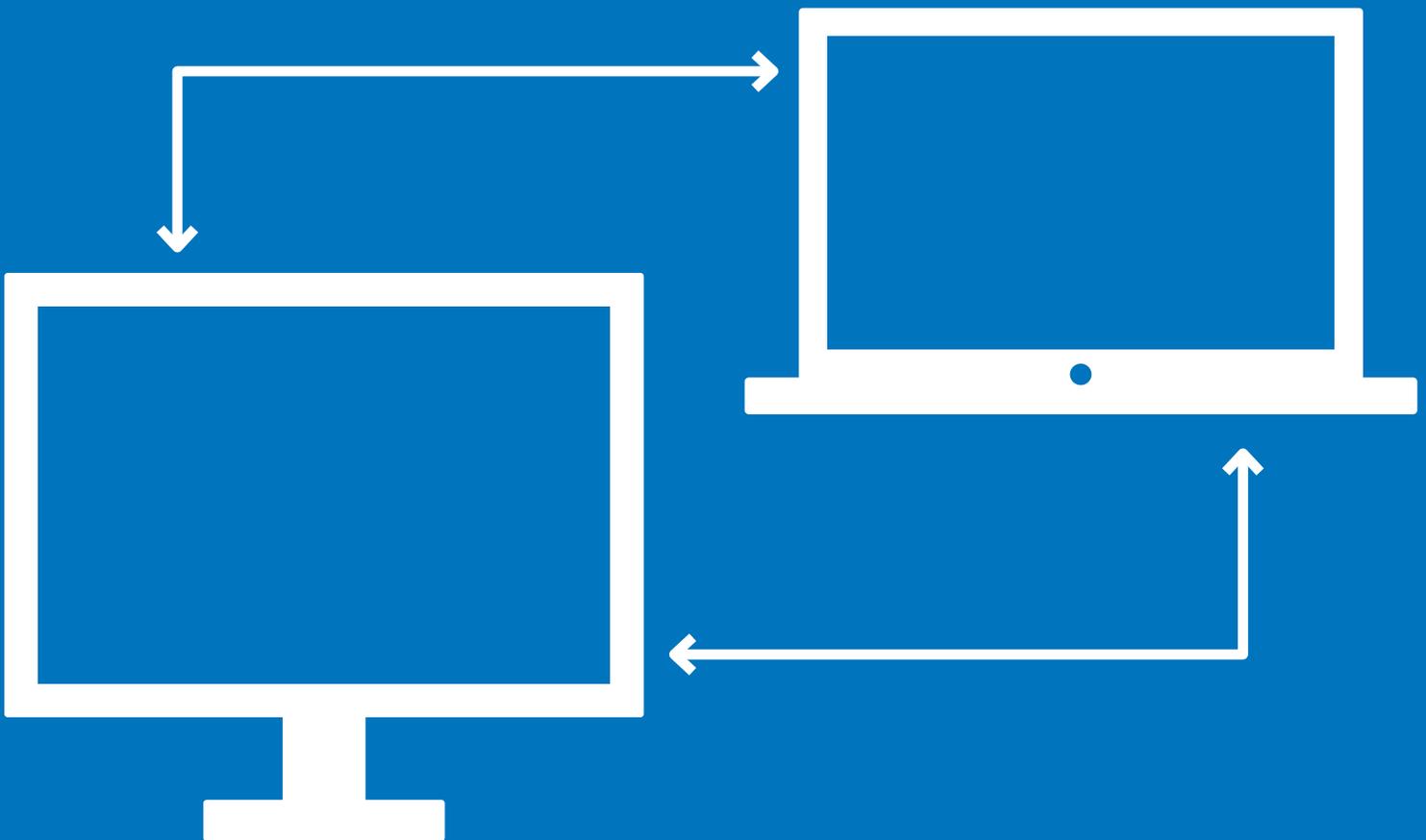


Realizing the Goal of Flexible Work with Application Virtualization and Desktop-as-a-Service

Based on real user reviews of Citrix Virtual Apps and Desktops



ABSTRACT

Organizations are increasingly focused on enabling more flexible work for their employees. Whether driven by necessity or strategy, the move to flexible work is changing the essence of workplace technology. This paper examines the nature of flexible work and its technological underpinnings. In particular, it highlights the critical role of application virtualization and Desktop-as-a-Service (DaaS) in making remote, flexible work a reality. It is based on real user reviews of Citrix Virtual Apps and Desktops on IT Central Station.

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INTRODUCTION

Work is not what it used to be. That's probably a good thing. Today's employees are able to work from a variety of locations other than the main office. In some cases, this is by choice. With the COVID-19 pandemic, however, it's often a requirement. Remote work, mobility and branch locations are driving a need for more flexible work. This is largely a matter of technology. This paper takes a look flexible work from an IT perspective. It explores how application virtualization and Desktop-as-a-Service (DaaS) contribute to making remote work a reality. The content is taken from user reviews of Citrix Virtual Apps and Desktops on IT Central Station.

Flexible Work: Overview and Technology Use Cases

Flexible work means being able to accomplish work tasks regardless of location, network connection or device type. Employees today are working from home, branch locations, hotels or any number of non-traditional settings. They also work in the main office, though with the pandemic, this is not always the norm. The flexible work experience should be seamless and easy, ensuring that people have everything they need instantly to get their jobs done.



From an IT perspective, flexible work translates into a need for users to have “quick, [reliable access](#) to resources at the Corporate Data Center no matter what kind of device they were working from,” explained a Senior Manager of Engineering at Mechanics Bank, a financial services firm with over 1,000 employees. For a Manager of Virtualization Services at a university with over 10,000 employees, the flexibility of applications being [used on any device](#) also figured into the flexible work delivery mode. His Citrix solution “allows the employees to be truly mobile in their remote work environments,” as he put it. He added, “They don’t have to worry about running back to their physical homes to get on a laptop. They can use their phones if they need to. They can just be connected at all times.”

For the CIO at West Suffolk NHS Foundation Trust, a healthcare company with over 1,000 employees, “The solution also provides the flexibility of being used on any device. We have a [mixture of Windows PCs](#), Android mobile devices, Apple tablets and other Apple devices. We have Citrix installed on all of those and it allows our users to use these devices for any number of things. They can use it for clinical access, bringing patient data quickly to the clinician.”

The scale of flexible work can be substantial, as an IT Operations Service Delivery Senior Manager at an e-finance company with over 1,000 employees shared. In his case, the IT team is tasked with reducing traffic capacity for more than 13,000 [remote end-users](#) who are working on Oracle E-Business Suite with about 1,600 concurrent remote users working simultaneously all over Egypt. He said, “We use this solution to solve issues related to bandwidth when Oracle forms are used remotely.”

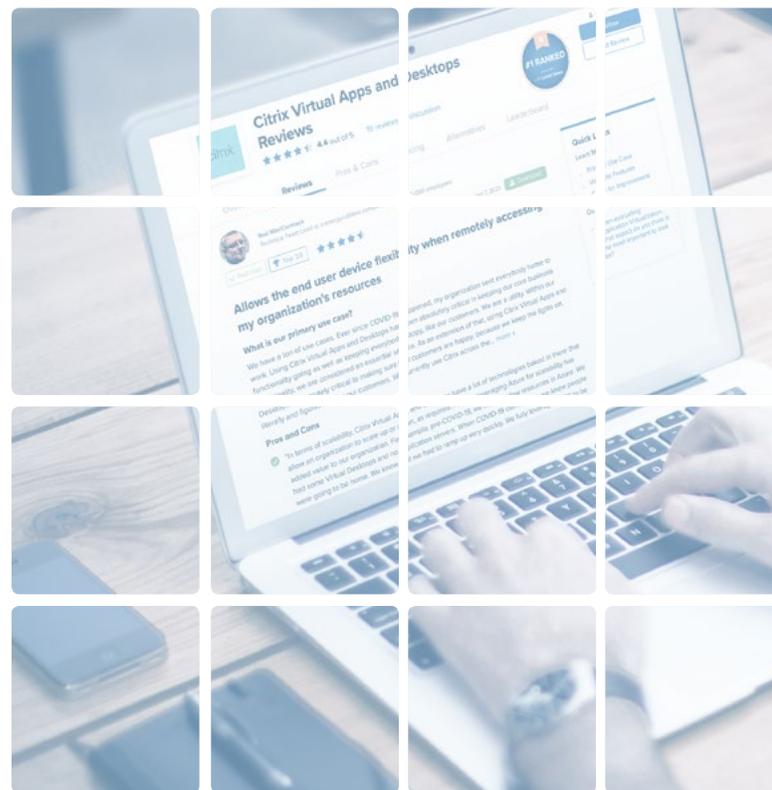
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... allows the employees to be truly mobile in their remote work environments.

A Project Leader at a tech services company with more than 50 employees offered another enterprise application use case. He said, “We use this system for our [virtual applications](#). We have an ordering system, a CRM system, an email system and more. In fact, it is used for anything that is suitable for a virtual app. Some special programs, like AutoCAD, need to be run locally, but these are the exceptions.”

How it Works: Virtualizing the Digital Workspace

Delivering the flexible work experience involves creating a virtualized digital workspace. In practice, creating an environment that works best for businesses looks different depending on employee needs and expectations. Citrix solutions offer the flexibility to create environments that work the best for each organization's needs. A Managing Director at a tech services company explained, "We use Remote PC Access and Remote Desktop Access. We use the solution for two of our clients. For each, we [virtualized their whole workspace](#), so if they log in from anywhere, they get access to all the applications." Figure 1 shows a simple reference architecture for DaaS and virtual apps in a hybrid cloud environment.



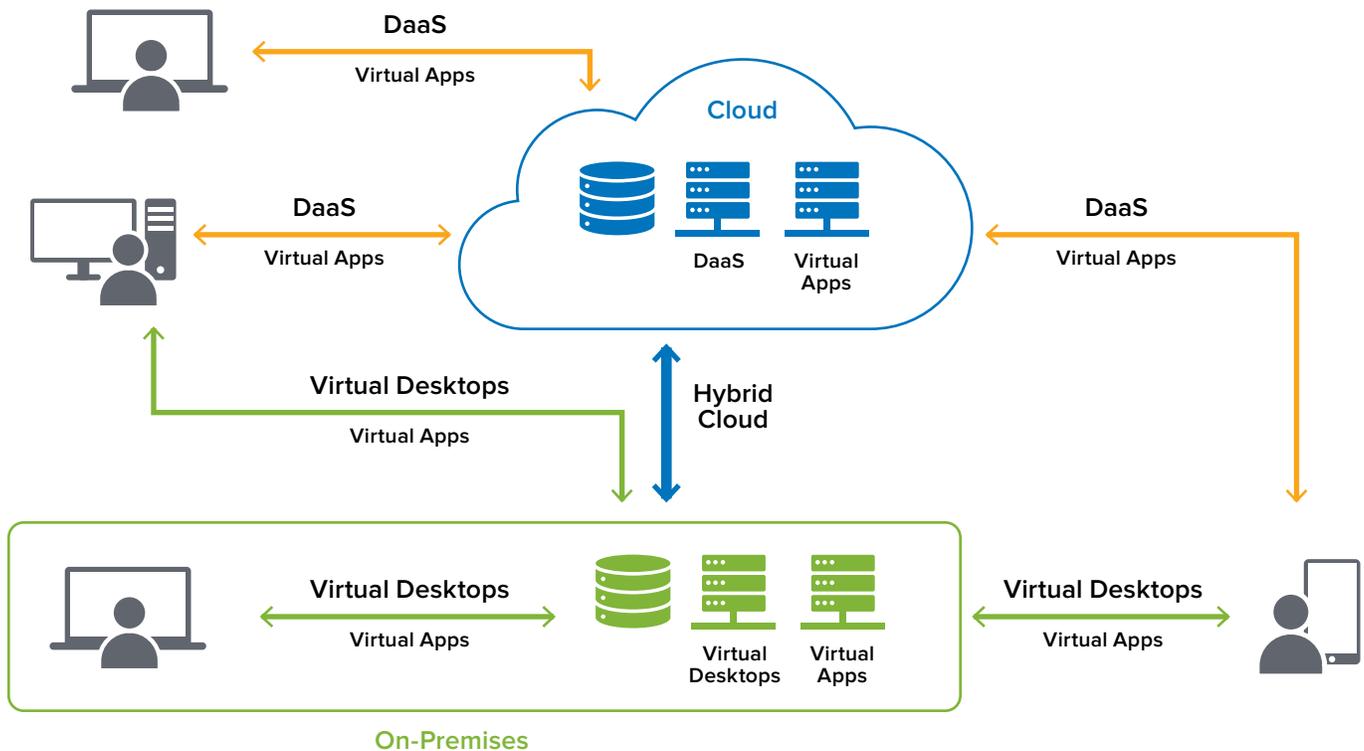


Figure 1 - Flexible work - employees can access cloud and on-premises virtual apps and desktops from any location on any device

Virtualizing clinical offerings for the Schools of Medicine and Dentistry are how the university’s Manager of Virtualization Services creates a digital workspace. He shared that “any time that we can [virtualize a clinical offering](#) and extend that beyond the brick and mortar part of the university, we do that. So that also applies to our Speech and Hearing Sciences. We train all of our future audiologists on the virtual platform. And it goes for Optometry.” The university runs a network they call Internet2. He added, “We give the folks who support Internet2 the tools, [virtualized](#) through our Citrix environment, so that they can work from home and support that in a secured manner.”

A Director of System Integration at a computer software company with over 10,000 employees contrasted the virtualized digital workspace with

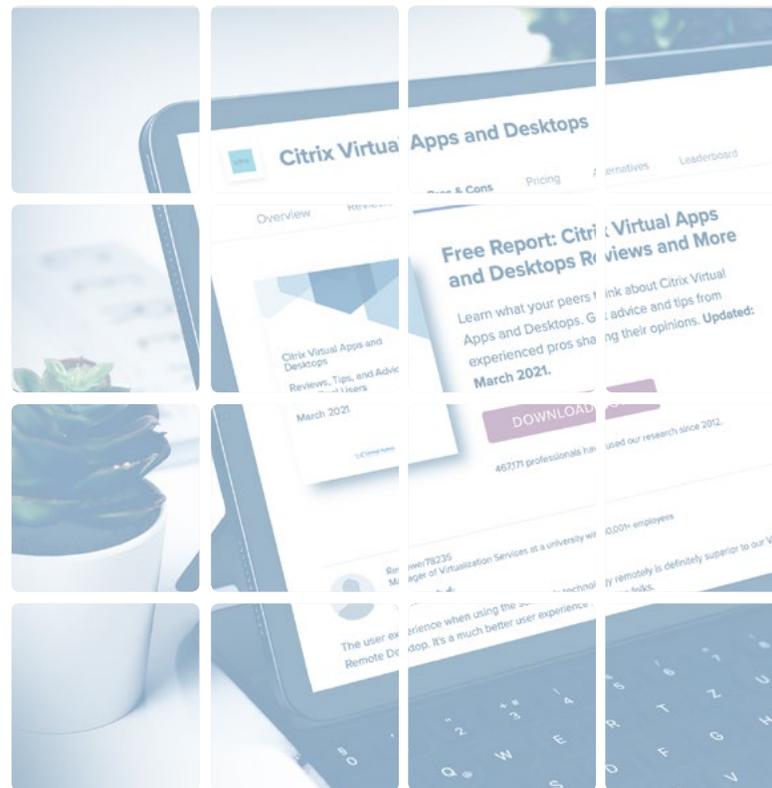
his organization’s previous approach. He said, “We used to have to secure the servers. It is [all virtualized](#) [now]. One administrator can build the environment from scratch and in a very short period of time. It’s not complex now.”

“**Citrix provides everything in one integrated platform-even the lowest licensing version.**”

A Citrix Engineer at a legal firm with over 1,000 employees echoed this sentiment. He said, “Citrix provides everything in one integrated platform-even the lowest licensing version. It depends on your needs. But if you have the Premium Edition, it provides absolutely every tool you could need to [virtualize and deploy](#).”

Qualities of Flexible Work

Flexible work is a worthy goal in and of itself, but ideally it should also deliver other business-facing benefits. According to IT Central Station members, flexible work, as enabled by application and desktop virtualization, should enable increased agility and productivity. The CIO at West Suffolk NHS put the issue in perspective. He said, “One of the lessons I have learned from using this solution is the fact that we have been [able to be agile](#) and respond to the needs of the organization through the use of the product. That has been a very good side of things.”



“We have tried VPN solutions and Microsoft Remote Desktop, but none have [provided the agility](#), robustness and stability that we have needed to give our end users when it comes to doing their core functions,” said a Technical Team Lead at an energy/utilities company with over 1,000 employees. The legal firm’s Citrix Engineer concurred, stating, “Another aspect is that the solution has resulted in IT efficiencies because we can [be pretty agile](#), quickly reverting changes and quickly implementing new changes. It provides a lot of flexibility for us.”

In terms of employee productivity, Mechanics Bank’s Senior Manager of Engineering remarked, “It has allowed us to provide network/application resources to anyone anywhere, no matter what kind of device the end user had, we were usually able to find a compatible Citrix Workspace app. That gave our user base flexibility to be anywhere and [still be productive](#).” For the utilities Technical Team Lead, “the stability that the Citrix Virtual

Apps and Desktops has given people to be able to [keep up their productivity](#) and mitigate their downtime” was imperative.

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... we have been able to be agile and respond to the needs of the organization through the use of the product.

The IT Operations Service Delivery Senior Manager at e-finance offered a further example of productivity, saying, “It increased the number of users and reduced traffic and data connection cost in addition to [increased user productivity](#). This solution has improved user productivity all over Egypt serving the government financial system.” In his case, the bandwidth used by the applications was also dramatically reduced from 60K to 8K per user. He added, “This reduction in bandwidth had reduced the connection cost for the whole project.”

“Using the service within Citrix Cloud really gives us the ability to [not worry about the infrastructure](#) components, because it is a software as a service methodology,” said the utilities Technical Team Lead. He added, “Citrix really worries about what those updates look like and ensures that the uptime is as high as possible. This allows my team to focus on the high value items, which is the end user, end user security and user experience.”

Security/Secure Access

Flexible work invariably stresses security controls. People are often accessing sensitive digital assets from outside the regular network. They may not be using company-issued devices, either. The drive for flexible work can inadvertently increase risk exposure. A viable application and desktop virtualization solution therefore needs to embody strong security features and enable effective countermeasures such as secure access.

For example, ITG Instituto Tecnológico de Galicia, a financial services firm with more than 5,000 employees, supports Zero Trust as a [security](#)

[strategy](#). Citrix has made this possible. According to their Manager of IT/Telecommunications, “Even with the simplest Citrix deployment, you have all its features available without additional products so you can provide safe access to your apps and infrastructure.” Figure 2 shows how the Zero Trust access model works.

“**We’ve built a strategic relationship with Citrix and we use a lot of their products for everything that we do.**”

“My organization [takes security very seriously](#),” said the CIO at West Suffolk NHS. “We very much take that Zero Trust position and ensure that we provide the necessary policies and controls to protect our organization, but not to the point where we impact our agility or flexibility in terms of supporting people who genuinely have a need.” To balance these requirements, as he said, “We’ve built a strategic relationship with Citrix and we use a lot of their products for everything that we do. I would rate the Citrix stack highly as

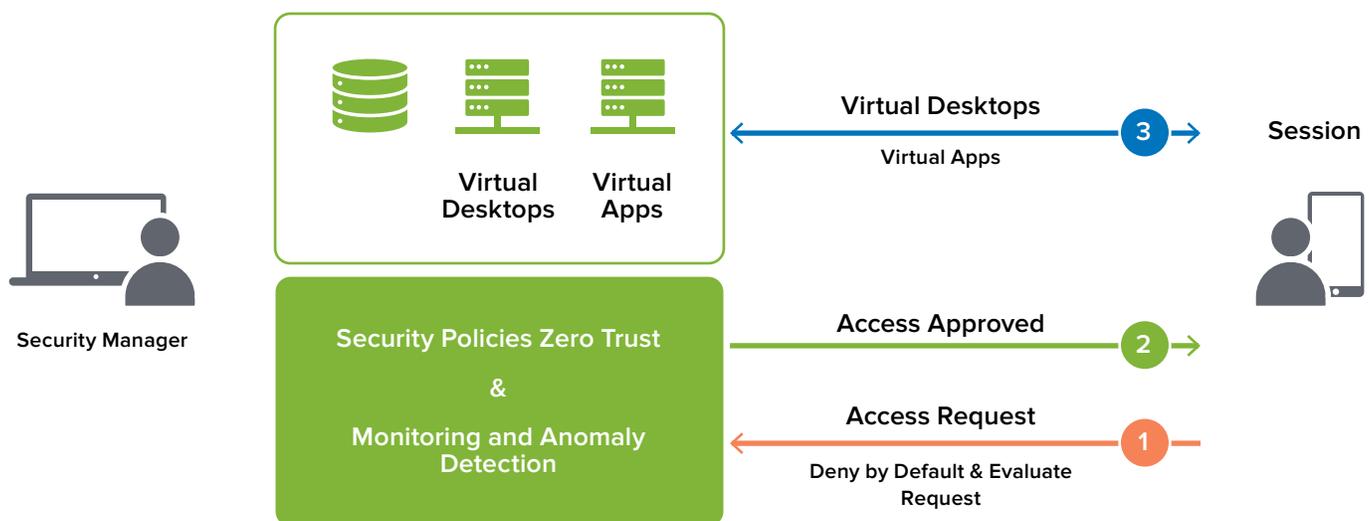


Figure 2 - Zero trust access control model applied to virtual desktops and virtual apps

an end-to-end solution for implementing Zero Trust principles.”

The utilities Technical Team Lead said, “Citrix Virtual Apps and Desktops, its analytics and [security policies](#) will allow us to quickly identify any anomalies in an automated type of fashion using AI, which will allow the technology to act upon those anomalies without any human intervention. I think that’s key.”

DaaS

Flexible work and remote access are pillars of success with the growing distributed workforce. The Manager of IT/Telecommunications at ITG revealed that his organization’s main focus for [Citrix Virtual Apps](#) and Desktops is remote access, mobility and speed of deployment. He said, “Our most important use case is remote access.” Delivering resources remotely now has become that much easier with Desktop-as-a-Service (DaaS).

DaaS enables high levels of flexibility and agility by delivering desktops from the cloud, with Citrix managing them. As a Technical Team Lead at a utilities company explained, “Citrix [manages the entire bulk](#) of the infrastructure components of our Citrix Virtual Apps and Desktops farm. There is no maintenance whatsoever; they’re evergreen. They get updated all the time. We basically set it and forget it. Because Citrix Cloud supports any kind of operating system out there, all we really need is an agent running on each of the endpoints, then that’s it.”

Even for that, as he noted, “not much staff at all was required. Citrix Consulting services did everything else. They did the solution design and the implementation itself. They did the additional training with additional individuals, so it was an easy implementation from my organization’s perspective. There was not much overhead at all.”

Scalability

A flexible work solution has to be able to scale. Unpredictable demand is the essence of flexible work, after all. As it happens, many of the IT Central Station members who shared their experiences with Citrix have seen big jumps in user levels since the start of the COVID-19 pandemic. For instance, as the CIO at West Suffolk NHS observed, “We’re happy with the [scalability](#). We were able to increase a 200-user solution to a 1,000-user solution simply by buying an upgrade to the license.”



The scalability is good because, once you’ve set it up with the correct architecture, you can just add servers, it’s very easy.

The software company’s Director of System Integration also spoke to this capability, saying, “[Scalability](#) is not an issue. You can scale up to any number. There’s only the requirement of adding the infrastructure and building that horizontally. You’ll need to set up the different components horizontally. For example, if we have a 10,000 user base, then we can probably have 10 master servers. If the user base is around 40,000, then we can double the master servers so that they can take up the load.”

“The [scalability](#) is good because, once you’ve set it up with the correct architecture, you can just add servers,” said a Managing Director at a tech services company. He then offered that “it’s very easy. You can’t clone it because there’s something with the SID that makes it difficult to clone. But with the latest version, you have that ability where you provision a server according to a template. It’s very good.”

CONCLUSION

Flexible work is becoming the norm in many industries. IT is responsible for providing the tools that will make it happen. Flexible work should ideally add to agility and employee productivity. This means virtualizing the digital workspace so remote workers can access their applications and desktops from any location on any device. Solutions for application virtualization and DaaS can realize this objective. To work, though, the solutions must enable the transition to the cloud, which aligns with prevailing strategies for hybrid cloud architectures. Robust DaaS features are essential, as are security and scalability. When solutions for application virtualization and DaaS meet these criteria, they provide the basis for flexible work.

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