Citrix Virtual Apps and Desktops service with Azure and Windows Virtual Desktop

Business value and cost savings analysis
of a modern cloud deployment

Executive Summary

As organizations shifted from traditional PC desktops to virtualized solutions, IT administrators hosted and provided access to applications and desktops from an on-premises data center. This proved to be more efficient than traditional PC environments because IT admins were able to centrally manage desktop and app delivery, however, datacenter costs were still significant. Now, with the increased capabilities of Microsoft Azure, and enhancements to the Windows Virtual Desktop offering, Citrix and Microsoft offer businesses new opportunity and economics to harness the value of cloud services and deliver high-performing cost-effective virtualization.
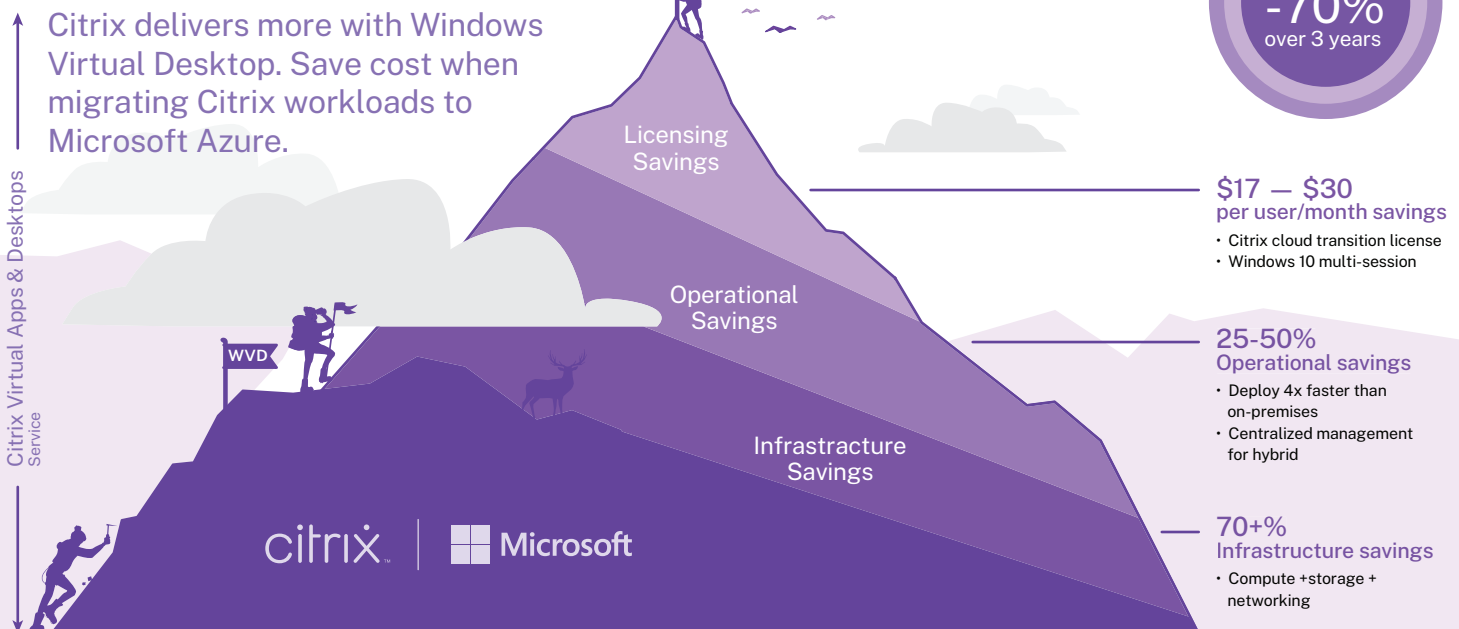
Citrix Cloud services simplify the management of existing deployments through hybrid management of traditional on-prem or cloud environments, enabling new scenarios or workloads to be easily rolled out in Azure without losing existing datacenter investments.

Administrators can also unlock additional benefits, ease administrative burdens, and enhance end-user experience - all with a more agile and secure IT environment.

In this paper, we will assess the financial benefits of transitioning to Citrix Virtual Apps and Desktops cloud services and Azure hosted workloads in Windows Virtual Desktop from a traditional on-premises deployment. We will also examine how this transition can fit within an organization's overall corporate strategy, help prepare for today's business demands, and those in the future.

In general, organizations who solely rely on a traditional on-premises application virtualization environment, can achieve a savings of up to 70% when adopting cloud-based services. These savings comprise of significantly reduced spending on IT infrastructure, simpler and more efficient management, and new and more cost-effective license programs
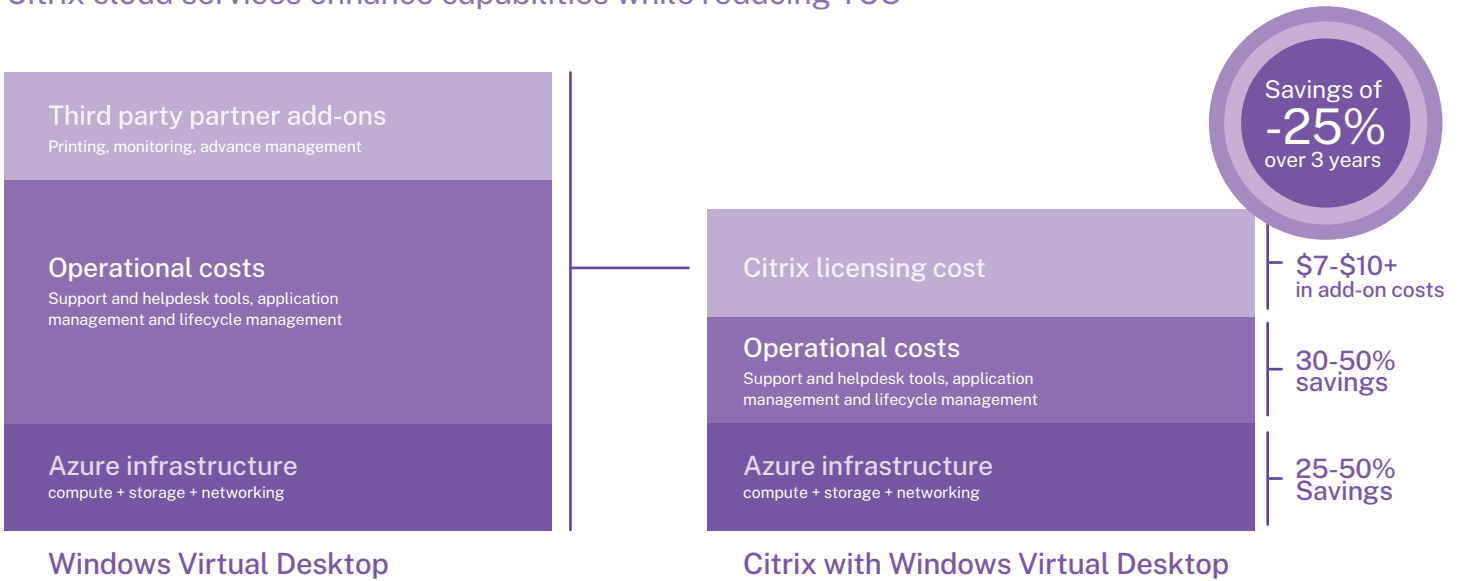
Simplify and accelerate your journey to the cloud

Citrix delivers more with Windows Virtual Desktop. Save cost when migrating Citrix workloads to Microsoft Azure.

Citrix Virtual Apps & Desktops Service

Licensing Savings

Operational Savings

Infrastructure Savings

WVD

citrix | Microsoft

Savings of -70% over 3 years

$17 — $30 per user/month savings
- Citrix cloud transition license
- Windows 10 multi-session

25-50% Operational savings
- Deploy 4x faster than on-premises
- Centralized management for hybrid

70+% Infrastructure savings
- Compute +storage + networking

While some of these savings can be achieved with native Microsoft Windows Virtual Desktop alone, combining it with Citrix Virtual Apps and Desktops enables customers to unlock the full savings potential. Customers who adopt a joint solution typically realize a 25 percent reduction of their total cost of ownership.

Simplify and accelerate your journey to the cloud

Citrix cloud services enhance capabilities while reducing TCO

Windows Virtual Desktop	Citrix with Windows Virtual Desktop	
Third party partner add-ons Printing, monitoring, advance management		**Savings of -25% over 3 years**
Operational costs Support and helpdesk tools, application management and lifecycle management	**Citrix licensing cost**	**$7-$10+** in add-on costs
	Operational costs Support and helpdesk tools, application management and lifecycle management	**30-50%** savings
Azure infrastructure compute + storage + networking	**Azure infrastructure** compute + storage + networking	**25-50%** Savings

Assumptions:
1000 knowledge workers with medium workloads using Windows 10 Multi-session VM.

* Numbers based on internal Citrix testing.

In addition to the financial implications, adoption of a hybrid-cloud strategy and deploying workloads with Citrix on top of the Windows Virtual Desktop platform also encompasses significant organizational benefits:

- **Deployment flexibility with hybrid multi-cloud:** Take advantage of new cloud scale and cost benefits while maximizing your existing datacenter investment. IT can transition on-premises deployments to hybrid/cloud resource locations in a time frame that aligns with business needs.

- **Optimized operations:** Integrated cloud services simplify the management of on-premises and cloud-hosted resources, streamlining business continuity and disaster recovery planning. Unified management tools improve IT efficiency, while increased scalability and performance optimizations reduce deployment costs and monthly spending.

- **Secure experiences:** Provide an optimized user experience across any device, with industry-leading support for SSO, 3D graphics intensive workloads, interactive communications tools, and more.

Reduce your security risk and protect intellectual property with comprehensive tools like session recording, session watermarking, and user behavior analytics.

- **Faster time to value:** Deploy Azure-hosted workloads in just 5 clicks with Citrix Desk tops-as-a-Service (DaaS) technologies. Manage your environment across multiple clouds and datacenters with ease, simplifying user on-boarding for mergers and acquisitions, new employees, contractors, and a multitude of business-critical use cases.

After reading this paper, you will have a better understanding of how to assess the economic and net-new benefits of investing in the Citrix Virtual Apps and Desktops service and transitioning your virtualization deployment to the cloud.

Detailed Analysis
of Economic Benefits

As organizations redefine their business practices to embrace flexible working, the need for IT agility has come to the forefront of corporate strategy. Modernizing IT practices by adopting service-based offerings and shifting infrastructure from traditional datacenters into hybrid-cloud models improves scale and agility while reducing spending and increasing IT efficiency.

The combination of Microsoft Windows Virtual Desktop and Citrix Virtual Apps and Desktops service provides an easy path to modernize your environment and substantially reduce data center spending. This section examines potential financial benefits from leveraging proprietary Citrix technology in combination with Windows Virtual Desktop in detail.

The following quantified benefits are based on Citrix and Microsoft research along with customer telemetry. For illustrative purposes, each of these benefits have been applied to a sample app and desktop virtualization customer with 1,000 users, migrating from a traditional on-prem VDI to an Azure-hosted Citrix and Microsoft solution. Based on this customer scenario, **savings of up to $1M can be realized and a top line growth of $2.3M can be achieved.**

These financial benefits can be broken down as follows:

- Savings of up to $310,420 based on infrastructure cost optimization

- Savings of up to $452,500 based on license cost optimization

- Savings of up to $83,800 based on optimizing cloud spending

- Savings of up to $183,200 by reducing operational cost

- Potential revenue growth of $2.3M by increasing employee productivity

- Citrix sales and value engineering teams have leveraged the cost reduction and business growth framework, outlined in this paper, as part of a broad variety of customer engagements.
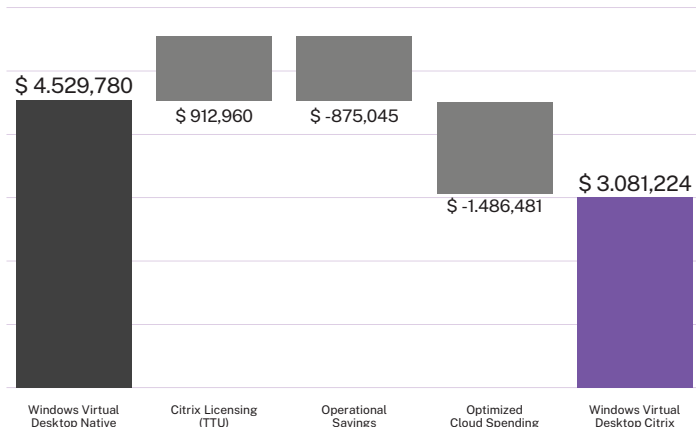
Sample Customer Cases

The following customer examples have been captured as part of these real-world conversations and have been added for reference purposes.

UK-based insurance firm

With over 100 years of experience in their field, this well-established firm set out to improve their IT agility and efficiency. Key drivers for the customer have been to improve their ability to adapt to business, economic and environmental demands, as well as to deliver cost savings related to management of their estate. Furthermore, the customer wanted to operationalize and expand their work from home capabilities, which initiated a profound technological and financial assessment of related technologies.

The conclusion of this project was that a solution based on application virtualization would meet the requirements of their 4,800 users and IT organization best. Hereby, a combination of the Citrix Virtual Apps and Desktops service with Microsoft Windows Virtual Desktop provided the best cost / functionality ratio, realizing savings of ~$8 per user per month or ~32% of the overall solution cost, compared to a native Windows Virtual Desktop environment.
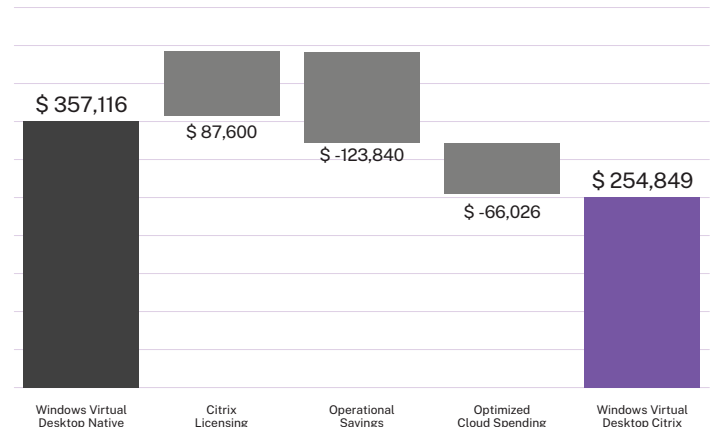
Global leader in real estate

This EMEA-based real estate consultancy, with over 120 years of experience, set out to standardize their IT environment, replace components out of support and centralize their IT management – all to drive cost savings and improve agility.

The customer evaluated a number of solutions and chose Citrix plus Microsoft Windows Virtual Desktop as a replacement for their on-premises application virtualization infrastructure, which provide access to line-of-business applications for ~300 users. As part of an in-depth assessment, the customer evaluated a number of 3rd party technologies for management and monitoring of their environment. Key drivers for IT included operational simplicity and reduced ongoing maintenance of their environments.

The clear winner was dedicated management leveraging the Citrix Virtual Apps and Desktops service with Microsoft Windows Virtual Desktop. Citrix was able to provide enhanced functionality for administrators and end-users, while realizing savings of ~$9 per user per month or ~29% of the overall solution cost.

Figure 1: ~32% cost savings realized using Citrix Virtual Apps and Desktop service + Microsoft Windows Virtual Desktop

$ 4.529,780
$ 912,960
$ -875,045
$ -1.486,481
$ 3.081,224

Windows Virtual Desktop Native | Citrix Licensing (TTU) | Operational Savings | Optimized Cloud Spending | Windows Virtual Desktop Citrix

Figure 2: ~29% cost savings realized using Citrix Virtual Apps and Desktop service + Microsoft Windows Virtual Desktop

$ 357,116
$ 87,600
$ -123,840
$ -66,026
$ 254,849

Windows Virtual Desktop Native | Citrix Licensing | Operational Savings | Optimized Cloud Spending | Windows Virtual Desktop Citrix

Infrastructure Cost Optimization

Efficiencies from running app and desktop virtualization workloads on public clouds begin with significant savings in infrastructure-related costs. These go beyond physical cost reduction for datacenter space, cooling and power consumption, and extend into just-in-time provisioning of VMs, load optimizations for cloud platforms, and other reductions in consumption-based spending.

Cost Effective Compute and Storage

For on-premises app and desktop virtualization, customers must invest and build infrastructure for peak demand and incur high upfront Capex cost, often building out datacenters to manage capacity increases and future expectations. With cloud, organizations can pay on a monthly basis for actual capacity consumed, reducing excess spending and the up-front risks of overprovisioning hardware. With a cloud-based infrastructure, organizations can:

- Avoid large upfront financial commitments and lengthy deployment projects

- Match paid-for capacity to operational needs

- Continuously align IT hardware, software, and services with changing business requirements

- Provide accurate departmental chargeback or spending data

To control capacity swings, public cloud vendors also offer financial incentives for "reserved instance" virtual machines. These should be used for highly utilized, always-on systems that are either part of the core infrastructure or are required to handle the average number of daily active users. Balancing these with pay-as-you-go instances for systems covering peak or temporary load, compute and storage cost, gives further cost optimizations for IT.

*Based on research from Microsoft, **savings of approximately 30%** can be achieved. For a customer scenario with a highly volatile workload of 1,000 users, this can translate into cost savings of $8,520[1] per year.*

Flexible Network Provisioning

Like compute and storage, customers leveraging cloud services for app and desktop virtualization also get better value for networking in this consumption-based model.

Compared to a physical on-prem network which would be provisioned for peak bidirectional traffic, cloud-hosted workloads only bill for actual outbound traffic. It is possible to further optimize this cost by using fixed fee options (using an ExpressRoute data plan) to cover base usage and using variable outbound traffic for additional bandwidth.

*Based on research from Microsoft, **savings of approximately 20%** can be achieved compared to traditional datacenter networking. For a customer scenario with 1,000 users, this can translate into cost savings of ~$6,100 per year.*

Windows 10 Multi-Session

Available only on Microsoft Azure with Windows Virtual Desktop, Windows 10 multi-session gives new flexibility for customers who need a true Windows 10 environment for application compatibility or user experience reasons. Traditionally, these VDI deployments would have been designed with a small virtual machine dedicated to each active user. This translates into a high cost per user, because of the required investments in hardware, software and IT maintenance labor.

With cloud-based app and desktop virtualization founded on Microsoft Windows Virtual Desktop, customers can leverage Windows 10 Multi-Session, which enables the use of larger, shared virtual machines with this client-type OS. This reduces cost per user dramatically, through shared compute and storage costs.

*Based on research from Microsoft, savings of up to 85% can be achieved vs legacy VDI. For a customer scenario with 1,000 Windows 10 users, this can translate into cost **savings of ~$282,300[2]** per year.*

Citrix Infrastructure Simplification

Citrix Virtual Apps and Desktops service, along with the Citrix Cloud control plane, is provided and maintained by Citrix and is furnished as an always-on SaaS-style cloud service. This results in a dramatic reduction in the traditional infrastructure components needed to support Citrix Virtual Apps and Desktops deployments. Elimination of these on-prem components also eliminates the need for OS licenses, hypervisor licenses, hardware maintenance and refresh, and similar line items.

To illustrate the infrastructure reduction provided by Citrix Cloud, assume a typical 1,000-user Citrix Virtual Apps and Desktops on-premises environment. Per Citrix best-practices, between 6-10 servers may be required to support brokers, databases, gateways, etc., depending on performance and redundancy requirements.

*Based on research from Citrix, this hardware cost is completely avoided, as all services are provided via the Citrix Cloud control plane. This translates into **savings of $8,100 - $13,500[3] per year**.*

Licensing Cost Savings

Running app and desktop virtualization workloads on Windows Virtual Desktop also includes considerable savings in licensing-related costs. These savings include the following areas:

Savings on RDS Client Access Licenses (RDS CALs)

When moving from on-prem Windows Server – based app and desktop virtualization to Windows 10 Multi-Session on Microsoft Windows Virtual Desktop, customers no longer need to invest in RDS CALs.

*This translates into **savings of ~$17 per user per month or $204,000 per year** for a 1,000 user environment, based on Microsoft list pricing.*

Windows 7 Extended Security Updates

For application compatibility reasons, some customers still require Windows 7. When adopting Microsoft Azure-based app and desktop virtualization, customers can benefit from free of charge 3-year Extended Security Updates (ESU). This can translate into savings of $25 - $200 per device per year, depending on calendar year and Windows 7 license tier.

*For an organization that requires Windows 7 Enterprise for 1,000 users until 2022, this translates into cost **savings of $150,000**.*

Integrated savings verses common add-ons for Windows Virtual Desktop

Many organizations have specific needs or regulatory requirements which necessitate customization of their environment. IT often finds themselves deploying multiple 3rd party tools to enhance the capabilities and management of their virtualization platform. These tools include advanced security controls such as conditional access restrictions, Data Loss Prevention, and enhanced management capabilities including monitoring, application management, or printing.

Citrix Virtual Apps and Desktops includes robust security, app and OS lifecycle, and UX enhancements which match and exceed the capabilities of many add-on solutions and enables customers to leverage a single vendor and management interface for end-to-end environment control. This reduces the environment complexity, support burden, and total cost of the environment.

*Based on Citrix internal research, replacing the 3rd party add-ons for Windows Virtual Desktop **generates savings of approximately $98,500 per year**, when considering licensing cost and reduction in management and training efforts.*

Optimizing Cloud Spending

The Citrix Virtual Apps and Desktops service includes a variety of unique features and functions that allow for more efficient use of cloud resources. These enable customers to increase the user density per virtual machine, or reduce the consumption of Azure resources in general, reducing cost on a per user basis.

CPU & Memory Optimization

Citrix Virtual Apps and Desktops provides innovative CPU and Memory optimization technology, which can typically improve the user density per system by ~28%[4], based on Citrix-internal testing and customer telemetry. This is achieved by continuously analyzing, optimizing and re-prioritizing the resource consumption of applications. More users per server instance equals lower cloud compute costs and an improved cost per user.

*For a customer scenario with 1,000 users, the Citrix CPU and Memory optimization technology can typically realize **savings of ~$20,600 per year** for a medium workload.*

Bandwidth Optimization

Citrix extends the value of Windows Virtual Desktop, by optimizing Windows Virtual Desktop with the adaptive and efficient Citrix HDX user experience technology and ICA protocol for communication to end user devices. HDX includes a variety of unique compression and offloading algorithms, that can leverage client-side resources for improving the user experience in many scenarios, while reducing network resource consumption at the same time. Based on Citrix internal testing and customer telemetry, Citrix HDX can reduce the network traffic generated by every user by approximately 40%.

*For a customer scenario with 1,000 users, the reduction in egress data traffic (from the virtual desktop to the end user) can generate **savings of up to ~$21,100**.*

Storage Optimization

Citrix Virtual Apps and Desktops adds an innovative storage optimization technology, called MCS I/O optimization, to Windows Virtual Desktop. This is a sophisticated caching solution, designed to offload random write operations to high-speed RAM.

The redirection of I/O to cache reduces the number of writes to disk and improves session responsiveness. By writing larger, sequential blocks of data, MCS provides better disk utilization and application responsiveness, allowing organizations to reduce costs by utilizing standard disks instead of high-performance disks.

*For a customer scenario with 1,000 users, the MCS I/O optimization technology can typically realize **savings of ~$14,600 per year for a medium workload**.*

Citrix Autoscale

Citrix Virtual Apps and Desktops service provides a built-in and easy to use automated autoscaling functionality, which ensures virtual desktops only consume Azure resources, when users require them. Outside of these working hours, all unnecessary systems are automatically powered down.

*Based on Citrix internal research, the autoscaling functionality can generate annual **savings of ~$6,000** for a 1,000 user environment[5].*

Load Balancing

Citrix Virtual Apps and Desktops service adds advanced user session load balancing to Windows Virtual Desktop, which factors in real-time resource consumption in addition to number of users and other metrics. This ensures a better, more even distribution of user sessions and enables reducing the idle margin on Windows Virtual Desktop systems, which allows for increased user density without impacting user experience.

*Based on Citrix internal research, the advanced user session load balancing can generate **savings of ~$11,500 per year** in a 1,000 user environment.*

Monitoring

In order to ensure a highquality of service and to enable admins to easily and pro-actively identify areas or components which require their attention, detailed monitoring capabilities are required for every app and desktop virtualization environment. Windows Virtual Desktop includes basic monitoring and management capabilities, which are based on the Azure Monitoring service resulting in additional cost for customers. Citrix Virtual Apps and Desktops adds a range of sophisticated proactive service management and monitoring capabilities, without any additional cost at runtime.

*For a customer scenario with 1,000 users, the built-in monitoring capabilities of Citrix Virtual Apps and Desktops can typically generate **savings of upwards of $10,000 per year**.*

Operational Cost Savings

Innovative management functionalities built into Citrix Virtual Apps and Desktops service extend the value of Microsoft Windows Virtual Desktop. Purpose built tools reduce the operational cost of the environment by increasing the effectiveness of environment administrators and helpdesk staff - reducing time for deployment, image and app lifecycle management, and troubleshooting.

Just as organizations have seen considerable IT benefits by moving to SaaS cloud-based applications, switching to a DaaS service-based cloud management plane brings similar benefits:

Faster, Proactive Troubleshooting

Efficient user incident handling is crucial to keep user satisfaction and employee productivity high. This means 1st and 2nd level support engineers need to be empowered to solve most incidents at the first user contact. This can be achieved by providing relevant information in an easy to consume format, enabling the support employee to solve common issues immediately.

Citrix Virtual Apps and Desktops includes Citrix Director (with HDX Insight), a purpose-built support dashboard. It provides a concise view of relevant information (infrastructure health, end-to-end user session performance and network metrics, historical trends, etc.) which usually would require a multitude of tools. Furthermore, it provides simple controls to interact with a user's session to solve common problems (e.g. stop hung processes) or pinpoint areas that need further investigation. By providing this one-stop-shop for end user support, admin efficiency, user productivity, and Time-to-Resolution for user incidents can be improved.

*Based on Citrix internal research, Citrix Director can save as much as 660 hours per year, for common troubleshooting scenarios. For a customer environment with 1,000 users and based on the assumption that 8 incidents will be filed per user per year, the increased admin effectiveness can generate **savings of $52,800 over one year**.*

Windows and Application Lifecycle Management

Citrix Virtual Apps and Desktops service includes a unique image management technology in Citrix App Layering that enables admins to maintain a single golden copy of each part of the virtual desktop, including the operating system and platform components, as well as each individual application. Upon a change, only the single copy of the affected part needs to be modified instead of multiple instances across each golden image. This approach significantly simplifies ongoing maintenance activities and reduces the time spent on these tedious activities. Furthermore, it limits modifications to well-defined sections of a virtual desktop, which simplifies troubleshooting and reduces the time spend for rollback.

Based on Citrix internal research, Citrix can reduce the time spent on Windows and application lifecycle management, for both planned and unplanned maintenance, by 670 hours per year. These savings are based on a customer environment with 1,000 users with 2 planned changes per month and translates into financial savings of $26,800 per year.

Unified Hybrid Cloud and Workload Management

Citrix Virtual Apps and Desktops service provides unified management for app and desktop virtualization workloads based on-premises, Microsoft Azure and other, physical and hyper-converged platforms. The Citrix Cloud management plane enables unified management of traditional VDI as well as Desktop as a Service (DaaS) workloads.

Without this unified management approach, organizations would need to implement and manage two or more app and desktop virtualization solutions. This means duplication of management efforts, which increases complexity and the total cost of ownership.

Based on Citrix internal research, unified management and the associated reduction in management efforts can translate into savings of $79,600 per year[6], for a customer environment with 1,000 users and a hybrid environment with two sites.

Reduced Management of Infrastructure

When Citrix Virtual Apps and Desktops service is used, the speed with which apps and desktops can be provisioned is increased, because most services are activated rather than installed and configured. Since many of the functions are pure cloud-only, they do not require any additional provisioning. Additionally, using Citrix Virtual Apps and Desktops service in conjunction with a public or private cloud for networking, compute and storage further simplifies the situation for IT. Providers, such as Microsoft Azure, are responsible for the infrastructure security, performance, and availability of those resources.

As a result of cloud hosted services, hardware refresh **costs are eliminated**.

Reduced Management of Environment

Upgrades to the Citrix Cloud management plane, as well as upgrades to individual services, are seamlessly deployed and managed by the Citrix Cloud operations team. Customers always have access to the latest Citrix technology, and avoid the operational overhead, time, and testing necessary to perform manual upgrades. Traditional Citrix deployments often go through extensive test/prod cycles measured in months when new versions are available – this is practically eliminated in a service-based deployment.

Citrix also manages and supports all services on behalf of the customer. This means customers are free from most tedious support tasks such as security patching, version updates, and environment monitoring, resulting in significant cost savings in terms of the number of personnel needed for environment support.

Statistics show that the greatest long-term cost component of computer software often lies with software support: installation, training, maintenance, upgrades, troubleshooting and time lost due to system failures and lack of user training.

Leveraging Citrix Cloud services helps to greatly reduce these typical maintenance and support costs. For a customer environment with 1,000 users, this can translate into cost **savings of $24,000[7] per year**.

Employee Productivity

A properly managed app and desktop virtualization deployment has the potential to increase security, enable flexible work arrangements, and improve employee productivity. The family of Citrix Virtual Apps and Desktops offerings has a long history delivering unique, industry-leading functionality that empowers users to perform their work with higher efficiency and better experience compared to other solutions.

Faster User Logons

Technologies built into Citrix Virtual Apps and Desktops, such as Session Pre-Launch, Session Lingering and Workspace Environment Management (WEM), enable users to access virtualized applications quickly and efficiently. Users in environments which do not leverage these technologies, have an average session launch time of 60 seconds.

In environments where Session Pre-Launch and Lingering are used, the session launch time is reduced to 2 seconds on average. Even without these improvements, customers can leverage Citrix WEM, which still reduces the average session launch times to approximately 15 seconds.

*Based on the assumption that Citrix technologies can reduce the logon time for end users by 30 seconds on average, then a customer with 1,000 users can gain more than 2,100 hours of extra working time per year. Based on the hourly productivity figures from the U.S. Bureau of Labor Statistics outlined earlier and assuming 1% of the extra time is used for productive work, these time savings can **generate additional annual revenue of $1.2 million for a 1,000 user organization**.*

Improved End User Experience

Citrix Virtual Apps and Desktops service includes technologies that have a positive impact on user experience, session/application performance, and application responsiveness. This directly translates into less time users spend waiting for their applications to load or to respond. When the user connects by means of a long-distance network connection, these effects will be even more pronounced. Since it is technically very challenging to determine the exact effect of these individual improvements, especially when considering the unique aspects of each customer environment, the assumption is made that all functions will improve the time employees can spend on productive activities by 1% collectively. (This is a very conservative estimate)

*American workers produced an average of $57.54 worth of goods and services per labor hour, according to a 2010 report by the U.S. Bureau of Labor Statistics (BLS). This means, a 1% increase would translate into an **additional $1.15 output per labor hour.** For an organization with 1,000 active Citrix users, the overall output would increase by approximately $1.1 million per year.*

Additional Benefits

Citrix Virtual Apps and Desktops service also brings many feature and functionality benefits that were not included in our financial analysis:

Reduced Risk of Outages and Faster Recovery

Citrix enables Windows Virtual Desktop customers to reduce the risk of service outages, pro-actively detect issues and decrease the time of recovery, when an outage occurs. This is enabled through built-in functionality such as session probing, multi-site load balancing, and fast rollback of application and configuration changes.

Reduced Risk of Security Breaches

Citrix Virtual Apps and Desktops service includes a variety of functionalities that enable Windows Virtual Desktop customers to reduce the risk of security breaches – including technology like App Protection, session watermarking, session-aware policy control, and session recording.

Citrix Analytics for Security

Citrix Analytics continuously assesses the behavior of Citrix Virtual Apps and Desktops users and Citrix Workspace users and applies actions to protect sensitive corporate information. The aggregation and correlation of data across networks, virtualized applications and desktops, and content collaboration tools enables the generation of valuable insights and more focused actions to address user security threats. Also, machine learning supports highly predictive approaches to identifying malicious user behavior.

Remote PC Access

An included feature of Citrix Virtual Apps and Desktops service that enables organizations to easily allow their employees to access corporate PCs and laptops in a secure manner. The Citrix platform makes this as secure and seamless as possible by assigning these physical machines to users when they login locally. Once users have access to their office PCs, they can access all the applications, data, and resources they need to do their work – with the full power of Citrix HDX user experience technologies. Remote PC Access eliminates the need to introduce and provide other tools to accommodate teleworking. For example, virtual desktops or applications and their associated infrastructure.

Remote PC Access uses the same Citrix Virtual Apps and Desktops components that deliver virtual desktops and applications. As a result, the requirements and process of deploying and configuring Remote PC Access are similar to those required for deploying Citrix Virtual Apps and Desktops for the delivery of virtual resources. This uniformity provides a consistent and unified administrative experience, which reduces management complexity and cost.

To learn more about Citrix cloud services, please visit www.citrix.com

APPENDIX A: Cost savings calculations

1 Comparison of 1,000 CCU working on 48 VMs (D4 v4) with 3-year reserved instance option (proxy for on-prem cost) vs 800 CCU working 180 hours on 38 VMs (D4 v4) with pay-as-you-go option, and 200 CCU working on 10 VMs with 3-year reserved instance option.

2 Comparison of 1,000 CCU working on single user Windows 10 VMs (D2s v3) with 3-year reserved instance option (proxy for on-prem cost) vs 1,000 CCU working on Windows 10 multi-session VMs (D8 v3) with 3-year reserved instance option.

3 Cost for on-prem systems varies widely depending on specifics of the customer implementation. Therefore, Azure compute cost is used as a proxy for average on-prem management cost.

4 Internal testing based on LogoiVSI determined a scalability increase between 20.8% - 43%.

5 Employees are expected to work weekdays between 8am – 6pm. During night and on weekends, only 15% of all systems are powered up, to host unexpected user sessions.

6 Hybrid management cost varies widely depending on features and functions as well as integration options of the solutions. Windows Virtual Desktop management capabilities and the cost resulting from that is used as the proxy for an average on-prem management cost.

7 A typical 1,000 user environment with on-prem CVAD requires approx. 10 infrastructure systems. It is assumed that each system requires 5h of maintenance. On a $40 per hour basis this means savings of $24,000 per year. Cost for on-prem systems varies widely depending on specifics of the customer implementation. Therefore, this calculation is used as a proxy for average on-prem management cost.

APPENDIX B: References

IDC Solution Brief: Assessing the Business Value of VDI in the Public Cloud (Please speak to your sales rep or Citrix Partner to get access to this brief.)

Citrix Cloud Services Total Economics Benefits Assessment Guide

Workspace services
Preparing for the Workspace of the Future
Cloud Workspace Services: Adoption Made Simple
Simplify your cloud strategy by taming cloud sprawl
Full list of Citrix Virtual Apps and Desktops service

Stages of Software Deployment
Citrix AutoScale
Citrix Trust Center

Less infrastructure — better disaster recovery
Microsoft Azure TCO calculator

Business continuity
Citrix Cloud Business Continuity Advantage
Citrix Virtual Apps and Desktops service reference architecture and deployment methods

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