Deploying Virtual Apps and Desktops with Citrix Provisioning using Oracle Cloud Infrastructure

Citrix Virtual Apps and Desktops (formerly XenApp and XenDesktop) on Oracle Cloud (also known as Oracle Cloud Infrastructure or OCI) provides greater agility in provisioning applications and desktops. Using Oracle Cloud can supplement resources of on-premises datacenters, allowing IT to satisfy sudden demand and support rapid geo expansion. This document guides you through the process of configuring Citrix Virtual Apps and Desktops using Citrix Provisioning (formerly Citrix Provisioning Service/PVS) with Oracle Cloud.
Introduction

Whether your organization is just beginning to adopt the cloud or has already achieved a cloud first approach, Citrix Cloud meets you where you are in your cloud journey. Citrix cloud services are available to help extend existing on-premises Citrix software deployments, to help create hybrid workspace services, and to provide simple approaches to consuming cloud-native technology. By deploying Citrix software as a service, Citrix cloud services simplify management of Citrix technologies. Unify virtual apps, desktops, data, device management, and networking on any cloud or infrastructure. This integrated approach is the simplest way to securely create and deliver digital workspaces.

This deployment guide also describes Oracle Cloud Infrastructure concepts and components, and basic OCI implementation with Citrix cloud services. The architecture presented here delivers Citrix Virtual Apps and Desktops to users via Citrix cloud services using Citrix Provisioning. It enables a hybrid approach in which organizations can simplify the running of Citrix management services from on-premises to Citrix cloud services and use OCI to deliver cloud based virtual apps and desktop services. In the current release of this solution with OCI, there are some limitations within Citrix Cloud services that need to be considered when reviewing the overall solution. Oracle Cloud Infrastructure, is Oracle’s second generational cloud infrastructure and was built from the ground up to be an Enterprise Cloud, equally capable of running traditional multi-tiered enterprise applications, high-performance workloads, and modern serverless and container-based architectures.

To understand design decisions, this paper describes underlying Oracle Cloud and Citrix components that are required for a deployment and explains the process for deploying Citrix cloud services with OCI using Citrix Provisioning.

The first part of this guide describes the solution architecture. The second part is a “runbook” that gives specific procedures to install and configure a proof of concept Citrix Virtual Apps and Desktops deployment using Citrix Provisioning on Oracle Cloud Infrastructure from Citrix Cloud.

PVS image and VMM VM template creation for XenApp and XenDesktop delivery on Oracle Cloud Infrastructure (OCI) over Citrix Cloud.
<table>
<thead>
<tr>
<th>PVS managed by Citrix Cloud deployment architecture</th>
<th><img src="https://example.com" alt="Diagram" /></th>
</tr>
</thead>
</table>
| PVS over Citrix Cloud requirements               | 1. XenApp and XenDesktop services in Citrix Cloud; OrgID needs to have PVS support in Cloud toggle enabled  
2. Citrix Cloud Connectors located on-premises (OCI)  
3. PVS server located on-premises (OCI); 7.18 or later  
5. The Licensing server located on on-premises (OCI) – the PVS cloud feature license to be retrieved from Citrix Cloud account to be imported to on-premises license server. |
OCI Solution Topology

DHCP/UEFI boot
- Option 066 (Boot Server Host Name)
- Option 067 (Bootfile Name – pvsnbpx64.efi for Gen2 VM)

PVS server (VM) build on OCI

On designated PVS server VM, install latest PVS server (7.18 or later)
Choose PVS **Server** Installation

**DHCP** - The service that runs on another computer

**PXE** – Provisioning Services PXE service on this computer
<table>
<thead>
<tr>
<th>Database Server</th>
<th><img src="image" alt="Database Server" /></th>
</tr>
</thead>
<tbody>
<tr>
<td>Farm – <strong>Create farm</strong></td>
<td><img src="image" alt="Farm" /></td>
</tr>
<tr>
<td>Choose PVS <strong>Console Installation</strong></td>
<td><img src="image" alt="Choose PVS Console Installation" /></td>
</tr>
<tr>
<td>Confirm that Farm and Site are configured successfully</td>
<td><img src="image" alt="Confirm" /></td>
</tr>
</tbody>
</table>

**1. Creating Master VDA**

On SCVMM, create a VM
which will be used as a master image for vDisk and VM Template

VM needs to be joined to **Active Directory Domain** and Citrix VDA to be installed before next steps.

On VM which was just created, install latest PVS (7.18 or later) from Citrix

Choose **Target Device Installation**

On the same VM, open **Imaging Wizard** after PVS has been installed

(2) Set up vDisk
Click Next.

Add PVS Server name or IP then Next.

Choose Create a vDisk then Next.

Add Target device name then Next. This is your master VM host name.
Add **vDisk name** then Next. This will be master vDisk to be streamed when provision is set up and will be listed under vDisk pool.

Choose the correct **Microsoft Volume Licensing** option.

Image entire boot disk

Optimize the hard disk again for Provisioning Services before imaging.
Confirm Summary and click Create.

Continue

Reboot or Shut Down and Set Network Boot.

No to shutdown the VM in order to configure network boot and other boot configuration in Hyper-V manager and SCVMM.

On Hyper-V manager, go to the VM then Settings
Under Firmware, Move up **Network Adapter** to the first line for network boot.


On **SCVMM**, go to the VM, choose **Power On**.

Choose **Connect via Console** under Connect or View.
Confirm the VM was booted via network.

Once the VM is up, the image creation process is automatically started.

After about 10 min, the process will be finished. Click Done.

On VM, go to **Virtual Disk Status** from the tray.
Confirm the VM was booted from **Local Hard Disk**.

On PVS server, vDisk from VM was populated in **vDisk Pool**. Choose Properties.

Under Access mode, choose **Standard image and Cache on device hard disk** as Cache type.

Confirm the change under mode.
Under collection, confirm the line entry of target device name (i.e., VM)

(3) Creating VM Template

On SCVMM, after shutting down the VM, choose Create VM Template.

Name VM Template name then Next.
Choose [None – customization not required] then Next.

Next
Choose the path to save the template in SCVMM.

Next

Create

Confirm the template is being created.
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Confirm the sysprepping is running under the VM.

When completed, confirm under VM Template.

Confirm the line item that VM Template was created and listed.

(4) Creating Machine Catalog
Creating XenDesktop Machine Catalog.

On PVS server, choose **XenDesktop Setup Wizard** from right click on **Site**

Next

Add delivery controller (**Citrix Cloud Connector address**) name.
<table>
<thead>
<tr>
<th>Log in to Citrix Cloud account</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choose the <strong>Host Resources</strong> from Hyper-V.</td>
</tr>
<tr>
<td>Add Password for Host Resources credentials.</td>
</tr>
<tr>
<td>(5) vDisk and VM template for XenDesktop Setup Wizard</td>
</tr>
</tbody>
</table>
Choose the template which was just created.

Choose the vDisk which was just created.

Add new Machine Catalog name. This is going to be used in Delivery Controller for XenApp and XenDesktop machine catalog.
Choose Operating System type.

User Experience. Used random in this test.

(6) Provisioning VDAs
Choose number of virtual machines to be provisioned.
Click the active directory domain name then add scheme of naming convention in machine catalog.

Finish
Confirm the progress of creating virtual machines.

On XAXD cloud studio (DCC), confirm the machine catalog was just created.

On SCVMM, the individual virtual machines are provisioned.

On DDC, create a delivery group.

Choose the machine catalog that was created.
Add users as appropriated. Then Next.

Add applications as appropriated. Then Next

Add **Display name**. Then OK

Click Next
<table>
<thead>
<tr>
<th>Add <strong>Delivery Group</strong> name.</th>
<th><img src="image1.png" alt="Delivery Group screenshot" /></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Confirm Delivery Group in</strong> <strong>DDC</strong></td>
<td><img src="image2.png" alt="DDC screenshot" /></td>
</tr>
<tr>
<td><strong>Confirm machine list (and VMs’ registration status) via View Machines in DDC</strong></td>
<td><img src="image3.png" alt="View Machines screenshot" /></td>
</tr>
<tr>
<td><strong>Access to the external URL. This is to access XenApp and XenDesktop environment on OCI via NetScaler Gateway Service in Citrix Cloud.</strong></td>
<td><img src="image4.png" alt="External URL screenshot" /></td>
</tr>
<tr>
<td><strong>Confirm the newly created delivery group name in Workspace (e.g., CR Windows 10 PVS in this example)</strong></td>
<td><img src="image5.png" alt="Workspace screenshot" /></td>
</tr>
<tr>
<td><strong>Login to desktop by choosing the delivery group. Choose Virtual Desktop Status.</strong></td>
<td><img src="image6.png" alt="Desktop Status screenshot" /></td>
</tr>
</tbody>
</table>
Check the virtual disk status. Confirm **Boot from vDisk** and **Cache type** as **Local hard drive**.

If additional virtual machines are needed in the same machine catalog, follow up and repeat earlier steps from **XenDesktop Start Wizard** in PVS server. Then choose **User an existing catalog** instead of **Create a new catalog**.

Choose **number of virtual machines to create** as needed. Then **Next**.
Choose **Create new accounts**. The Next.

Choose the existing active directory domain. And **account naming scheme** as previously used.

**Finish** to confirm and start the provisioning machine creation.

On **SCVMM**, the additional virtual machines being created and configured.
On **DCC**, the newly created virtual machines are listed.

On **PVS server console**, the newly created virtual machines are listed in machine catalog name under Device Collections.

On **Hyper-V manager**, the newly created virtual machines are shown.

On **DCC**, confirm all virtual machines are registered.

On **SCVMM**, confirm all virtual machines are shown in running and completed with IP Address.
References

https://docs.citrix.com/en-us/provisioning/cloud-connector.html

https://support.citrix.com/article/CTX216312