Reduce Management Overhead by Transforming VDI, DaaS and App Management with the VMware Horizon Control Plane

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Table of contents

## Remote workforce demands are increasing complexity

As organizations have shifted to new models of supporting work from anywhere, new challenges have emerged in addition to some familiar ones.

Although many IT admins over the years have turned to virtual desktop infrastructure (VDI), desktop as a service (DaaS) and published apps to solve desktop and app management issues, there is still considerable room for resource and user-experience optimization. As more people continue to work remotely, administration of virtual desktops and apps, operating system images and user entitlements—infrastructure, in general—can become more cumbersome with homegrown tools. Managing a dozen users might not be difficult, but responsibility for hundreds or thousands of users and desktops across multiple clusters, clouds and physical locations can be daunting, even more so as the numbers increase.

Why?

First, many organizations maintain a multiple of vendors, products and solutions that are not all mutually compatible, and all or most require human intervention.

This issue is compounded by the usual enterprise requirements for different workloads and privilege levels, whether by department, job function or other criteria. It is also complicated by the requirements of specific applications as well as the need to deploy, scale and manage virtual desktops and apps on those desktops. Different cloud models, such as on-premises (or private), public and hybrid clouds, and multi-clouds, can add yet another layer of complexity.

On-Premises	Hybrid Cloud Deployment	Pure Cloud
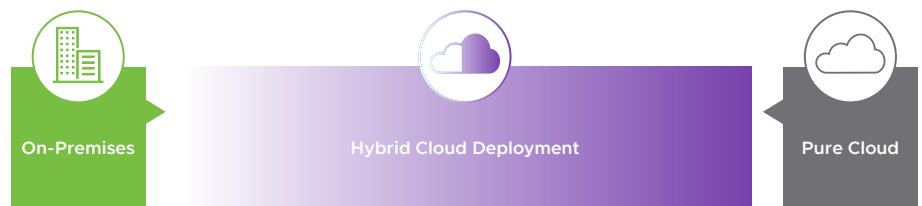
Figure 1: Hybrid clouds span the continuum from on-premises to "pure" or cloud-only implementations. Multi-clouds can include multiple instances of private and public clouds.

Second, for those who do not want to implement a cloud-only solution right away, the path forward is not always easy or straightforward, even as public cloud deployments increase. In these situations, there can be issues such as app performance, security and others.

Efficiently deploy, manage and monitor virtual desktops and apps across Horizon environments—on-premises and in the cloud—from a single console with the Horizon Control Plane.

Vendor limitations based on requirements

Lack of clarity about current and near-future infrastructure solutions is partly due to the structural limitations of some of the largest vendors. For instance, most of the largest suppliers of cloud services fail to support businesses or institutions that rely on existing physical, on-premises infrastructure. This lack of hybrid support applies to desktops and apps as well as to the building blocks of the supporting infrastructure, such as server pods and other technology. For enterprises that have a major investment in physical infrastructure, cloud-only solutions do not support existing on-premises installations—as hybrid cloud solutions do—or provide a clear or easy path to a full cloud implementation. For those that, like many universities and research institutions, need to continue to leverage existing investments even as they transition to newer models, these vendors do not offer a clear or viable transition. This hurdle is also the case for government agencies and others who have special security needs.

Does this sound familiar?

User needs

When considering architecture and administration, it is important to remember why IT exists in the first place: to support users who, in turn, make it possible for the organization to fulfill its mission.

Users need access to their VMware Horizon® (or partner VDI) desktops and apps, whether located on-premises or in a cloud, whether the cloud is private, public, multi or hybrid. Users also need easy access to the apps they rely on, regardless of their current location. Ideally, users should be able to access their virtual desktops and apps from a single URL.

IT, of course, needs to manage user entitlements and make sure that users get the apps and access they need safely and without delays or cumbersome authentication requirements—in other words, an excellent yet secure user experience.

Administrator needs

From an IT administrator's point of view, managing a large corporate environment can be a daunting task, even at the best of times. The need to provision, configure, manage and monitor desktops across pools, pods and clouds can become increasingly complicated as demand grows and infrastructure is built out. Lack of compatibility between technology solutions and administrative tools makes it harder to track, troubleshoot, and gain insight into ongoing processes.

Additional complexity also makes it harder to manage user authentication and entitlement and to reduce technical problems that impact the user experience, such as network latency and inefficient routing schemes, both of which can make response time unacceptably slow.

Complexity of infrastructure management increases as the number of virtual desktops and apps grow in an organization, making it harder for IT to manage VDI environments in a dynamic manner.

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Enterprise needs

While IT keeps everything running, some of the main considerations at the enterprise level include business continuity, high availability and disaster recovery, as well as the other use cases shown in Figure 2.

On-Premises	Business Continuity/ Burst	HA/DR	Data Center Extension	App Co-Location	Pure Cloud
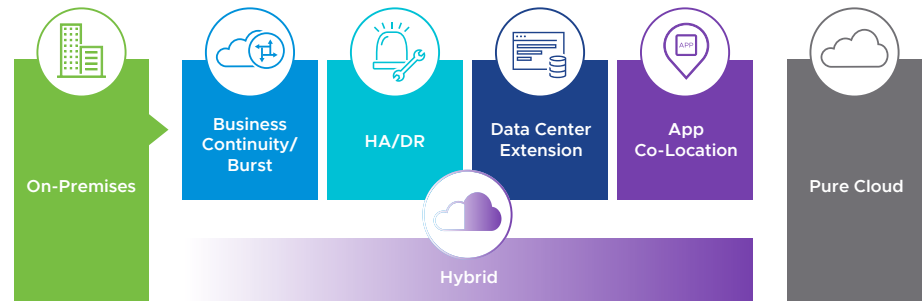
Hybrid

Figure 2: Hybrid cloud solutions span a wide range of use cases.

Security

In an age where attacks on tools and infrastructure are certain, IT and enterprise security need to focus on containment, mitigation and prevention. In this context, the protection strategies provided by VMware Anywhere Workspace solutions, such as Horizon, are especially useful.

Some government agencies and enterprises need to keep sensitive data on completely separate networks from the public internet and keep all their equipment on-premises, regardless of how it is configured. This is an effective strategy against electronic intrusion, but it is not practical nor cost-effective for most businesses, and it is not completely effective against insider threats.

For most commercial enterprises, a hybrid approach that combines on-premises and cloud-hosted Horizon infrastructure with SaaS-based administration makes more sense.

Cost containment

Costs always need to be considered. Infrastructure costs usually grow exponentially if infrastructure growth is unchecked. High costs can also be a result of the additional management costs required per VDI pod.

The easiest way to reduce CapEx is to leverage existing infrastructure, both physical and virtual, where feasible. Solutions that do not take this into account often end up being expensive. Reductions in OpEx can be achieved by streamlining the actual and virtual organization of the enterprise, using the most advanced tools to achieve efficiencies in IT management.

Some costs can be measured in time spent and services consumed. Although it is more difficult to assign specific metrics to time saved and stress avoided, the value of intangibles such as these is important to consider.
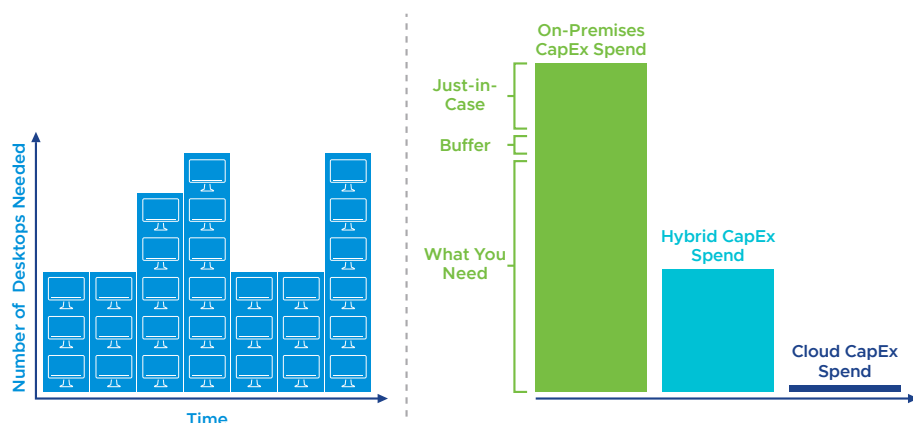

Figure 3: Reduce upfront CapEx with a hybrid cloud approach.

VMware Horizon Control Plane Services

VMware designed Horizon Control Plane Services to meet challenges that have existed since the introduction of cloud technology. These challenges have become more pressing with the prevalence of remote work and the need for hybrid solutions for organizations that own their own physical infrastructure. Horizon Control Plane Services gives administrators the power to perform many functions across the entire enterprise infrastructure, including clouds, pods, applications and desktops.

You can use Horizon Control Plane Services to manage Horizon 8 on-premises, Horizon 8 in the public cloud, and Horizon Cloud environments. The Horizon Cloud next-gen platform, based on a hybrid DaaS architecture, also supports Horizon Control Plane Services. With Horizon Cloud next-gen, many Horizon infrastructure components are moved into the Horizon Control Plane as services. Combined with a thin-edge architecture, IT operational costs are further reduced while increasing scalability.

Organizations that need or want to maintain an on-premises Horizon deployment can benefit from a hybrid cloud solution. In these situations, Horizon Control Plane Services add the advantages of cloud-native management services without requiring redeployment, reducing costs as well as disruption.

Organizations who use virtual desktops and apps from companies that support cloud-first solutions can benefit from the ability of Horizon Control Plane Services to manage virtual desktops and apps in hybrid and multi-cloud environments.

Some organizations have existing VDI implementations that can operate only in the cloud without the ability to support on-premises or hybrid capabilities. For such cases, VMware Horizon can add substantial value by managing on-premises infrastructure as well as virtual desktops in hybrid and multi-cloud configurations.

VMware Horizon Control Plane Services assists in making a coherent transition to hybrid cloud–based solutions. The multi-tenant, cloud-scale architecture enables IT to choose where virtual desktops and applications reside and to simplify traditional management, setup and routine administrative tasks.
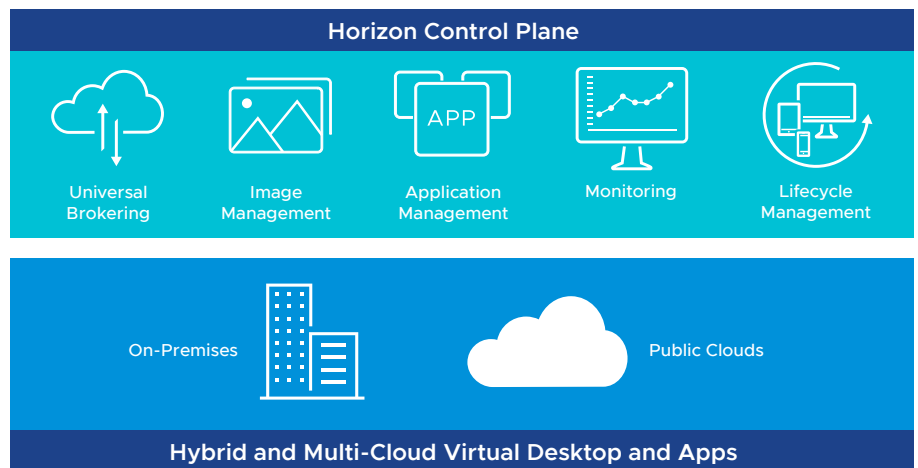
Figure 4: Access a set of management services available in the Horizon Control Plane to efficiently deploy, manage and scale virtual desktops and apps across all Horizon environments, on-premises and in the cloud.

Universal brokering

The Universal Broker enables administrators to entitle end users to virtual desktop and application assignments that span multiple sites. Because it is aware of geographical locality and pod topology and connectivity, the Universal Broker maximizes resource matching and redirecting requests to available pods. Automated brokering across pods routes users to their virtual workspaces according to rules set up by IT, such as location and performance requirements. IT can also set up a single broker URL where end users can access virtual desktops and apps instead of looking in multiple locations.
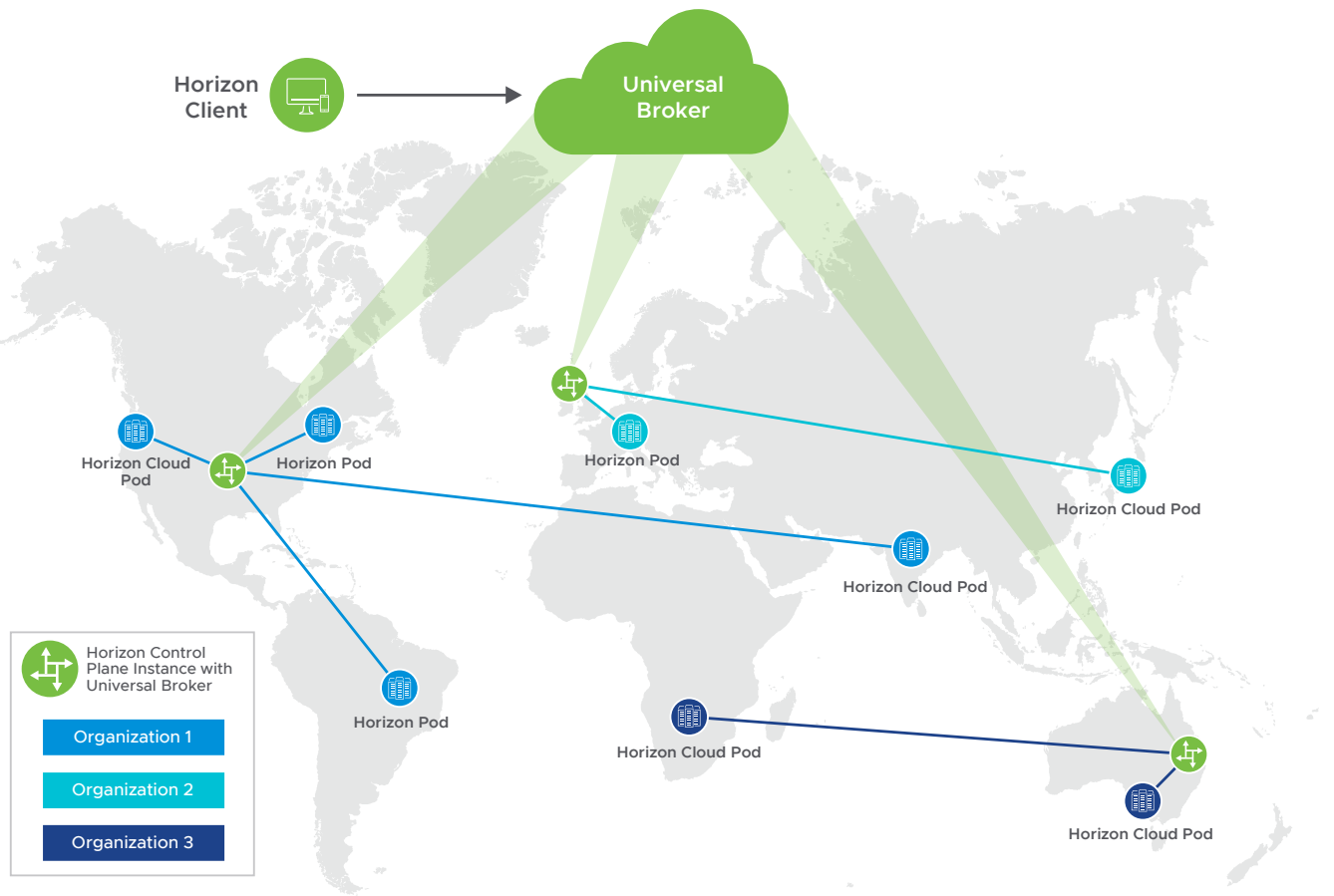
Figure 5: Universal Broker provides unified access to virtual desktop and application assignments across hybrid and multi-cloud deployments.

The Universal Broker separates end-user authentication traffic from protocol traffic, eliminating problems that can arise with hybrid or multi-cloud deployments. Placing unified access gateways near the workloads shortens the path between desktops and applications to improve performance.

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Image management

Administrators often have to manage dozens of images for different pods, functions and clouds. Maintaining multiple operating system images with their respective patches and proper version control—not a trivial task under the best conditions—often becomes more complicated as the number of users and applications increases.

The Horizon Image Management Service (IMS) automates the management of images used by desktop assignments, such as desktop pools and farms, across cloud-connected Horizon pods. IT can build a single, reusable image catalog instead of managing fleets of duplicate objects.

IMS also reduces image maintenance time and costs by managing and distributing desktop images centrally across Horizon environments, both on-premises and in the cloud, with markers to help orchestrate image updates and rollbacks for individual user groups and desktop pools. In addition to tracking image changes, markers help automate image replication to multiple locations.

Application management

VMware App Volumes™ simplifies application delivery by packaging applications once and deploying them across Horizon environments, on-premises and in the cloud. It reduces image count and maintenance requirements by managing applications separately from operating system images.

App Volumes virtualizes and delivers applications in real time as users log in and out of their desktops, which reduces the storage costs associated with traditional app installation, removes the challenges of uninstallation, and simplifies lifecycle management for both VDI and published apps.

As a part of App Volumes, Apps on Demand and Published Apps on Demand can help IT simplify app delivery to VDI and published app hosts even further. Apps on Demand delivers apps to users in VDI sessions as soon as they open the app. Published Apps on Demand delivers apps to Remote Desktop Session Hosts (RDS) or published app hosts, including in Horizon, Citrix and Microsoft environments, as users open the app. This on-demand functionality decreases infrastructure costs and maintenance by removing under-utilized infrastructure.

Monitoring

The Cloud Monitoring Service (CMS) helps IT stay on top of capacity, usage and health within and across a fleet of cloud-connected pods, regardless of the underlying Horizon infrastructure components or deployment environments. All this vital information is exposed through dashboards and reports for all cloud-connected pods in the Horizon Universal Console.
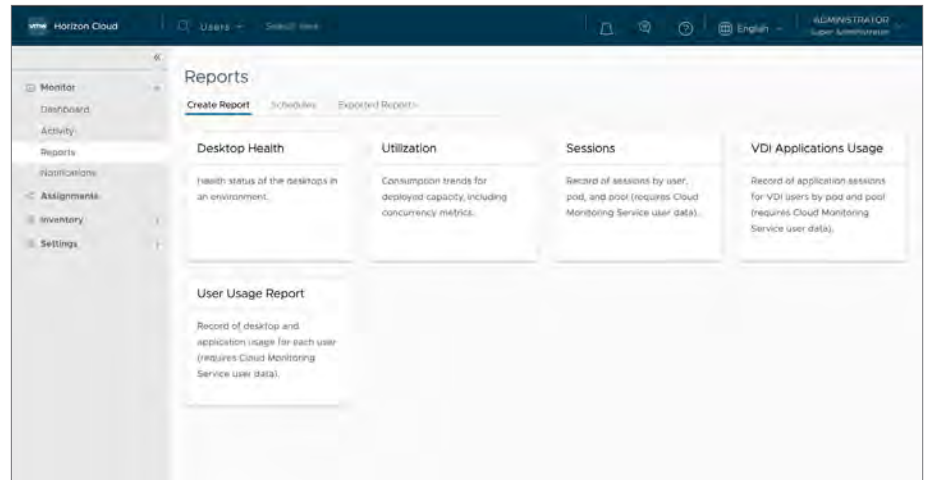
Figure 6: Create custom reports in the Horizon Universal Console.

Each CMS component runs as a cloud service. Some components run in Horizon pods to gather information required for Help Desk troubleshooting functionality. The Horizon Agent collects metrics locally from users' virtual machines and IT can choose to report those metrics back to the Horizon Control Plane.

VMware Horizon Availability Monitoring is a cloud-based health check service that determines whether a Horizon environment is available and responsive. Using these health checks, IT can detect and isolate issues causing poor performance in desktops and apps. These insights enable IT to shift their focus to being proactive rather than reactive to user complaints about poor environment performance, thereby reducing the volume of help desk tickets.

VMware Workspace ONE® Intelligence for Horizon delivers end-to-end visibility across physical and virtual endpoints to monitor environment health, performance and utilization. You can leverage out-of-the-box, prebuilt Horizon dashboards as well as create custom dashboards and reports. Furthermore, with Workspace ONE Experience Analytics for Horizon, organizations can gain insights with digital employee experience management (DEEM). These insights on employees' experiences span all Horizon virtual desktop and app environments, and include metrics such as login duration time, network/protocol performance, and VM performance. Each metric is measured and gives a score to each user across the organization related to the Horizon user experience, so that IT can take action to provide a better user experience across virtual desktops and apps.

Horizon lifecycle management

Initial onboarding and configuration can also be simplified in a Horizon environment with Desktop-as-a-Service using VMware Horizon Cloud™ on Microsoft Azure. You can install, upgrade and scale Horizon infrastructure automatically in Horizon Cloud on Microsoft Azure, Azure VMware Solution, Google Cloud VMware Engine, and Oracle Cloud VMware Solution. Removing manual steps helps IT eliminate potential leaks in process, which can also impact security in a virtual desktop and app environment.

Cloud-based administration console

Horizon deployments and the Horizon Control Plane Services are managed through the Horizon Universal Console. The Horizon Universal Console is a single user interface that helps to reduce downtime with real-time health monitoring of user sessions, virtual desktops and apps across Horizon environments, both on-premises and in the cloud. It also leverages the Help Desk service to troubleshoot user sessions with detailed metrics and can help improve performance by capturing metrics, such as CPU, memory, disk performance and latency, to provide insights across locations and different types of deployments. Historical graphs for sessions allow IT admins to view performance, capacity, usage and health historically. Because it is cloud-based, the Horizon Universal Console also stays up to date.
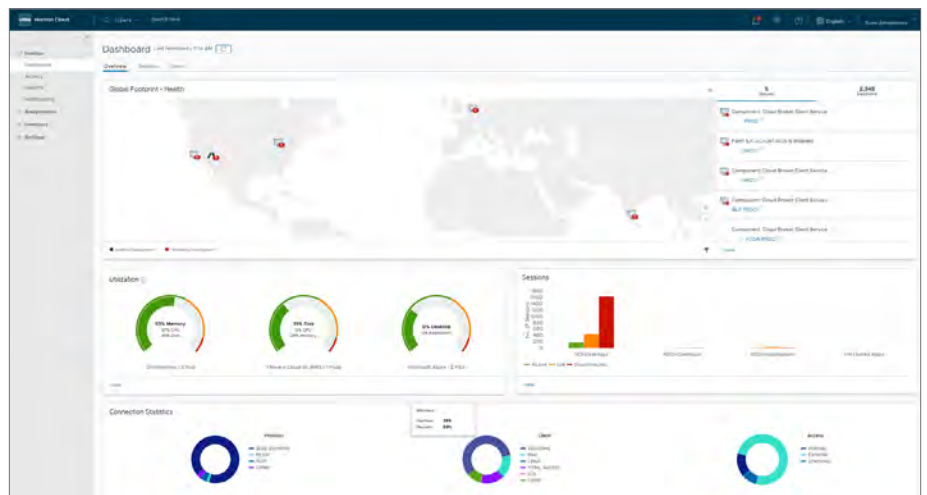

Figure 7: Dashboard view in the Horizon Universal Console.

Learn more

See for yourself how Horizon Control Plane Services can enhance your organization's virtual desktop and app experiences in our series of four demonstrations**.**

Test-drive the technical capabilities of VMware Horizon and the Horizon Control Plane with a guided tutorial in the VMware Horizon Hands-on Lab.

Get started

Try out Horizon in your own environment with the 60-Day Trial of Horizon Universal Subscription.

Conclusion

In spite of increasing momentum toward adoption of cloud-only solutions, many organizations need to maintain on-premises deployments, whether for security, budgetary or other reasons, as they explore the benefits of cloud-based administration and partial-cloud solutions. For stability and continuity, organizations also need proven, reliable ways to adopt more cloud-based technology over time.

Cloud-only solutions, however, cannot administer on-premises or hybrid environments. VMware Horizon Control Plane Services, on the other hand, integrates and manages on-premises, hybrid and multi-cloud implementations across clouds and pods in Horizon virtual desktop and app environments. Customers can achieve cost savings by taking advantage of the Horizon Control Plane, with services that are always up to date, such as a powerful administration console, image management, application management and universal brokering. Cost savings can be further realized by leveraging the Horizon Cloud next-gen platform, as more infrastructure components become VMware-managed services across the Horizon Control Plane.

As organizations plan their VDI, DaaS, and app environments to support work-from-anywhere workforces, desktop and app workloads do not necessarily have to move to the public cloud to take advantage of hybridity. Horizon Control Plane Services can help organizations in their journey toward optimizing desktop and app workloads, no matter where they are hosted. The path toward simplified VDI, DaaS, and app management begins with the Horizon Control Plane, which streamlines administration of large VDI, DaaS and app deployments and reduces traditional management overhead.

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