XenDesktop Cloud Provisioning with CloudPlatform

Streamline management, improve predictability and increase operational efficiency of your XenDesktop/XenApp environment.
As enterprise adoption of desktop and application virtualization grows, enterprises are looking for ways to streamline the management, resource utilization and efficiency of operating these environments. Many enterprises are adopting private cloud architectures to realize the benefits of increased business continuity, greater agility and flexibility, improved resource utilization and increased speed of deployment for their XenDesktop and XenApp environments.

Citrix® is dramatically changing the way IT delivers applications, desktops and data to the mobile workforce with solutions that transform any Windows application or desktop into a cloud service delivered across any network, to any device. Citrix XenDesktop® and Citrix XenApp® with Citrix CloudPlatform® provide cloud-enabled application and desktop service delivery from any type of private, public or hybrid cloud. This approach allows enterprises to couple cloud computing with application and desktop virtualization in a single platform to realize their combined benefits of resource optimization, infrastructure agility and cost efficiency. XenDesktop and XenApp with CloudPlatform is the only desktop cloud solution to deliver secure mobile access to a complete collection of apps and desktops.

This white paper explores some of the challenges in traditional XenDesktop/XenApp environments, describes the XenDesktop Cloud Provisioning with CloudPlatform solution and explains how it can provide significant operational efficiencies and improved user experience.

**Challenges in traditional XenDesktop/XenApp environments**

Most traditional XenDesktop deployments use leading hypervisors such as Citrix XenServer® or VMware vSphere as a virtualization layer. In small to medium-size deployments, implementation and management are fairly simple. However, as environments scale, hypervisor-based deployments may encounter increased operational complexity and difficulty in scaling on demand to handle unpredictable future needs and provide highly available desktop environments based on user requirements.

**Operational complexity**

Even though XenApp and XenDesktop are higher-level application workloads, they are somewhat unique in that administrators need a fair amount of understanding of the underlying infrastructure, e.g., compute, storage, networking, etc., to architect, implement and manage the deployment. As they grow, these environments place greater demands on administrators, becoming more complex to deploy, manage or efficiently scale.
Unoptimized capacity
When deploying XenDesktop/XenApp, administrators need a good understanding of current and future scalability requirements so they can accurately architect the environment. Anticipation of future needs is necessary as traditional hypervisor-based deployments do not lend themselves to scaling on demand. If actual demand turns out to be lower than the environment was architected to handle, the result may be costly, wasted capacity. On the other hand, if demand is higher than expected, user experience can suffer due to the lack of resources.

Inability to adapt to end-user needs
In traditional desktop and apps environments, administrators are often unable to tune infrastructure service offerings based on user needs or to provide high availability for desktops or apps.

Citrix can mitigate these challenges with XenDesktop Cloud Provisioning with CloudPlatform. The next section describes this solution, its key components and specific scenarios where CloudPlatform can add value in a XenDesktop/XenApp environment.

Why is there a need for cloud provisioning of XenDesktop/XenApp environments?
The benefits of private clouds for enterprise workloads are well established.

In an IDG survey, “Cloud Computing: Key Trends and Future Effects Report, 2013,” respondents mentioned the following key benefits realized from cloud computing:

- 43 percent mentioned enabling business continuity
- 40 percent mentioned greater flexibility and agility
- 39 percent mentioned speed of deployment
- 38 percent mentioned improving customer support
- 37 percent mentioned reducing resource waste

After moving many traditional enterprise IT workloads to private clouds, enterprises are now looking to extend the benefits of private cloud environments to their virtual desktop and app environments.

What is XenDesktop Cloud Provisioning with CloudPlatform?
XenDesktop Cloud Provisioning with CloudPlatform is an integrated desktop cloud provisioning solution that streamlines management, improves predictability and increases operational efficiency of your XenDesktop/ XenApp environment.

The solution provides the ability to seamlessly deploy and provision XenDesktop/ XenApp environments on CloudPlatform-based private or public cloud infrastructures. Enterprise IT organizations can now implement a common service delivery architecture for all applications and desktops, leveraging common policies and tools that simplify deployment and management, increase agility and reduce cost.

Components of XenDesktop Cloud Provisioning with CloudPlatform
This solution provides closer integration between XenDesktop/XenApp and Citrix CloudPlatform.
Citrix XenDesktop
XenDesktop is a complete app and desktop virtualization solution for the mobile workforce. With XenDesktop, IT can mobilize the business while reducing costs by centralizing control and security. Incorporating the full power of XenApp, XenDesktop can deliver full desktops or individual apps to any device. Citrix HDX™ technologies enable XenDesktop to deliver a native touch-enabled look-and-feel optimized for the type of device as well as the type of network.

Citrix XenApp
XenApp, the industry’s leading virtual application solution, delivers Windows apps as secure mobile services. XenApp takes enterprise Windows apps mobile by centralizing mission-critical business apps in the datacenter and delivering secure remote access on any device, anywhere.

Citrix CloudPlatform
CloudPlatform is the industry’s only future-proofed, application-centric cloud solution proven to reliably orchestrate and provision desktop, web and datacenter infrastructure workloads within a single, unified cloud management platform. This turnkey solution is an agile, flexible, efficient and open cloud orchestration and provisioning platform that leverages existing virtualization and hardware investments. CloudPlatform is trusted to power the world’s leading clouds.

How does CloudPlatform add value in a XenDesktop/XenApp environment?
With the CloudPlatform-based desktop cloud provisioning solution, XenApp and XenDesktop customers can realize significant benefits:
• Simplify desktop and app deployments and management
• Optimize capacity and reduce upfront and ongoing costs
• Leverage a common infrastructure management platform for multiple XenDesktop or XenApp deployments
• Improve XenDesktop and XenApp scalability with agile and rapid on- or off-premise deployment
• Enhance app and desktop experience and availability

Here are some specific scenarios where CloudPlatform can provide benefits in XenDesktop/XenApp environments.
Simplify on-demand scaling of desktop infrastructure capacity

In XenDesktop/XenApp environments, CloudPlatform provides an accurate view of usage trends for infrastructure components for any application or service. The desktop administrator can now obtain highly granular information about utilization of the underlying infrastructure, for example, how much compute, memory, networking or GPU is being used for specific desktop catalogs. Based on this information, the desktop administrator can determine which infrastructure components need to be scaled up and by how much.

Scaling hypervisor-based XenApp/XenDesktop environments on demand is usually very complex. These architectures are traditionally monolithic and non-modular, requiring administrators to manually configure compute, storage and network interdependencies. Further, unpredictable capacity requirements for XenDesktop environments may compel administrators to over-provision upfront to avoid making subsequent changes, which may result in wasted capacity.

CloudPlatform facilitates easy scaling of infrastructure by providing a modular desktop cloud architecture. For example, it allows the infrastructure to be modularly structured as hosts, clusters, pods, zones and regions. This approach enables administrators to design and deploy based on current needs and to add infrastructure such as new hosts, clusters and zones on demand. This ensures the environment is neither under-provisioned, which can impact performance, nor over-provisioned.

Streamline operations by separating desktop and infrastructure administration

In hypervisor-based XenDesktop/XenApp environments, changes to desktops are intimately tied to the underlying infrastructure. Desktop administrators must coordinate with infrastructure administrators to deploy or update desktop configurations. This cross-functional coordination can result in long delays before desktop environment is deployed or updated.

In CloudPlatform-based XenDesktop/XenApp implementations, there is a clean separation between the desktop/apps environment and the underlying infrastructure. Infrastructure administrators can monitor infrastructure usage and add compute, storage or networking capacity on as-needed basis. This additional capacity is then made available to the XenDesktop environment seamlessly, with no need for configuration changes to utilize it.

Additionally, CloudPlatform can create multiple resource pools from the underlying infrastructure and make them available as various service offerings. Examples include disk, networking and GPU offerings. In desktop and app environments, different apps with different infrastructure needs can choose from the service offerings exposed to them by the CloudPlatform interface. As an example, a certain pool of desktops may need high-performing SSD disks or GPUs. CloudPlatform can make these available as service offerings and a desktop administrator can use them as needed without having to wait for the infrastructure administrator to change the underlying infrastructure and make these modifications available to the desktop administrator.

Dynamically dedicate resources for XenDesktop/XenApp deployments

A key feature of CloudPlatform is support for multi-tenant deployment of workloads. Consider a large enterprise customer with multiple XenDesktop/XenApp deployments, either to support multiple product versions or to provide dedicated environments for a development group or a business unit.
In traditional hypervisor-based deployments, desktop administrators must create separate desktop environments and require totally isolated resource pools to support them. Also, the resources in these pools are tied to the corresponding XenDesktop/XenApp environments and the administrator cannot move them from an underutilized pool to support a fast-growing environment. As such, the management of resource pools across multiple XenDesktop/XenApp farms can be fairly complex.

With CloudPlatform, the underlying infrastructure is completely abstracted from XenDesktop/XenApp environments. CloudPlatform can support multiple environments, which simply appear as applications sharing the underlying infrastructure. As a result, organizations can run multiple XenDesktop/XenApp deployments on top of CloudPlatform, all utilizing the same underlying infrastructure.

This architecture ensures that the administrator can pool all infrastructure used by various XenDesktop/XenApp deployments. At the same time, the administrator can carve out and dedicate certain resources such as compute or networking for a specific XenApp/XenDesktop environment. Also, based on the growth rate of a certain environment, the infrastructure administrator can move capacity from one resource pool to another.

**Simplify template management across hypervisor clusters**

In hypervisor-based deployments, desktop administrators have to upload images/templates on a per-cluster basis. While this is acceptable for smaller environments, as the deployment expands to include multiple clusters or even multiple sites, the complexity of managing templates increases exponentially. Additionally, any time a template needs to be updated, the infrastructure administrator must copy it to multiple clusters to ensure template consistency across the clusters.

CloudPlatform supports the concept of secondary storage, which is used to store virtual machine (VM) templates. In CloudPlatform-based XenDesktop/XenApp deployments, the infrastructure admin uploads images/templates once per deployment to the CloudPlatform secondary storage. CloudPlatform ensures the availability of templates across the necessary clusters on demand, simplifying the management of templates across multiple clusters. Also, CloudPlatform ensures the templates are available only to clusters where they are needed and avoids mass copying to all clusters, which provides significant storage benefits, as well.

**Maximize efficiency by leveraging storage tiers**

Administrators can leverage the ability of CloudPlatform to provide multi-tiered storage conveniently through disk offerings. Infrastructure administrators can easily make multiple storage tiers available as multiple service offerings. As an example, administrators can create a service offering for local storage that can be used for pooled desktops, create a service offering for SAN storage that can be used for dedicated desktops and create still another service that utilizes SSDs for high-performance desktops. This flexibility simplifies the management of desktop offerings and enhances user experience, as the administrator is now able to make the appropriate desktop environment available based on user needs.
Manage multiple desktop availability zones for disaster recovery or high availability

Many enterprise IT departments are looking to increase availability of their XenDesktop/XenApp environments by deploying them across multiple sites. However, implementing high availability for XenDesktop/XenApp has traditionally been complex and such environments have been fairly difficult to manage. Enterprises can benefit from the automated high-availability feature provided by CloudPlatform.

A key capability of CloudPlatform is deployment of desktops across multiple availability zones. It can also spread the load across clusters, pods and zones. Deploying a XenDesktop/XenApp farm across multiple availability zones with CloudPlatform ensures that user desktops are always available, even in the event of host, storage or even datacenter failures.

Summary

This white paper discussed how to seamlessly move your Citrix XenDesktop/XenApp deployments to the cloud with XenDesktop Cloud Provisioning with CloudPlatform. With this solution, you can streamline management, improve predictability and increase operational efficiency of your XenDesktop/XenApp environment.