



WHITE PAPER

Desktop as a Service: Delivering the Customer Experience Users Require Without the Up-Front Costs

Sponsored by: VMware

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IDC OPINION

On-demand access to corporate applications and data is no longer a "nice to have" in today's demanding environment – it is an outright necessity. For IT organizations looking to quickly deliver desktops, applications, and data, it is important to determine whether they have the skill set and expertise to rapidly deploy, manage, and scale virtual desktops.

IDC's conversations with high-level administrators and CIOs have revealed a rather jarring lack of understanding about client virtualization implementations. In addition, many of these organizations have only basic desktop management skills to begin with, making the transition to virtual desktops that much harder. Moving desktop management and virtual desktops to the cloud can help IT organizations avoid large capital outlays and failed virtual desktop infrastructure (VDI) implementations. Other benefits of going with a cloud service provider for virtual desktops include:

- On-demand workspace – full desktops or just apps
- The ability to try before you buy
- Scale by user or by group
- Fast time to value

When enterprises consider a desktop-as-a-service (DaaS) offering, they must also consider how much control and integration with existing processes that provider can give them. Smaller organizations prefer to let the DaaS provider control and manage everything; however, larger organizations need greater control over their desktops. Many DaaS providers that cater to enterprises allow the enterprises to retain control over their own images and applications. And some service providers even give customers the flexibility of a hybrid cloud. Customers can leverage solutions that enterprises use, such as VMware Horizon 6 and Horizon DaaS, to manage both on- and off-premises deployments using a single solution. IDC has found that many enterprises prefer the hybrid model because many of them have already made investments in internal IT, but they also want an on-demand infrastructure for:

- Worldwide coverage
- Branch offices
- Seasonal demand
- Onboarding employees, especially from mergers and acquisitions

SITUATION OVERVIEW

The consumerization of IT is creating more demanding end users, increasing security issues, and reducing IT's ability to govern users. For most IT organizations, the consumerization of IT has become a governance nightmare as managing desktop PCs has been a long-standing uphill battle, with many IT administrators relying on manual processes and disparate endpoint management solutions for provisioning, configuring, securing, and maintaining client devices. Furthermore, traditional desktop management tools and processes often require business users to hand over their devices to IT for undetermined and often extended periods of time. As a result, the amount of end-user downtime and loss of productivity can significantly multiply in scenarios where there is limited or no onsite IT staff, and thus equipment must be shipped to and from the IT department located in the corporate home office. This approach to endpoint management is becoming increasingly inefficient, especially as globalization is resulting in organizations becoming ever more dispersed.

A distinct advantage of client virtualization is that it enables IT organizations to centralize business user desktops in the core datacenter where the IT staff is located. As a result, IT staff can more efficiently provision new client devices, centralize desktop management, and provide endpoint security – even for systems residing outside the corporate office. What's more, virtual desktops and applications can allow IT organizations to employ increased continuity across system settings and policies. This is largely due to the fact that in a virtual desktop delivery model, system configuration attributes are typically far less reliant on the underlying hardware. As a result, VDI can also aid IT organizations in streamlining and reducing their inventory of system images to a few gold images or perhaps a single image.

Client virtualization enables IT administrators to provide a more consistent and seamless desktop experience to the rapidly expanding population of business users who seek to utilize multiple device types in order to conduct business transactions. For example, in most VDI implementations, business users can access the same desktop instance as well as securely access corporate data and applications anytime and anywhere through one set of policies and log-ins, regardless of the hardware or operating system.

In addition, with the rapid rise of mobile devices and new form factors, delivering a great user experience can be difficult. Many client virtualization solutions include what IDC refers to as mobile experience virtualization (MXV), which tackles the user experience problem of accessing applications that were built for the keyboard/mouse paradigm with touch-first devices. MXV virtualizes the user interface (UI) so that desktop applications appear to be or interact like they are native mobile applications. Another property of MXV is optimizing the stream for low-bandwidth usage as many mobile devices are still on 3G networks or may need to be accessed from emerging countries that may not have a high-bandwidth network. MXV can be applied to either VDI or virtual user session (VUS) environments and can be achieved through several different means, such as using a protocol or an SDK. However, one of the value propositions of MXV besides the better user experience is the ability to transform an existing desktop application into a mobile application without a major rewrite or much programming.

What Is WaaS?

The total cost to deploy client virtualization is coming down rapidly with simplified software solutions and converged infrastructure. Yet deploying client virtualization on-premises still requires staff with existing expertise or hiring professional services and purchasing new hardware. IT organizations can move desktop management to the cloud to avoid large capital outlays, stalled deployments, and failed implementations.

Workspace as a service (WaaS) – a term coined by IDC – is made up of two categories: DaaS and desktop applications as a service (DAaaS). DaaS is the (private or public) cloud delivery of a virtual desktop to an end user. This can be achieved by remotely accessing a centralized virtual desktop (aka VDI) or a VUS. DAaaS is the (private or public) cloud delivery of a desktop application, usually a native Windows application. This can be achieved using either VUS technology or application virtualization technology. It is recommended that user-state virtualization technology, while not required, be implemented to maintain consistency for end users across devices and technologies.

Hybrid Model

WaaS does not mean that it has to be deployed in a public cloud. Nor does it mean that organizations need to compromise on their management solutions. Solutions that can manage WaaS deployments on- and off-premises exist today. With a hybrid model, the desktops, applications, and data can be located in one location, and then new workloads can be deployed in another location. Only regulatory concerns need to be adhered to, which many management vendors have already baked into their solutions.

Why WaaS?

WaaS eliminates the painful discussion with the CFO to get approval for large capital outlays and changes the conversation from capex to opex. Yes, budget conversations still need to occur and internal ROI models should be created, as they would in any new technology initiative. And WaaS greatly reduces capital risk.

The general cloud computing environment can be delivered in layers (SaaS, PaaS, or IaaS) that give businesses varying degrees of control over the different layers while offering abstraction of the underlying layers; WaaS can be delivered in a similar manner with the hardware, VDI software, operating systems, and applications all outsourced to the service providers. However, for organizations that are looking to avoid a large capital outlay to deploy a VDI implementation but want to maintain control over the management of the desktops and/or applications, that option will still be available. In addition, because WaaS providers are experts in this field dedicated to optimizing user experience, organizations do not need to worry about VDI stall. And because WaaS is a cloud service, most service providers will provide the ability to scale up or down by user or even by group.

IDC has found that companies deploy WaaS to deal with the following issues:

- Lack of up-front capital
- Lack of available internal expertise
- Geographic expansion
- Influx of seasonal workers
- Mergers and acquisitions

Hybrid DaaS with VMware

VMware Horizon DaaS, built on the vCloud Hybrid Service, enables companies to deliver virtual workspaces to their end users – including full Windows Client desktops, shared desktops, and applications – as a monthly subscription service. VMware Horizon DaaS was built from the ground up to deliver workspaces as a cloud service. Because Horizon DaaS is from VMware, customers can leverage the same tools that they have always used on-premises for VMware Horizon View for their DaaS deployments as well. This means that customers can spin up desktops not only when needed but also where needed using a single management tool. VMware Horizon DaaS delivers the reliability, security, and performance that IT expects with VMware business essential support and a seamless experience for end users leveraging the VMware Horizon View Client, regardless of where the workspace is provisioned, in the cloud or on-premises.

With VMware Horizon DaaS, customers get:

- **A "no compromise," fully customizable desktop experience.** Users can have their own virtual desktop customizable to their application and look and feel needs, just like their physical desktop or laptop,
- **Enterprise integration.** VMware technology, which provides tenants with their own virtual local area network (VLAN), is designed to make it easy for IT to integrate cloud-hosted desktops into its own corporate environment, leveraging corporate Microsoft Active Directory and corporate application and file services. This is achieved without requiring domain trust between the corporate datacenter and VMware.
- **Simplified management.** IT can easily manage desktop images, virtual machines, user assignments, applications, and multiple desktop models (i.e., 1:1 persistent virtual desktops and shared, non-persistent desktops) from a single console. Optionally, IT can manage its cloud-hosted desktops with existing enterprise tools.
- **Integrated security.** With built-in security capabilities such as secure point-to-point network connectivity, dedicated compute, and network isolation, IT can have the confidence that its corporate data and applications are secure.
- **Enterprise-class service.** With VMware Horizon DaaS, customers gain access to the proven expertise of specialists who know how to run cloud-hosted desktops at scale. Customers can offload the support and management of the underlying infrastructure and receive best-in-class service-level agreements (SLAs), service, and support.

VMware Horizon 6

VMware Horizon 6 is a family of desktop and application virtualization solutions designed to deliver Windows and online services from any cloud. With Horizon 6, VMware extends the power of virtualization – from datacenters to devices – to deliver desktop and application virtualization with great user experience, closed-loop manageability, and hybrid cloud flexibility.

VMware Horizon 6 is available in three editions: View Standard, Advanced, and Enterprise (see Figure 1). All three editions include all components needed for an end-to-end virtual desktop deployment:

- **Horizon View Standard Edition.** Simple, powerful VDI with a great user experience
- **Horizon Advanced Edition.** Cost-effective delivery of desktops and applications through a unified workspace
- **Horizon Enterprise Edition.** Desktop and application delivery with closed-loop management and automation

FIGURE 1

VMware Horizon 6 Editions

		Horizon View	Horizon Advanced	Horizon Enterprise
Management	Cloud Automation			
	Design & automate workflows (vCO + Desktop Plugin)			•
	Operations Management			
	Operations Dashboard - Health Monitoring & Perf Analytics (V4V)			•
	Capacity Management - Planning & Optimization (V4V)			•
Infrastructure	Storage			
	Virtual Storage (vSAN Desktop)		•	•
	Application			
	Application Catalog – XA, RDSH, SaaS, ThinApp		•	•
	Hosted Apps (RDSH)		•	•
	Packaged Apps (ThinApp)	•	•	•
	Desktop Infrastructure			
	Image Management for Physical Desktops (Mirage + Fusion Pro)		•	•
Image Management for Virtual Desktops (Mirage for View)		•	•	
Virtual Desktop Infrastructure (View)	•	•	•	
Cloud Infrastructure (vSphere Desktop & vCenter Desktop)	•	•	•	

Source: VMware, 2014

FUTURE OUTLOOK

IDC forecasts the virtual client computing (VCC) market will grow from \$3.1 billion in 2014 to \$4.7 billion in 2018, representing a five-year CAGR of 10.7%. The hosted portion of the VCC market, or what IDC refers to as WaaS, will grow from \$466 million in 2014 to \$1.6 billion in 2018, representing a five-year CAGR of 42.5%. Meanwhile, the on-premises VCC market will grow from \$2.6 billion in 2014 to only \$3 billion in 2018, representing a five-year CAGR of 3.7%.

The overall market is clearly being driven by the hosted marketplace as customers are overcoming their initial fears of cloud hosted desktops and desktop applications and making real investments with WaaS vendors.

CHALLENGES/OPPORTUNITIES

Business and Environment Challenges

The technology landscape remains fiercely competitive. VMware, like any technology leader, consistently monitors the market, listens to customers, and dedicates resources to research and development to ensure it is offering superior technology that presents itself as most valuable to its clients.

Software licensing and delivery still rely heavily on the individual desktop model. Not all products have an option that integrates with the WaaS, SaaS, or DaaS market models; many products that do are more costly to purchase using a virtual system. This challenge is expected to self-correct over the next few years as mobile and remote computing becomes an increasingly powerful factor in business software design.

Implementation Challenges

During interviews with CIOs, CTOs, and individual IT contributors, IDC has found scant knowledge about the WaaS model and its fundamental technologies. This dearth of understanding will require up-front resources to train team members to use and understand VMware Horizon DaaS.

In regard to mobile computing and connection with company resources, knowledge workers are accustomed to doing what they want, whenever they want. This attitude frequently includes a willingness to defy company policy. Depending on corporate culture, it may be a training and education challenge to rein in team members to work within a more restrictive connection environment.

WaaS relies on connectivity with off-premises datacenters, which are highly secure but centrally located. Companies with remote workers or locations in developing nations may experience data bottlenecks related to lower-quality communications between where the work is being done and the central datacenters, even if the datacenter is located in the same country.

Business Environment Opportunities

The demand for WaaS rises in direct proportion to the demand for flexible workspace, a demand that is currently in aggressive adolescence. VMware is already a leader in this space, which will benefit all organizations adopting its solution.

Software development, licensing, and delivery for WaaS have yet to mature into a fully developed set of protocols. Organizations weighing in at this time will be in a position to help meet the needs the applications must address.

Implementation Opportunities

If the buzz about obtaining improved productivity from flexible remote computing workspaces continues to be supported by industry performance, organizations adopting VDI and implementing WaaS can assuredly gain competitive advantage from greater end-user productivity.

VMware Horizon DaaS supports better remote worker connectivity for adopting organizations. In the process, it offers opportunities to hire qualified knowledge workers without geographic constraints. Workforces will have greater business perspectives and, in the workflow, will broaden the knowledge base.

ESSENTIAL GUIDANCE

Customers looking to provide desktops and desktop applications to any device, anywhere should consider a hosted service, even customers that have already made the investment internally. Customers looking to service providers should keep in mind the following considerations:

- **Security.** From identity management to VPNs to physical security, customers need to be aware of how secure the service provider is and what steps the service provider is taking to secure its infrastructure in order to keep the customer's data secure.
- **SLAs.** SLAs for the cloud can vary widely. But for a desktop workload, having high availability is even more important than it is for many other workloads deployed in the cloud. Customers should also look at networking and data SLAs. High-quality service providers will be up front with their SLA terms and will not try to hide them in the small print of contracts.
- **Flexible management of operating systems and applications.** Smaller organizations will want a fully outsourced model where everything is managed, from the hardware to the applications. Larger organizations have spent years creating policies and procedures that they are comfortable with. It is important for a service provider to be flexible with regard to the customer's needs.
- **Other services (email, collaboration, Active Directory, MEAM, etc.).** A workspace starts with a desktop. But in today's demanding environment, having a suite of solutions from a single provider and its partners can greatly simplify the life of IT to allow it to focus on higher-level business strategies.

About IDC

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