of the healthcare technology company explained: "Sending out [a PC] requires FedEx [or] UPS and, if you're lucky, you [don't] get the delivery driver who throws things across the fence. [If the PC is broken,] I'll have to ship a new one out there, and that's a cost. Retrieving the computer is a cost, plus there's the cost of adding endpoint security

software, [the cost of data loss protection] software, and even the cost of my IT support team [members] answering questions because the laptop won't power on."

Modeling and assumptions. Based on the interviews and survey, Forrester assumes the following about the composite organization:

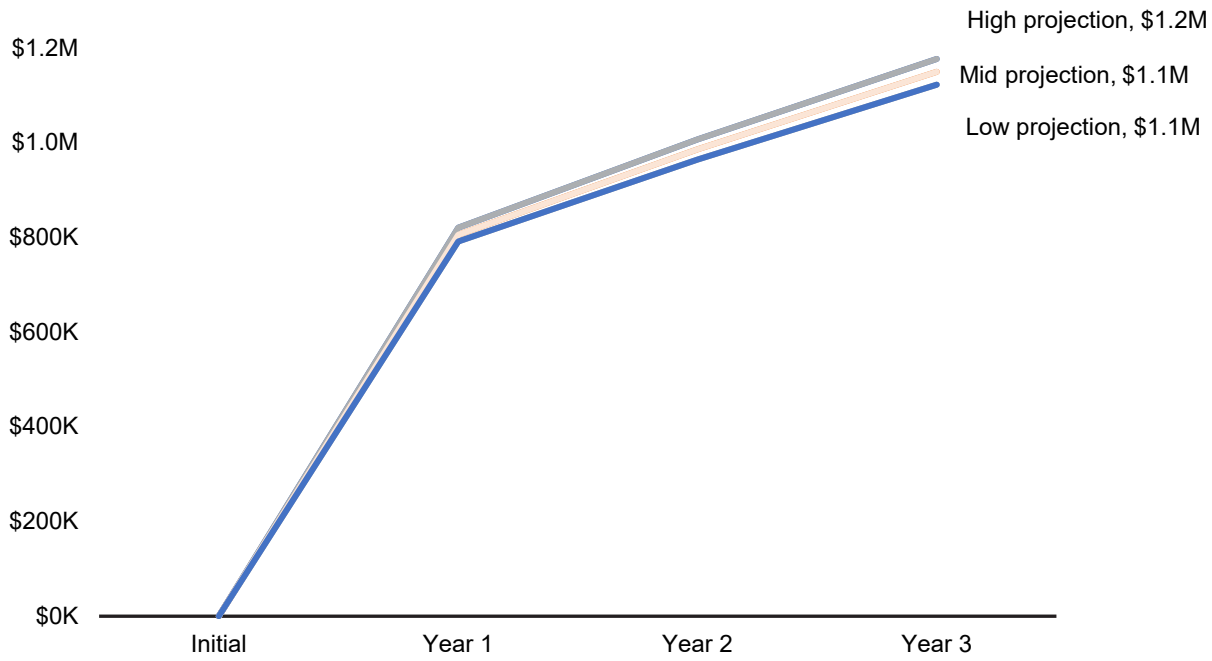
- The composite organization sets up a BYOPC program for its 500 contractors in Year 1 and avoids purchasing and shipping a $1,200 laptop to each contractor. Accounting for turnover, it also avoids purchasing and shipping laptops for 125 contractors in each subsequent year.
- The composite organization provides a $100 stipend to these contractors to cover some of their personal costs.
- Before using Windows 365, provisioning took the composite organization 4 hours per machine.
- The composite organization spends 2 hours on maintenance per machine each year.
- The composite organization spends 4 hours recovering devices from offboarded contractors each year.
- After the BYOPC program is established, the composite organization reduces the time previously spent provisioning, maintaining, and recovering laptops by 75% to 95%.
- The average fully burdened hourly rate for an IT resource used to provision, maintain, and recover laptops is $80.
- Of the time saved, 50% is recaptured for work on other tasks.

Results. This yields a three-year projected PV ranging from $1.1 million to $1.2 million.

> **75% to 95%**
>
> Reduction in IT provisioning, maintenance, and device recovery time

> "It reduced costs 20% to 30% using Windows 365 for desktops. There are no shipping costs. [There's] no need to claim insurance when the delivery driver loses a package."
>
> CIO, HEALTHCARE TECHNOLOGY

Reduced PC Lifecycle Management Costs Module: Range Of Three-Year Cumulative Impact, PV



Reduced PC Lifecycle Management Costs					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
B1	Avoided laptops for contractors	Composite	625	125	125
B2	Cost of a standard laptop	Interviews	$1,200	$1,200	$1,200
B3	Shipping cost per machine	Interviews	$100	$100	$100
B4	BYOPC budget per contractor	Interviews	$100	$100	$100
B5	**Subtotal: Cost savings through BYOPC enablement**	**B1*(B2+B3-B4)**	**$750,000**	**$150,000**	**$150,000**
B6	Contractors onboarded	Composite	625	125	125
B7	IT provisioning time per machine before Windows 365 (hours)	Interviews	4	4	4
B8	**Subtotal: IT provisioning time (hours)**	**B6*B7**	**2,500**	**500**	**500**
B9	Contractors who use Windows 365	Composite	500	500	500
B10	IT maintenance time per machine before Windows 365 (hours)	Interviews	2	2	2
B11	**Subtotal: IT maintenance time (hours)**	**B9*B10**	**1,000**	**1,000**	**1,000**
B12	Contractors offboarded	Composite	125	125	125
B13	IT device recovery time per machine before Windows 365 (hours)	Interviews	4	4	4
B14	**Subtotal: IT device recovery time (hours)**	**B12*B13**	**500**	**500**	**500**
B15	**Subtotal: IT provisioning, maintenance, and device recovery time (hours)**	**B8+B11+B14**	**4,000**	**2,000**	**2,000**
$B16_{Low}$	Reduction in IT provisioning, maintenance and device recovery time with Windows 365	Interviews	75%	75%	75%
$B16_{Mid}$			85%	85%	85%
$B16_{High}$			95%	95%	95%
B17	Average fully burdened hourly rate for an IT resource	Research data	$80	$80	$80
B18	Productivity recaptured	TEI methodology	50%	50%	50%
Bt_{Low}	Reduced PC lifecycle management costs	B5+(B15*B16*B17*B18)	$870,000	$210,000	$210,000
Bt_{Mid}			$886,000	$218,000	$218,000
Bt_{High}			$902,000	$226,000	$226,000
Three-year projected total: $1,290,000 to $1,354,000			**Three-year projected present value: $1,122,239 to $1,176,674**		

END-USER PRODUCTIVITY GAINS FROM FASTER PROVISIONING

Evidence and data. The interviewees described how faster provisioning significantly boosted end-user productivity by enabling immediate access to necessary tools and systems. Windows 365 allowed new employees and contractors to start working within hours instead of days, eliminating delays associated with shipping physical PCs. Interviewees said this rapid setup is particularly beneficial for overseas teams and external partners because it allows them to work from any location without the need for extensive setup or troubleshooting. Overall, this leads to quicker onboarding, reduced downtime, and enhanced operational efficiency.

- One-third of survey respondents with experience using Windows 365 (32%) said their organization gained the ability to provide access to applications and files to new and acquired employees and contractors at least four days faster, and half (51%) said their organization can now provide access one to three days faster.[7] Respondents using Azure Virtual Desktop reported similar productivity improvements.[8]
- According to the innovation architect at a healthcare company: “We have a lot of turnaround with contractors, and we do send them a laptop, obviously, with our secure VPNs and basically imaged and with other provisions already set up. If we didn’t have it through Windows 365 and/or Azure Virtual Desktop already created for them, it would be time-consuming to do that manually. We have it so that it’s an automated process where, with some information, we’re able to do this much quicker. So, it is a time savings advantage there.”
- The digital modern workplace manager for the food/pharmaceuticals company explained: “For the M&A scenario, if a newcomer arrives after the date we acquire the company, we can give them a VDI until they have a new PC so they can be productive right away. It’s a temporary system to let them start to work and be in contact with everyone and everything.”

  The same interviewee also noted contractors also see immediate productivity gains using Windows 365: “A user comes in. I enable the license. Two hours later, the PC is ready. As a result of being able to provide those outside suppliers with access, they get the job done faster.”

Modeling and assumptions. Based on the interviews and survey, Forrester assumes the following about the composite organization:

- The composite organization onboards 1,825 contractors and new employees in Year 1, 755 in Year 2, and 786 in Year 3.
- Before using Windows 365, it took the composite organization an average of four days to provision and deliver a laptop to new users.
- With Windows 365, the composite organization reduces provisioning time by 75% to 85%.
- The average fully burdened hourly rate for one of these users is $45.
- Of the time saved, 50% is recaptured for work on other tasks.

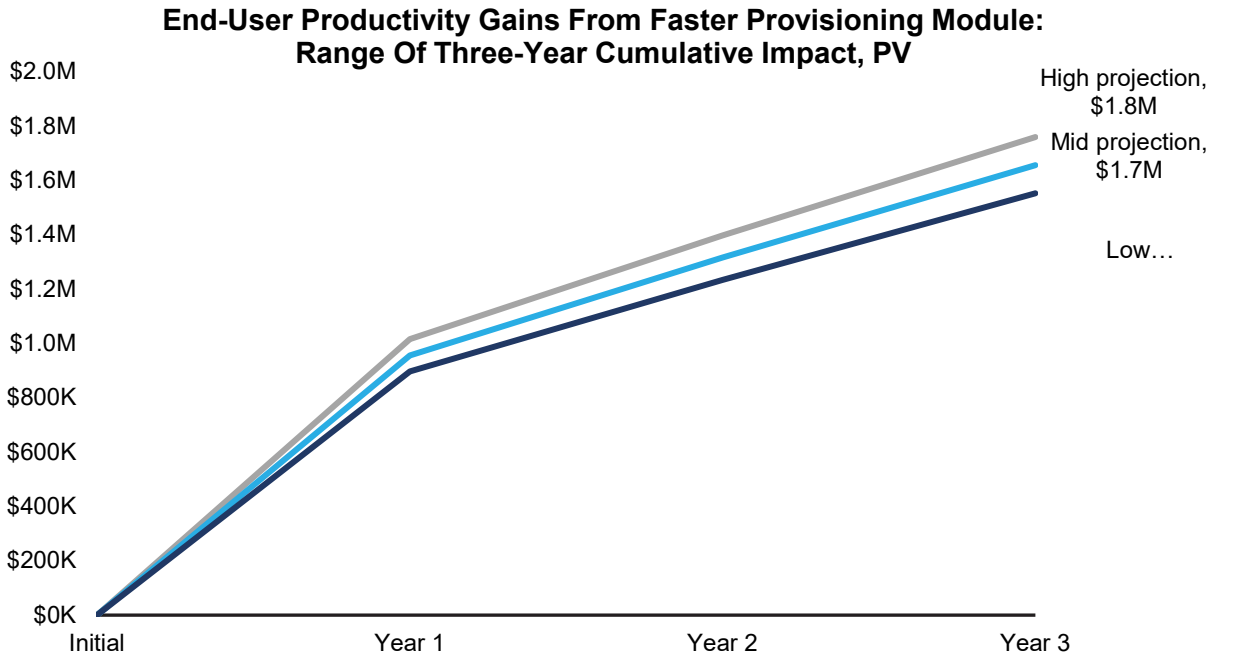
Results. This yields a three-year projected PV ranging from $1.6 million to $1.8 million.

3 to 4 days

Faster access to applications and files for onboarded users

> “Instead of waiting five days, now you wait 2 hours.”
>
> DIGITAL MODERN WORKPLACE MANAGER, FOOD/PHARMACEUTICALS

End-User Productivity Gains From Faster Provisioning Module: Range Of Three-Year Cumulative Impact, PV



End-User Productivity Gains From Faster Provisioning					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
C1	Contractors and new employees onboarded	Composite	1,825	755	786
C2	Provisioning time per user before Windows 365 (days)	Interviews	4	4	4
$C3_{Low}$	Reduction in provisioning time with Windows 365	Interviews	75%	75%	75%
$C3_{Mid}$			80%	80%	80%
$C3_{High}$			85%	85%	85%
C4	Average fully burdened hourly rate for a user	Research data	$45	$45	$45
C5	Productivity recaptured	TEI methodology	50%	50%	50%
Ct_{Low}	End-user productivity gains from faster provisioning	C1*C2*C3*(C4*8)*C5	$985,500	$407,700	$424,440
Ct_{Mid}			$1,051,200	$434,880	$452,736
Ct_{High}			$1,116,900	$462,060	$481,032
Three-year projected total: $1,817,640 to $2,059,992			**Three-year projected present value: $1,551,739 to $1,758,638**		

REDUCED IT INFRASTRUCTURE COSTS

Evidence and data. The innovation architect at the healthcare company told Forrester their organization reduced costs associated with on-premises operations as much as 40% after migrating to Microsoft cloud services. They also said the company further reduced costs by consolidating the cloud service providers it worked with and shifting more work to Azure.

According to the innovation architect at a healthcare company: “It does reduce the costs significantly because you don’t have a lab, and you have fewer servers in the lab. Obviously, your electricity is less and you don’t need as many people on location, and having fewer labs and fewer servers within our labs has significantly reduced costs. To set up a lab just to run certain on-prem operations costs us anywhere from $5 million to $15 million. And then you have to have one to three lab operators who actually go and monitor our servers and so on. On-prem is pricey.”

The same interviewee then discussed the work their organization did to consolidate cloud providers to further reduce costs: “We use [other cloud service providers], but sparingly, because Azure is so much less expensive and more cost-efficient to use than setting up environments to deploy onto [other providers’] clouds. Those instances cost us a lot more.”

The interviewee added: “We migrated almost all of the applications that were running AI feasibility tests and different AI models to Azure this year because, last year, it cost anywhere from twice as much to three times as much to run those operations with other service providers. The majority of what we’re doing is on Azure now.”

Modeling and assumptions. Based on the interviews and survey, Forrester assumes the following about the composite organization:

- In Year 1, the composite organization saves $150,000 to $450,000 in on-premises hardware depreciation and server management costs.
- These savings grow over time as the composite shifts more work to Windows 365 and Azure Virtual Desktop.

Results. This yields a three-year projected PV ranging from $722,000 (low) to $1.5 million (high).

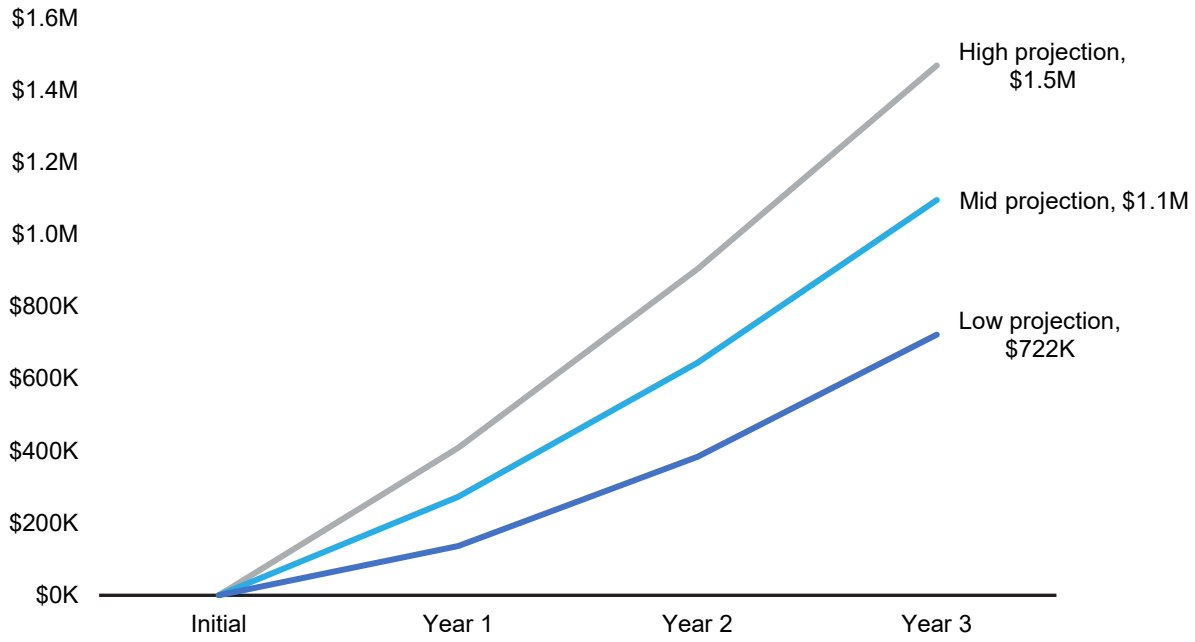
10% to 50%

Reduction in on-premises IT infrastructure

"We did reduce the cost significantly. I would say that it was a cost savings of about 30% to 40% because [we're] running fewer servers, more of it is cloud-based, and that reduces [our] costs significantly with [telecommunications providers] and other vendors that are needed to run those on-prem operations."

INNOVATION ARCHITECT, HEALTHCARE

Reduced IT Infrastructure Costs Module: Range Of Three-Year Cumulative Impact, PV



Reduced IT Infrastructure Costs					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
D1	On-premises IT infrastructure cost before Windows 365 and Azure Virtual Desktop	Composite	$1,500,000	$1,500,000	$1,500,000
$D2_{Low}$	Reduction in IT infrastructure cost with Windows 365 and Azure Virtual Desktop	Interviews	10%	20%	30%
$D2_{Mid}$			20%	30%	40%
$D2_{High}$			30%	40%	50%
Dt_{Low}	Reduced IT infrastructure costs	D1*D2	$150,000	$300,000	$450,000
Dt_{Mid}			$300,000	$450,000	$600,000
Dt_{High}			$450,000	$600,000	$750,000
Three-year projected total: $900,000 to $1,800,000			**Three-year projected present value: $722,389 to$1,468,445**		

IMPROVED SECURITY

Evidence and data. Interviewees mentioned several security features associated with Windows 365 and Azure Virtual Desktop, including conditional access policies, customer managed keys, MFA, and role-based access control (RBAC), ensuring strict control over data access and transfer. Interviewees said they consider this robust security framework to be crucial for maintaining high standards and resiliency, especially in highly regulated sectors such as healthcare and financial services. They also noted that virtualization deployment eliminates the need for physical USB ports, enhancing security by helping to prevent unauthorized data transfers. They estimated Windows 365 reduced the need for extensive on-premises security infrastructure and personnel and saved their organizations 20% to 25% of the associated costs.

- Survey respondents said increased security was among the most valuable benefits their organizations experienced with Windows 365 and Azure Virtual Desktop. Forty-one percent of those with experience using Windows 365 and 40% of those with experience using Azure Virtual Desktop said their organization experienced this benefit.[9]
- The innovation architect at a healthcare company told Forrester: “Without a doubt, it has improved security. We have to have the highest level of security. Thankfully, Microsoft does such a great job in working with us and continuing to keep us secure. If we were doing a lot of this on our own on-prem without these types of services, it would take a lot more time, a lot more people, and a lot more money. Our budgets would have to be much higher because these types of services that are rendered by Microsoft really reduce our cost and allow us to have the highest levels of security that we need.”
- The digital modern workplace manager of a food/pharmaceuticals company explained: “All of the security components we are pushing to each [company-issued] PC we have on the VDI. Authentication will be made by each Microsoft account we manage plus MFA. We know everything that we do because it passes through the firewall, and everything is tracked. We have full vision of what has been done through VDI. It’s a bit more secure than giving someone a PC because there’s no USB port. It’s a VDI.”

  The same interviewee added: “If a user does not use the VDI for 60 days, they are automatically removed. We get a list of VDIs we can automatically clean up. Also, it’s always up to date. When we push a patch, they receive it automatically. They are always up to date, which was difficult with PCs given to a partner. [They would] keep it in their desk during a free month, and then the day they needed it in an emergency startup, the

first thing the PC [would do was] update, update, update. We don't have this issue anymore. [There are] no more batches of updates. Updates are made automatically while it's live. We have a compliance check saying how many PC are up to date and how many are not and why. VDIs are at the top of the list. They are always up to date."

- The CIO of the healthcare technology company said security was more of a business problem associated with bringing in contractors and giving them access to data: "To store data, we decided to have a less tight access control policy with less monitoring. There are risks associated with BYOPC because users can right-click, cut, and paste. That probably would not work for some organizations. But for me, I have a better risk appetite because I have more controls in place."

Modeling and assumptions. Based on the interviews and survey, Forrester assumes the following about the composite organization:

- Before Windows 365 and Azure Virtual Desktop, the composite needed four FTEs to manage endpoint security.
- With Windows 365 and Azure Virtual Desktop, the composite organization shifts more of these resources to other activities over time, and 50% of the time saved is recaptured.
- The average fully burdened hourly rate for an IT security administrator is $60.

Results. This yields a three-year projected PV ranging from $60,000 to $122,000.

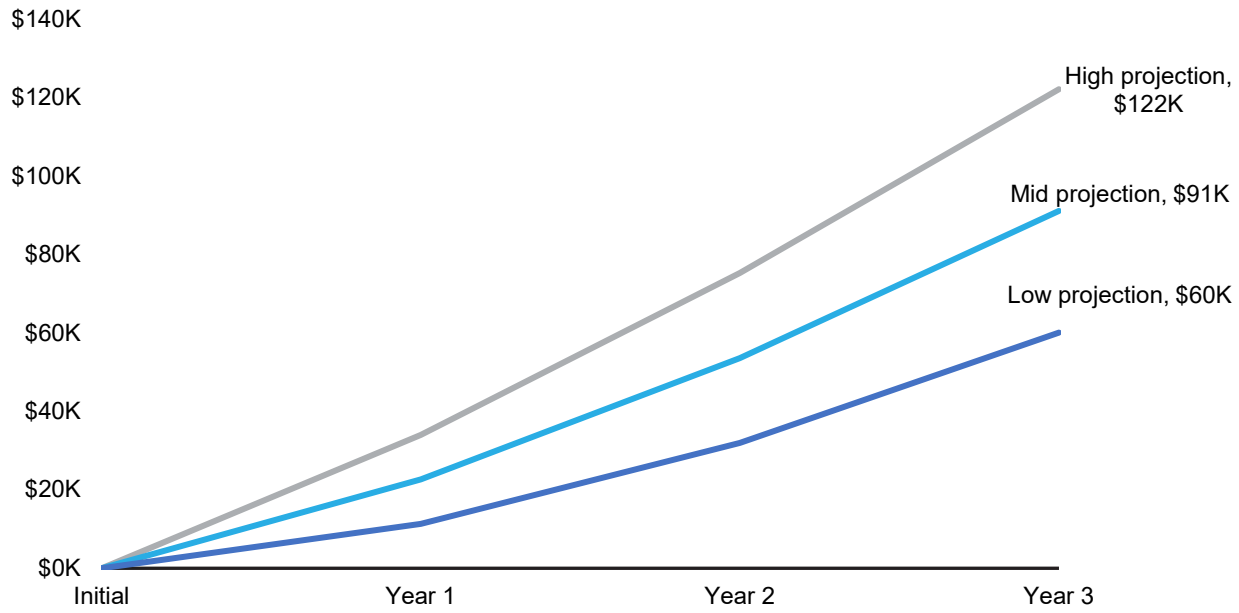
15% to 25%

Reduction in security costs

"If I put on my CSEC (computing security) hat and ask how secure it is, it's pretty good. I'm happy. I have a clean story to tell."

CIO, HEALTHCARE TECHNOLOGY

Improved Security Module: Range Of Three-Year Cumulative Impact, PV



Improved Security					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
E1	FTEs who managed endpoint security before Windows 365 and Azure Virtual Desktop	Composite	4	4	4
$E2_{Low}$	Reduction in time spent managing security after Windows 365 and Azure Virtual Desktop	Interviews	5%	10%	15%
$E2_{Mid}$			10%	15%	20%
$E2_{High}$			15%	20%	25%
E3	Average fully burdened hourly rate for an IT security administrator	Research data	$60	$60	$60
E4	Productivity recaptured	TEI methodology	50%	50%	50%
Et_{Low}	Improved security	E1*E2*E3*2,080 *E4	$12,480	$24,960	$37,440
Et_{Mid}			$24,960	$37,440	$49,920
Et_{High}			$37,440	$49,920	$62,400
Three-year projected total: $74,8800 to $149,760			**Three-year projected present value: $60,103 to $122,175**		

SAVINGS FROM REDUCED NUMBER OF SERVICE TICKETS OPENED

Evidence and data. Interviewees said both Windows 365 and Azure Virtual Desktop empower users with self-service options, allowing them to resolve common issues without needing to contact IT support. They explained that real-time monitoring, automated ticket management, and dynamic resource allocation also contribute to these efficiencies, which reduces service and infrastructure costs and allows IT teams to focus on more complex issues rather than being bogged down by routine support requests.

- Nearly every survey respondent said their organization experienced a reduction in help ticket volume using Windows 365 and/or Azure Virtual Desktop, and some organizations experienced it more than others.[10] Respondents with experience using Windows 365

said the average reduction in help ticket volumes was 13.4%.[11] Respondents with experience using Azure Virtual Desktop reported an average reduction of 16.7%.[12]

- Of the survey respondents with experience using Windows 365, 25% rated reduced help desk ticket volume/costs among the most valuable aspects of Windows 365.[13] But only 12% of respondents with experience using Azure Virtual Desktop called this a key benefit, instead choosing to highlight other aspects of Azure Virtual Desktop.[14]
- When asked about the change since deploying Windows 365 and Azure Virtual Desktop, the CIO of the healthcare technology company said: “There were some questions about the new way of logging in, the new way of working, and how to work on two screens when you first launch the application. [They were] practical productivity questions. Those kinds of calls got eliminated after the first month because we spent time piloting.”

Modeling and assumptions. Based on the interviews and survey, Forrester assumes the following about the composite organization:

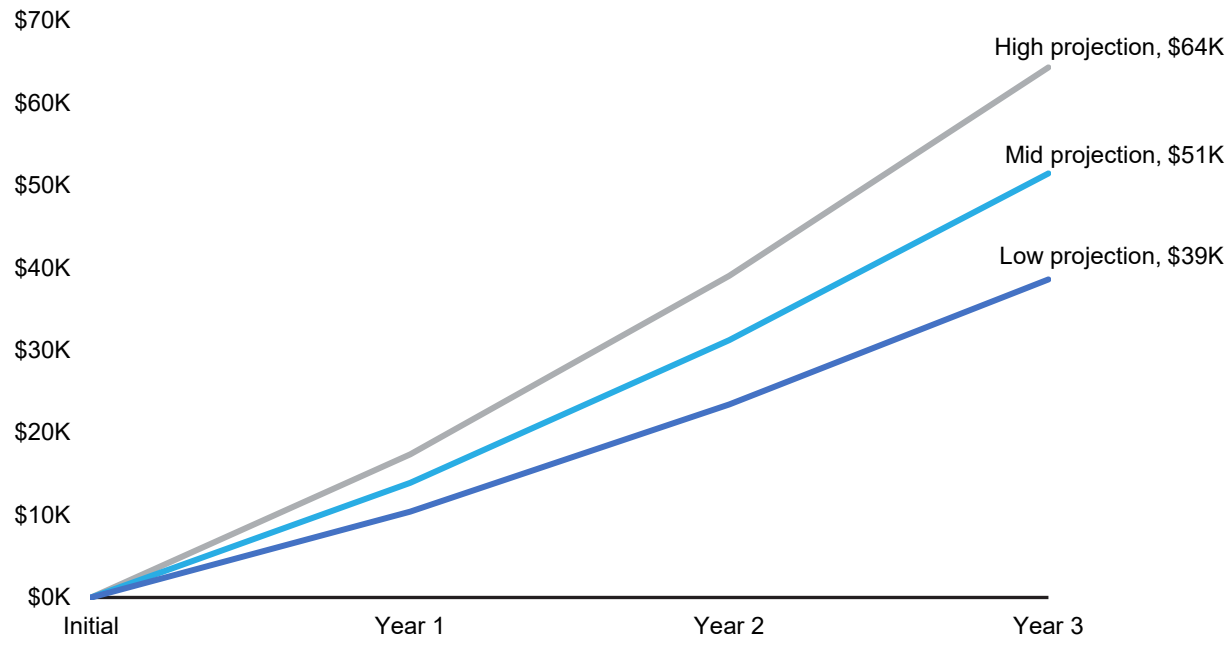
- In Year 1, the composite organization migrates 1,700 contractors and new employees to Windows 365 with or without Azure Virtual Desktop. It adds another 630 users in Year 2 and 661 more in Year 3.
- Before using Windows 365 and Azure Virtual Desktop, each user at the composite organization opened an average of three service tickets per year.
- The average cost of a service ticket is $15.
- Using Windows 365 and Azure Virtual Desktop reduces the volume of service tickets the composite opens by 15% to 25%.

Results. This yields a three-year projected PV ranging from $39,000 to $64,000.

15% to 25%

Reduction in service ticket volume

Savings From Reduced Number Of Service Tickets Opened Module: Range Of Three-Year Cumulative Impact, PV



Savings From Reduced Number Of Service Tickets Opened					
Ref.	**Metric**	**Source**	**Year 1**	**Year 2**	**Year 3**
F1	Employees and contractors who use Windows 365 (with or without Azure Virtual Desktop)	Composite	1,700	2,330	2,991
F2	Average number of service tickets opened	F1*3	5,100	6,990	8,973
F3	Average cost per service ticket	TEI methodology	$15	$15	$15
$F4_{Low}$	Percent reduction in the number of service tickets opened following the introduction of Windows 365 and Azure Virtual Desktop	Interviews	15%	15%	15%
$F4_{Mid}$			20%	20%	20%
$F4_{High}$			25%	25%	25%
Ft_{Low}	Savings from reduced number of service tickets opened	F2*F3*F4	$11,475	$15,728	$20,189
Ft_{Mid}			$15,300	$20,970	$26,919
Ft_{High}			$19,125	$26,213	$33,649
Three-year projected total: $47,392 to $78,987			**Three-year projected present value: $38,598 to $64,331**		

UNQUANTIFIED BENEFITS

Interviewees and survey respondents mentioned the following additional benefits that their organizations experienced but were not able to quantify:

- **Increased agility/flexibility.** Thirty-eight percent of survey respondents with experience using Azure Virtual Desktop and 19% of respondents with experience using Windows 365 said increasing agility/flexibility as a result of less dependence on hardware is one of the most valuable benefits of using these solutions.[15]

  The innovation architect at the healthcare company described their organization's collaborative relationship with Microsoft: "We've had 'hackathons' with them. We've tried out new technologies with them. We even coded and tested things together so that we will always be able to expand what we're doing and provide our workforce with everything they might need. It keeps us innovative, and it definitely allows us to run more cost-efficient operations. Looking into the future, I think that the partnerships that we have in Microsoft allow us to implement more innovative solutions, as well."

- **Savings from pooled services.** Interviewees said that, since Azure Virtual Desktop uses a consumption-based pricing model in which costs vary depending on the resources used (e.g., VM size, operational hours), it led to significant savings for their organizations when used in environments in which it can optimize their usage. Of note, 59% of the survey respondents with experience using Azure Virtual Desktop said multisession hosted/pooled users is one of their organization's primary use cases for Azure Virtual Desktop.[16]

  - The CIO of the healthcare technology company said: "The type of work here is very seasonal. The traditional subscription model of buying a whole bunch of licenses doesn't work well. Our CFO asked us to go to a model that is more relevant to the business. The benefit of [Azure Virtual Desktop] is pooled sessions, not per-user sessions. It's another reason I think Microsoft caters to my [organization's] needs in so many ways."
  - The innovation architect of the healthcare company agreed: "Our workflows sometimes are pooled because there are sessions where you do want them to share space, and other times not. It depends on the initiative they're working on and which departments are creating and deploying those applications and how they're running the project as a part to those workflows that are created. When

we pay for that, there's no licenses. It's just Azure capacity we're using. I believe our capacity is unlimited, or they at least expand if we need them to expand. That's just a part of our contract with [Microsoft]."

- **Conservation of bandwidth during large-scale events.** The innovations architect at the healthcare company told Forrester: "Sometimes we have to conserve [bandwidth], like at our town hall meetings where the president of the company wants to talk to everyone. Things like that are opportunities that Windows 365 allows us to do. We obviously want that because we want to be able to constantly communicate with everyone within the enterprise, especially for new initiatives or any type of real important information that we want to relay to everyone else."
- **Backup plan for cyberattack.** The digital modern workplace manager for the foo/pharmaceuticals company took the security benefits of Windows 365 and Azure Virtual Desktop a step further and told Forrester: "We imagined a scenario in which, say, tomorrow morning all our PCs are completely encrypted. I called Microsoft and asked if we could get 10,000 VDI licenses [on an emergency basis], and Microsoft agreed it's possible. In a DRP (disaster recovery plan) scenario in which all the PC are blocked, we can acquire 10,000 VDI licenses and send an email to all users on their smartphones with a link to connect using their personal PCs so they can continue to work."
- **Relationship with Microsoft.** Interviewees had positive things to say about their organizations' Microsoft relationships. The digital modern workforce manager for the food/pharmaceuticals company said: "We asked Microsoft several times whether it was possible to share VDI with several people. It is in the roadmap now, so they are moving in this direction. They consider every remark we make. The voice of the customer is working well on the product, which is another reason we continue to use it more."

> "For us, it's critical to have that partnership and to constantly work with a company that is innovative and cutting-edge. That's what we see when we evaluate Microsoft in comparison to [other VM providers]. I don't see [the others] as innovative as Microsoft."
>
> **INNOVATION ARCHITECT, HEALTHCARE**

FLEXIBILITY

The value of flexibility is unique to each customer. There are multiple scenarios in which a customer might implement Windows 365 together with Azure Virtual Desktop and later realize additional uses and business opportunities, including:

- **Expanding operations.** Several of the interviewees said they expect their organization to expand its use of Windows 365 and Azure Virtual Desktop. The innovation architect at the healthcare company told Forrester: “Being a partner with Microsoft and having these two services, we get to expand our operations because they’re expanding the resources they can provide us with. That’s very useful when you’re in a competitive edge situation, attempting to be the best within your industry. The technical support options that are given to us allows us to really expand our operations and to provide the highest quality of service as well.”
- **Finding new use cases.** The digital modern workplace manager at the food/pharmaceuticals company said: “We are considering removing PCs in our factories and replacing them with tablets and using the VDI mode to access Windows clients not compatible with tablet. Perhaps tomorrow we will have a cheap tablet costing some hundreds of euros instead of a big PC that you can move everywhere. You can connect it to a screen and a keyboard, connect to the VDI, and you will then have a PC in front of you.”

  The interviewee added: “I’m pretty sure, over time, we will discover more and more scenarios as Microsoft continues to listen to customers. Probably new functionality will come to cover some needs. For example, we have asked if it is possible to run the VDI as a kiosk. They’ve said, ‘Why not?’ Perhaps they will announce this later.”

  Note: Microsoft announced Windows 365 Link after this interview was conducted.

  The CIO at the healthcare technology company told Forrester: “I think we have to try out new ideas. What is out there for the desktop experiences? Can we only do Windows? What about Mac? I’m using a Mac, and I have a virtual desktop just to log into Windows. Can the ecosystem be more open [and allow] Macs and Chrome OS? This is something that I think Microsoft has to think about. Don’t lock people into a single way to do things because the developer community may have a better understanding using Mac because Mac is more stable. Just bring more understanding of what the tech landscape is.”

- **Efficiencies from further consolidation.** The CIO at the healthcare technology company noted their organization still has legacy VM technology: “We are looking for ways to maybe move that into a single system one day. In the future, ideally, we’ll have a single platform. It’ll be great [and reduce] the technology fragmentation that we have.”

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

> “It’s a great partnership. We always work with the Microsoft teams. We try to be innovative together. The partnership allows us to be more innovative and to try out new products and services that can allow us to expand what we can provide our employees as we start to implement a lot of these different services.”
>
> INNOVATION ARCHITECT, HEALTHCARE

Analysis Of Costs

Quantified cost data as applied to the composite

Total Costs							
Ref.	**Cost**	**Initial**	**Year 1**	**Year 2**	**Year 3**	**Total**	**Present Value**
Gtr	Microsoft costs	$0	$963,900	$1,285,704	$1,622,943	$3,872,547	$3,158,179
Htr	Migration and ongoing management costs	$114,400	$36,608	$36,608	$73,216	$260,832	$232,943
	Total costs (risk-adjusted)	$114,400	$1,000,508	$1,322,312	$1,696,159	$4,133,379	$3,391,122

MICROSOFT COSTS

Evidence and data. Interviewees told Forrester their organization's Windows 365 license operates on a fixed per-user per-month pricing model, so it pays a monthly fee per user regardless of usage. In contrast, their Azure Virtual Desktop fees follow a consumption-based model in which monthly costs vary depending on the resources used (e.g., VM size, operational hours). The organizations' Windows Enterprise E3 licenses entitle them to use Azure Virtual Desktop without the need for Remote Desktop Services Client Access Licenses (RDS CALs).

Pricing may vary. Contact Microsoft for additional details.

Modeling and assumptions. Based on the interviews and survey, Forrester assumes the following about the composite organization:

- The composite provides standard Windows 365 licenses to its contractors and new employees.
- The composite organization provides Azure Virtual Desktop to a subset of employees.
- The composite pays for compute, storage, and networking costs in addition to the costs of Windows 365 licenses.

- Over time, the composite's compute costs decrease as the organization becomes more efficient in its use of Azure Virtual Desktop.

Risks. Organizational differences that may impact these costs include:

- The number of Windows 365 and Azure Virtual Desktop users.
- The performance needs of users and the Cloud PC configuration chosen.
- The compute, storage, and networking requirements of Azure Virtual Desktop users.

Results. To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $3.2 million.

> "Ultimately, [virtualization] licenses cost a bit more. But if you take into account the costs to buy and deploy PCs and pay the maintenance and upkeep, we are more or less at the break-even point. Plus, you don't need to replace a [virtualization deployment] after three or four years. It evolves. While a PC can be lost or can break or get too old and have to be replaced, we have no more replacement process under [virtualization], which is a big difference."
>
> DIGITAL MODERN WORKPLACE MANAGER, FOOD/PHARMACEUTICALS

Microsoft Costs						
Ref.	**Metric**	**Source**	**Initial**	**Year 1**	**Year 2**	**Year 3**
G1	Standard Windows 365 license cost per user per month	Microsoft		$41	$41	$41
G2	Contractors who use Windows 365	Composite		500	500	500
G3	**Subtotal: Windows 365 licensing cost for contractors**	**G1*G2*12**		**$246,000**	**$246,000**	**$246,000**
G4	Employees who use Windows 365	Composite		1,200	1,830	2,491
G5	**Subtotal: Windows 365 licensing cost for employees**	**G1*G4*12**		**$590,400**	**$900,360**	**$1,225,572**
G6	Employees who use Azure Virtual Desktop	Composite		200	210	221
G7	Azure Virtual Desktop compute costs per user per month	Microsoft		$21	$18	$15
G8	Azure Virtual Desktop storage costs per user per month	Microsoft		$5	$5	$5
G9	Azure Virtual Desktop networking costs per user per month	Microsoft		$8	$8	$8
G10	**Subtotal: Azure Virtual Desktop compute, storage and networking costs**	**G6*(G7+G8+ G9)*12**		**$81,600**	**$78,120**	**$74,256**
Gt	Microsoft costs	G3+G5+G10	$0	$918,000	$1,224,480	$1,545,660
	Risk adjustment	↑5%				
Gtr	Microsoft costs (risk-adjusted)		$0	$963,900	$1,285,704	$1,622,943
	Three-year total: $3,872,723			**Three-year present value: $3,158,312**		

MIGRATION AND ONGOING MANAGEMENT COSTS

Evidence and data. Interviewees said deployment of Windows 365 and Azure Virtual Desktop at their organizations ranged from three to 18 months, depending on the size and scope. Some organizations handled the deployment on their own while others brought in third parties to manage different aspects of provisioning.

- The innovation architect at the healthcare company told Forrester their organization implemented Windows 365 and Azure Virtual Desktop simultaneously: “We had a team of about 200 people that took 18 months from the time we started to talk about it and test things to the full implementation [for 300,000 users]. It takes a bit of time because, obviously, this is a large organization, so it takes us time to get approvals and go through

processes and committees. Things need to be approved before they can be scaled into full deployment."

- In contrast, the CIO at the healthcare technology company estimated their organization set up Windows 365 and Azure Virtual Desktop within two weeks. They said: "That's the beauty of getting cloud. There's no infrastructure to buy. There's some infrastructure, [MFA], and stuff like that we had to integrate, but we didn't have to wait for hardware. It's ready to go within two weeks. After two weeks of setup time, there are two more weeks to do pilot testing. This is a major thing. You set it up, bring the people in, do a proof of concept, and create the right framework and establish policy guidelines on acceptable use for this technology so you don't lose control."
- Interviewees said training costs are minimal but cannot be overlooked. The CIO at the healthcare company said: "We love our contractors, but they are challenged with some technology, like how to log in using MFA. The general understanding of the technology is there, but getting it mature for everyone to understand how to use MFA and ensuring security is going to be a challenge."
- Interviewees said ongoing management of Azure Virtual Desktop is more complex than it is for Windows 365. The CIO at the healthcare technology company noted: "It's not like you can get a help desk person just to spin up things. You have to hire more-qualified folks. The cost [to manage Azure Virtual Desktop] is not that bad. … It is about 20% more expensive than running Windows 365. It's 20% more because of that capability [to spin up and down] and the time needed to customize it. Again, when I add up the numbers and the money that I save, it still makes sense."
- In contrast, interviewees said ongoing management for Windows 365 is comparatively easy and doesn't require specialized virtualization resources. Instead, it can be managed by existing endpoint teams. The digital modern workplace manager for the food/pharmaceuticals company explained: "This is another reason why we are very happy with the technology. It's because, ultimately, I need no knowledge except how to initiate a license. My images are ready. The firewall rules are created. I have nothing to do. A user comes and I initiate the license. Two hours later, the PC is ready. If a user leaves the company, I remove the license. I now have a free license in my pocket for the next one coming."

- More than half of the survey respondents with experience using both Windows 365 and Azure Virtual Desktop (57%) indicated their organization's IT team manages both solutions.[17] Respondents with experience using only Windows 365 said their organization has an average of 4,936 licenses and that it requires an average of 7.2 FTEs to manage them.[18] While respondents with experience using only Azure Virtual Desktops said their organization has an average of 1,991 Azure Virtual Desktops and that it requires an average of 4.8 FTEs to manage them.[19] This equates to a 1:685 ratio of licenses to FTEs for Windows 365 and a 1:414 ratio of Azure Virtual Desktops to FTEs.

Modeling and assumptions. Based on the interviews and survey, Forrester assumes the following about the composite organization:

- The composite's initial deployment of Windows 365 and Azure Virtual Desktop requires the effort of five FTEs working on the project over three months.
- In Year 1, ongoing management of the combined environment requires four FTEs dedicating 20% of their time to managing 2,600 Windows licenses and 200 Azure Virtual Desktops.
- In years 2 and 3, ongoing management effort grows to accommodate growing numbers of users of both products.
- The average fully burdened hourly rate for an IT resource to manage both environments is $80.

Risks. Organizational differences that may impact these costs include:

- The size and complexity of the deployment and user training requirements.
- The number of FTEs dedicated to deployment and ongoing management.
- The use and cost of external professional services to supplement internal development and integration work.
- Prevailing local compensation rates for IT resources responsible for Windows 365 and Azure Virtual Desktop administration.

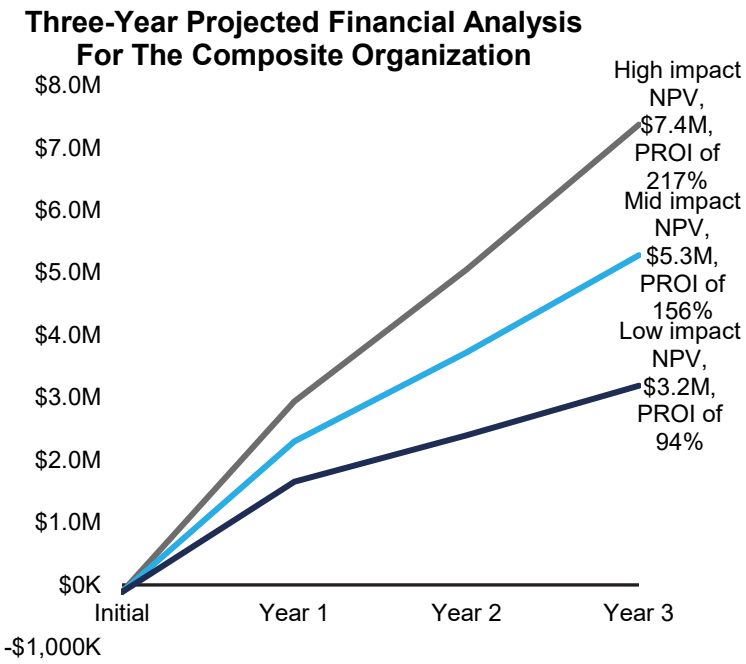
Results. To account for these risks, Forrester adjusted this cost upward by 10%, yielding a three-year, risk-adjusted total PV (discounted at 10%) of $233,000.

> "We shifted left since we don't have to invest in training or new knowledge. There is less impact in terms of how to connect to someone working remotely. We reduced these types of requests, which freed us up to work on other subjects."
>
> DIGITAL MODERN WORKPLACE MANAGER, FOOD/PHARMACEUTICALS

Migration And Ongoing Management Costs						
Ref.	**Metric**	**Source**	**Initial**	**Year 1**	**Year 2**	**Year 3**
H1	Time spent on migration (months)	Interviews	3			
H2	FTEs involved in migration	Interviews	5			
H3	Percent of time spent on migration	Interviews	50%			
H4	Average fully burdened hourly rate for an IT resource	Research data	$80	$80	$80	$80
H5	**Subtotal: Migration cost**	**(H1/12)*H2* H3*H4*2,080**	**$104,000**			
H6	FTEs dedicated to managing Windows 365 and Azure Virtual Desktop	Interviews		1	1	2
H7	Percent of time FTEs spend managing Windows 365 and Azure Virtual Desktop	Interviews		20%	20%	20%
H8	**Subtotal: Ongoing management costs**	**H4*H6*H7* 2,080**		**$33,280**	**$33,280**	**$66,560**
Ht	Migration and ongoing management costs	H5+H8	$104,000	$33,280	$33,280	$66,560
	Risk adjustment	↑10%				
Htr	Migration and ongoing management costs (risk-adjusted)		$114,400	$36,608	$36,608	$73,216
	Three-year total: $260,832			**Three-year present value: $232,943**		

Financial Summary

Consolidated Three-Year, Risk-Adjusted Metrics



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

These risk-adjusted PROI and projected NPV values are determined by applying risk-adjustment factors to the unadjusted results in each Benefit and Cost section.

Cash Flow Analysis (Risk-Adjusted)						
	Initial	Year 1	Year 2	Year 3	Total	Present Value
Total costs	($114,400)	($1,000,508)	($1,322,312)	($1,696,159)	($4,133,379)	($3,391,122)
Total benefits (low)	$0	$2,947,455	$2,216,588	$2,757,209	$7,921,252	$6,582,927
Total benefits (mid)	$0	$3,654,460	$3,048,590	$3,770,285	$10,473,335	$8,674,403
Total benefits (high)	$0	$4,361,465	$3,880,593	$4,783,361	$13,025,419	$10,765,881
Net benefits (low)	($114,400)	$1,946,947	$894,276	$1,061,050	$3,787,873	$3,191,805
Net benefits (mid)	($114,400)	$2,653,952	$1,726,278	$2,074,126	$6,339,956	$5,283,281
Net benefits (high)	($114,400)	$3,360,957	$2,558,281	$3,087,202	$8,892,040	$7,374,759
PROI (low)						94%
PROI (mid)						156%
PROI (high)						217%

APPENDIX A: NEW TECHNOLOGY: PROJECTED TOTAL ECONOMIC IMPACT

New Technology: Projected Total Economic Impact (New Tech TEI) is a methodology developed by Forrester Research that enhances a company's technology decision-making processes and assists solution providers in communicating their value proposition to clients. The New Tech TEI methodology helps companies demonstrate and justify the projected tangible value of business and technology initiatives to both senior management and other key stakeholders.

Total Economic Impact Approach

Projected benefits represent the projected value the solution delivers to the business. The New Tech TEI methodology places equal weight on the measure of projected benefits and projected costs, allowing for a full examination of the solution's effect on the entire organization.

Projected costs comprise all expenses necessary to deliver the proposed value, or benefits, of the solution. The methodology captures implementation and ongoing costs associated with the solution.

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

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

PRESENT VALUE (PV)

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

PROJECTED NET PRESENT VALUE (PNPV)

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

PROJECTED RETURN ON INVESTMENT (PROI)

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

DISCOUNT RATE

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

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

APPENDIX B: SURVEY DEMOGRAPHICS

TITLE	
C-level executive	10%
Vice president	18%
Director	29%
Manager	43%

INDUSTRY	
Retail	9%
Other manufacturing	8%
Healthcare	7%
Telecommunications services	7%
Financial services and/or insurance	6%
Consumer products, food and/or beverage manufacturing	5%
Transportation and logistics	5%
Advertising and/or marketing	5%
Business or professional services	5%
Energy, utilities and/or waste management	5%

Government	5%
Travel and hospitality	5%
Electronics	4%
Media and/or leisure	4%
Technology and/or technology services	4%
Construction	3%
Chemicals and/or metals	3%
Consumer services	3%
Education	3%
Nonprofits	1%
Legal services	1%
Agriculture	0%

COUNTRY	
United States	19%
Canada	11%
India	11%
Australia	10%
Japan	10%
United Kingdom	8%

The Netherlands	7%
Germany	6%
Mexico	5%
France	5%
Brazil	4%
Spain	4%

ANNUAL REVENUE	
$200M to $299M	13%
$300M to $399M	20%
$400M to $499M	15%
$500M to $999M	16%
$1B to $5B	20%
>$5B	15%

Note: Percentages may not total 100 because of rounding.

APPENDIX C: SUPPLEMENTAL MATERIAL

Related Forrester Research

The State Of End-User Computing (EUC), 2024, Forrester Research, Inc., May 30, 2024.

Are You Overspending On Microsoft 365?, Forrester Research, Inc., May 20, 2024.

The Year Of The AI PC Is 2025, Forrester Research, Inc., March 28, 2024.

The State Of VDI, 2023, Forrester Research, Inc., October 20, 2023.

Tracy Woo, Naveen Chhabra, Andrew Hewitt, Brent Ellis, Paddy Harrington, Allie Mellen, David Holmes, VMware Customers: Brace For Impact, Forrester Blogs.

How To Secure Your Virtual Desktop Infrastructure Deployment, Forrester Research, Inc., April 13, 2022.

Andrew Hewitt, The Anywhere Operating System, Forrester Blogs.

APPENDIX D: ENDNOTES

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

[2] The percentages referenced in this section are based on 143 survey respondents representing organizations using Azure Virtual Desktop and responding to the following question: "What are your primary use cases for Azure Virtual Desktop?" Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024.

[3] The percentages referenced in this section are based on 207 survey respondents representing organizations using Windows 365 and/or Azure Virtual Desktop and responding to the following question: "What are the most valuable benefits your organization has experienced from [Windows 365/Azure Virtual Desktop]?" Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024.

[4] The percentages referenced in this section are based on 146 survey respondents representing organizations using Windows 365 and responding to the following question: "Approximately how much does your organization save per user/desktop by issuing virtual desktops rather than physical hardware? Please consider the cost to purchase/lease hardware, shipping costs, asset

maintenance, lease management, etc." Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024.

[5] The percentages referenced in this section are based on 143 survey respondents representing organizations using Azure Virtual Desktop and responding to the following question: "Approximately how much does your organization save per user/desktop by issuing virtual desktops with Azure Virtual Desktop rather than physical hardware? Please consider the cost to purchase/lease hardware, shipping costs, asset maintenance, lease management, etc." Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024.

[6] The percentage referenced in this sentence is based on 146 survey respondents representing organizations using Windows 365 and responding to the following question: "Approximately what percentage of total working time on the IT team is saved by using Windows 365?" Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024.

[7] The percentage referenced in this sentence is based on 146 survey respondents representing organizations using Windows 365 and responding to the following question: "Approximately how much faster do new/acquired employees or contractors get access to the apps and files required to do their job with Windows 365 vs. providing them with a company PC?" Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024.

[8] The percentage referenced in this sentence is based on 143 survey respondents representing organizations using Azure Virtual Desktop and responding to the following question: "Approximately how much faster do new/acquired employees or contractors get access to the apps and files required to do their job with Azure Virtual Desktop vs. providing them with a company PC?" Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024.

[9] The percentages referenced in this sentence are based on 207 survey respondents representing organizations using Windows 365 and/or Azure Virtual Desktop and responding to the following question: "What are the most valuable benefits your organization has experienced from [Windows 365/Azure Virtual Desktop]?" Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024.

[10] The percentage referenced in this sentence is based on 207 survey respondents representing organizations using Windows 365 and/or Azure Virtual Desktop and responding to the following question: “Approximately what reduction has the organization experienced in help ticket volume?” Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024.

[11] The percentage referenced in this sentence is based on 146 survey respondents representing organizations using Windows 365 and responding to the following question: “Approximately what reduction has the organization experienced in help ticket volume?” Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024.

[12] The percentage referenced in this sentence is based on 143 survey respondents representing organizations using Azure Virtual Desktop and responding to the following question: “Approximately what reduction has the organization experienced in help ticket volume as a result of Azure Virtual Desktop?” Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024.

[13] The percentage referenced in this sentence is based on 146 survey respondents representing organizations using Windows 365 and responding to the following question: “What are the most valuable benefits your organization has experienced from [Windows 365/Azure Virtual Desktop]?” Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024.

[14] The percentage referenced in this sentence is based on 143 survey respondents representing organizations using Azure Virtual Desktop and responding to the following question: “What are the most valuable benefits your organization has experienced from [Windows 365/Azure Virtual Desktop]?” Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024.

[15] The percentages referenced in this sentence are based on 146 survey respondents representing organizations using Windows 365 and 143 survey respondents with experience using Azure Virtual Desktop and responding to the following question: “What are the most valuable benefits your organization has experienced from [Windows 365/Azure Virtual Desktop]?” Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024.

[16] The percentages referenced in this sentence are based on 143 survey respondents representing organizations using Azure Virtual Desktop and responding to the following question: “What are your primary use cases for Azure Virtual Desktop?” Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024.

[17] The percentage referenced in this sentence is based on 82 survey respondents representing organizations using both Windows 365 and Azure Virtual Desktop and responding to the following question: “Are Windows 365 and Azure Virtual Desktop managed by different teams in IT?” Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024.

[18] The number of licenses referenced is based on 146 survey respondents representing organizations using Windows 365 and responding to the following question: “How many Windows 365 licenses does your organization have?” Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024; The number of FTEs referenced is based on 136 survey respondents representing organizations Windows 365 and giving a valid response to the following question: “How many FTEs manage/maintain Windows 365 on an ongoing basis?” Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024.

[19] The number of Azure Virtual Desktops referenced is based on 143 survey respondents representing organizations using Azure Virtual Desktop and responding to the following question: “How many Azure Virtual Desktops does your organization manage?” Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024; The number of FTEs referenced is based on 134 survey respondents representing organizations using Azure Virtual Desktop and giving a valid response to the following question: “How many FTEs manage/maintain Azure Virtual Desktop on an ongoing basis?” Source: A commissioned study conducted by Forrester Consulting on behalf of Microsoft, November 2024.

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