Citrix Workspace Cloud Apps and Desktop Service with an on-Premises Resource Reference Architecture

Produced by Citrix Solutions Lab

This guide walks you through an example of how to use Citrix Workspace Cloud and local Virtual Desktop Agents to create an on-premises XenDesktop deployment while leveraging the broker in the cloud.

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Section 1: Overview

Citrix Workspace Cloud simplifies the management of virtual applications, desktops, mobile devices, and data sharing with its cloud-based management platform. You can choose whether you put your resources (hypervisors, VDAs, and StoreFront servers, for example) on premises or in a private or public cloud.

This document will examine the creation of an on-premises XenDesktop resource leveraging the broker from the cloud and StoreFront from either the cloud or on premises. You can use either an existing VDA in your environment or create a new VDA. For this document, we used an existing VDA from a current on-premises XenDesktop 7.6 deployment and moved control of the VDA to the cloud as an on-premises resource. This document also covers the configurations of the brokers, Workspace Cloud Connector, VDA, StoreFront, and NetScaler Gateway.

For additional Workspace Cloud information, see www.citrix.com/WorkspaceCloud.

Audience

This document is intended for IT decision makers, architects, and partners who are seeking to expand their existing XenDesktop deployments using Citrix Workspace Cloud.

Disclaimer

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Note: This guide assumes you have a preconfigured NetScaler system to provide external access for use by Citrix Workspace Cloud.

Section 2: Architectural Overview

When building an on-premises XenDesktop resource, you can configure a NetScaler Gateway to provide a dedicated URL for access. A NetScaler Gateway is required for the on-premises resource location, using StoreFront connections on premises.

If StoreFront is hosted in Citrix Workspace Cloud, a separate URL that does not use a NetScaler Gateway is used for connections.
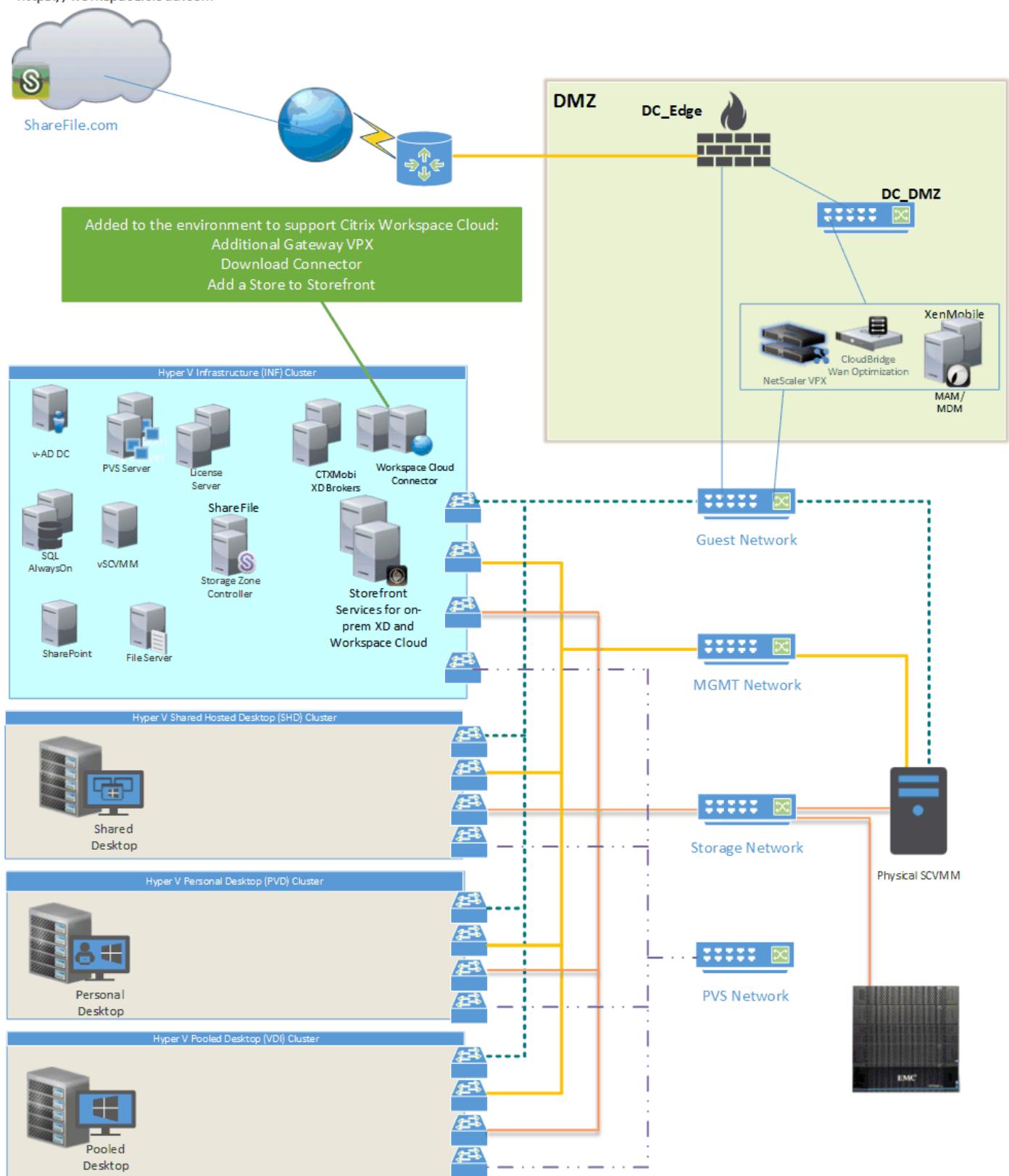
The following diagram shows the environment and connections:
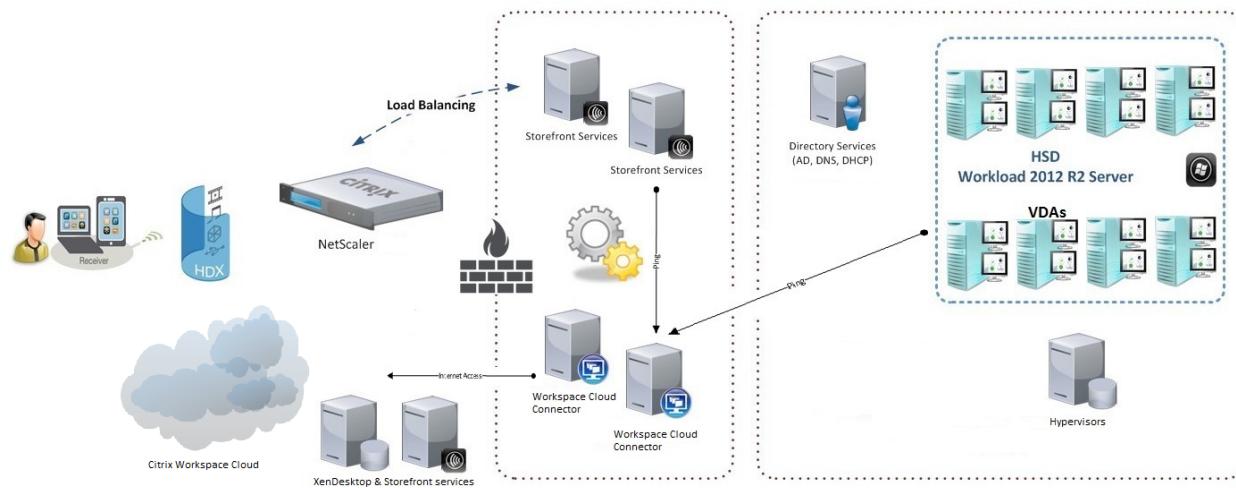
Conceptual Architecture

For this document, Citrix Solutions Lab used an existing deployment of Citrix Workspace Suite that supports about 2,000 XenDesktop users and 1,000 XenMobile users. More information about this environment and how it was built can be found at http://www.citrix.com/go/solutions-lab.html. The following diagram highlights the changes necessary to connect to Workspace Cloud and create the on-premises XenDesktop resource.

https://workspace.cloud.com

ShareFile.com

DMZ

DC_Edge

DC_DMZ

XenMobile

NetScaler VPX

CloudBridge
Wan Optimization

MAM/
MDM

Added to the environment to support Citrix Workspace Cloud:
Additional Gateway VPX
Download Connector
Add a Store to Storefront

Hyper V Infrastructure (INF) Cluster

v-AD DC

PVS Server

License
Server

CTXMobi
XD Brokers

Workspace Cloud
Connector

SQL
AlwaysOn

vSCVMM

ShareFile

Storage Zone
Controller

Storefront
Services for on-
prem XD and
Workspace Cloud

SharePoint

File Server

Guest Network

Hyper V Shared Hosted Desktop (SHD) Cluster

Shared
Desktop

MGMT Network

Hyper V Personal Desktop (PVD) Cluster

Personal
Desktop

Storage Network

Physical SCVMM

Hyper V Pooled Desktop (VDI) Cluster

Pooled
Desktop

PVS Network

EMC

Section 3: Configuration of on-premises XenDesktop resource

Configuration considerations

A typical on-premises configuration consists of one or more XD broker systems. For customers looking to use Citrix Workspace Cloud and have Citrix host the XD broker, consider the following needs:

- All current XD 7.6 broker systems that are on premises need to use the "ListOfDDCs" option for those VDAs to remain on premises. Otherwise, move the VDAs you want to use with Workspace Cloud into a different OU and change the "ListOfDDCs" option. Currently, there is no support for adding both an on-premises XD 7.6 broker and Workspace Cloud Connector system to the "ListOfDDCs" in the same OU.

- You need to configure one or more systems with Internet access that are used to host the Workspace Cloud Connector that gets installed on these systems to host multiple services.

- Workspace Cloud Connector requires Windows Server 2012 R2.

  Port 443 outbound is required to be open and used by the Workspace Cloud Connector system. The Workspace Cloud Connector system will also support the use of IE proxy settings configured for outbound connections. For proxy support, see http://docs.citrix.com/en-us/workspace-cloud/what-is-a-workspace-cloud-connector-/workspace-cloud-connector-technical-details.html

- The Workspace Cloud Connector enables access to:
  - On premises Active Directory and provides Protocol Proxy for all STA\NFuse connectivity
  - Other services such as XenMobile, ShareFile, Networking, Monitoring, and Lifecycle Management, which can be added at a later time

- The Workspace Cloud Connector supports multiple AD forests. Windows 2003 and later are supported for AD forest.

To configure the Workspace Cloud Connector

You first will need to have your Citrix Online credentials available. Learn how to obtain the necessarily credentials at www.citrix.com/WorkspaceCloud.

Note: Information about the first-time user experience will not be covered in this document. For detailed instructions, refer to http://docs.citrix.com/en-us/workspace-cloud/workspace-cloud.html.

To configure the Connector:

From a system with Internet access that you plan to use as your Workspace Cloud Connector system, connect to https://workspace.cloud.com and sign in using your Citrix Online credentials. It is recommended to use Google Chrome.

If you are having trouble signing in, email WorkspaceSupport@citrix.com to confirm your credentials are valid.

You will now see the Citrix Workspace Cloud management console:

Your name and user name should be displayed on the top right.

The navigation menu on the upper left will be used for various functions within Workspace Cloud. This document will only focus on the Apps and Desktops service.
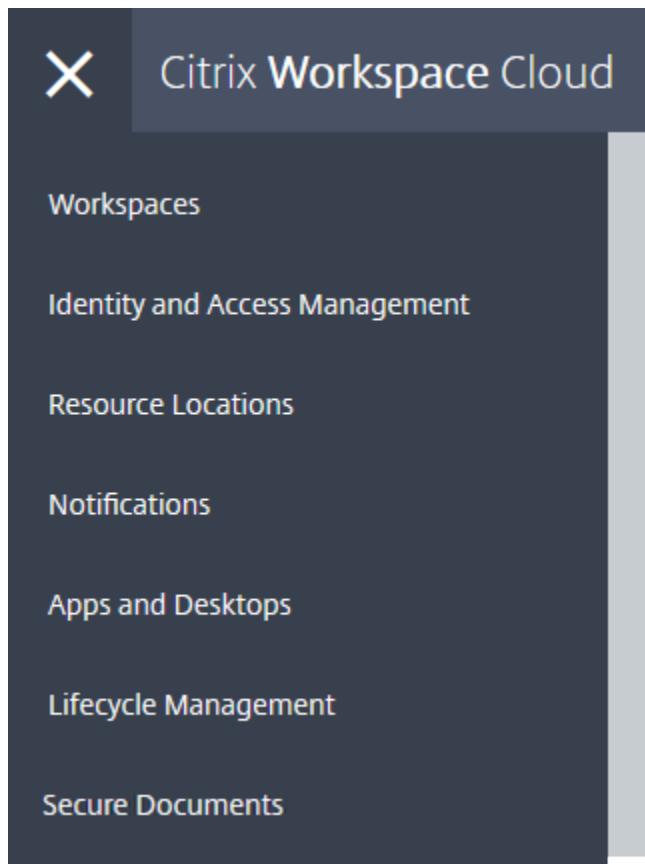
Download and install the Workspace Cloud Connector onto a system with outbound Internet access. This will install the various services and connect to the on-premises AD domain. From the Insights area, select the **View Details** button under Domains.

When prompted during the installation, enter your Citrix Online credentials.
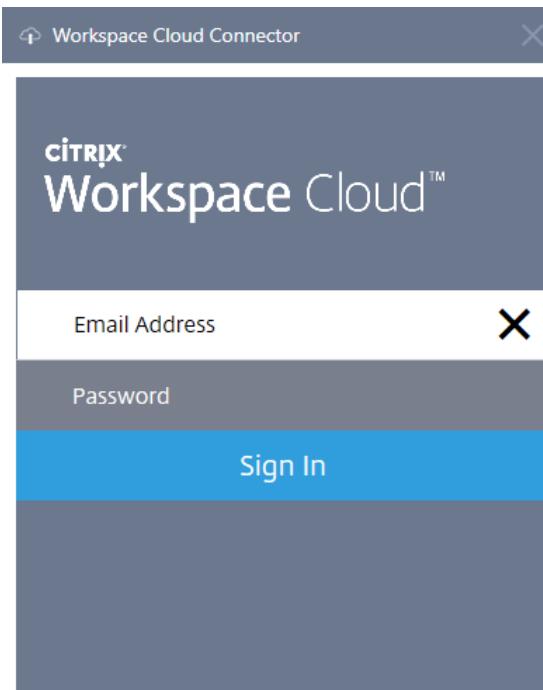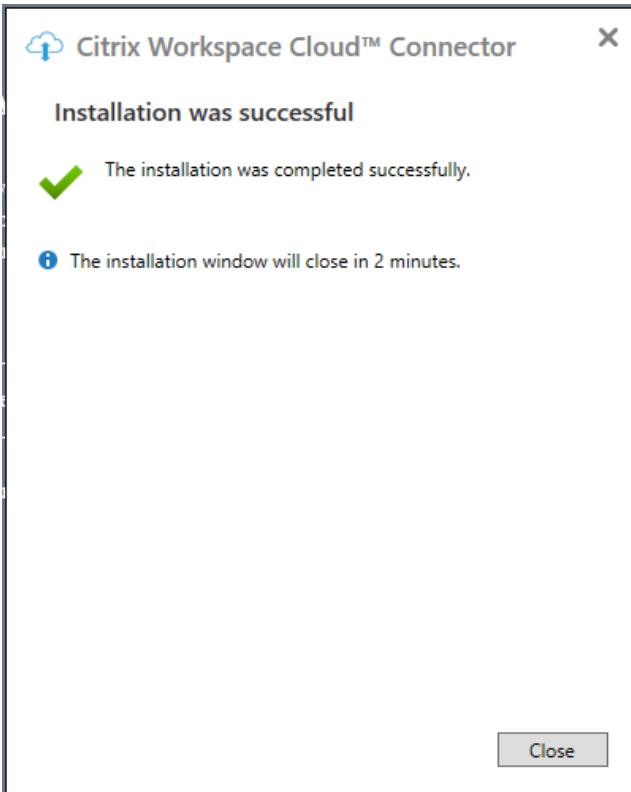
Citrix periodically pushes out Connector updates. Citrix may also push updates for the Workspace Cloud portal page. When these updates occur, the following message will appear:

A new version of Citrix Workspace Cloud is available. You have 15 minutes to finish any tasks. When you're finished, refresh your browser.

OK

After the installation, the AD domain is listed under Identity and Access Management. Ensure the **Use for subscribers** options is also enabled.

Note: It is recommended to have two or more systems configured as high availability for your Workspace Cloud Connector systems. You can create this configuration by downloading and installing an additional agent to another system.

Note:

- The Connectors are stateless.
- The Connector placement needs to be in the same forest as the domain for the VDA systems.
- All logs and alerts are sent back to the Workspace Cloud team at Citrix.

Existing VDA Configuration

You first will need to have your existing VDAs online and domain joined with the XD 7.6 version installed. VDA registration will now proxy through the Workspace Cloud Connector system instead of pointing to a local on-premises XD broker system.

To properly manage which VDAs will be used by either on-premises XD brokers or proxy through the Workspace Cloud Connector system, it's suggested to move specific VDAs into different AD OUs. Then apply the GPO for setting the ListOfDDCs registry entry. The following steps configure the VDA:

1. From existing VDA systems, ensure you can ping the Workspace Cloud Connector system. Also, the Active Directory server you are using must have Citrix Group Policy Management installed.

2. Power-off the VDA systems that will now be managed through Workspace Cloud.

3. Move the VDA systems into the correct AD OU with the GPO applied for the ListOfDDCs that will point to Workspace Cloud.

4. Once machines in an on-premises XenDesktop Delivery Group have been switched over to Workspace Cloud, you will need to remove systems from a Delivery Group or delete the existing Delivery Group. Changing just the Power Management setting to zero of an existing Delivery Group is not sufficient enough, as they will continue to be power-monitored.

5. Power-on the VDA systems that have been moved.

6. Confirm that the ListOfDDCs registry entry of the VDA is configured to use the Workspace Cloud Connector system. There are various ways this configuration can be done. For additional information, see http://support.citrix.com/proddocs/topic/xenapp-xendesktop-75/cds-mng-cntrlr-intro.html.

32-bit:

**KEY_LOCAL_MACHINE\Software\Citrix\VirtualDesktopAgent\ListOfDDCs (REG_SZ)**

This string value takes a space-delimited list of Controllers, which Fully Qualified Domain Name (FQDN)(for example, myedgeserver.mydomain.com) specified.

64-bit:

HKEY_LOCAL_MACHINE\Software\Wow6432\Citrix\VirtualDesktopAgent\ListOfDDCs (REG_SZ)

This string value takes a space-delimited list of Controllers, which Fully Qualified Domain Name (FQDN) (for example, myedgeserver.mydomain.com) is specified.

Note: In some cases, it may be required to change or even remove/reinstall the VDA from the master image in order to correctly obtain the ListOfDDCs settings. This can be accomplished from Add\Remove Programs.
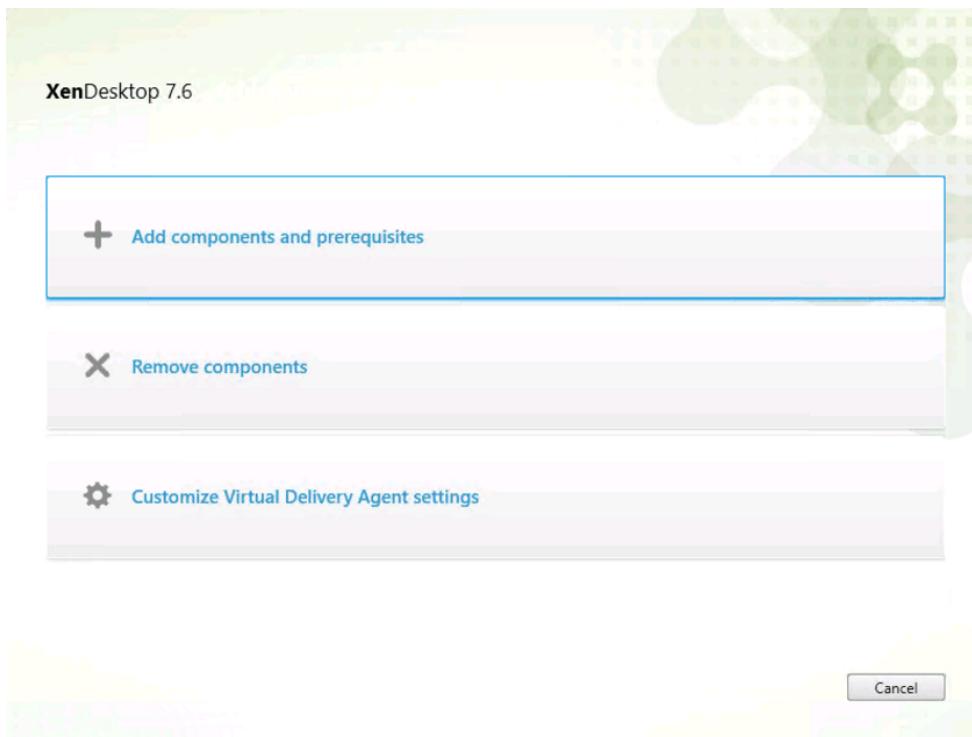
Select **Do it later** on the Delivery Controller Configuration screen.
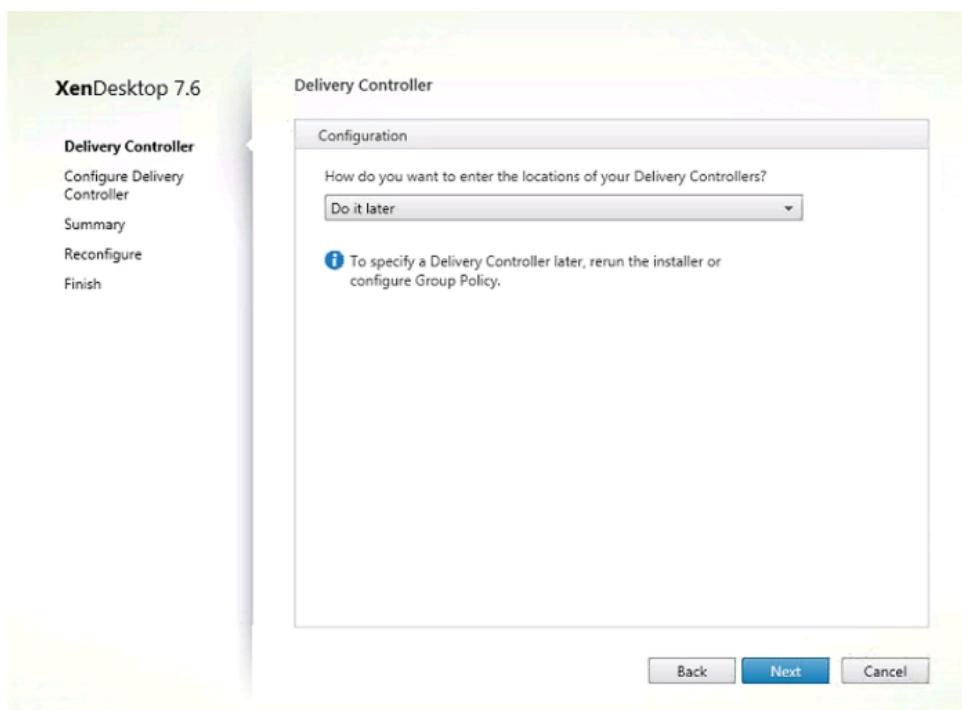
By selecting this option, you can ensure to manage the VDAs by AD GPO settings.

Do not choose the "Let Machine Creation Services do it automatically" option, as Workspace Cloud does not yet support this.

Apps and Desktop service configuration

VDA registration uses the Workspace Cloud Connector system instead of pointing to an XD broker system. At this point in time, you can't configure your VDA to register with both an on-premises XD broker and the Workspace Cloud Connector system.

Ensure that your VDA system can ping the Workspace Cloud Connector system.

Begin by selecting the **Manage** option for Apps and Desktops from Workspace Cloud.

Design

Deliver the best experience to your subscribers by designing a workspace. You'll have the flexibility to choose and customize services that meet their needs.

Apps and Desktops
Secure access to virtual Windows, Linux, and web apps and desktops
Learn more

Manage

Mobility Management
End-to-end mobile app delivery and device security
Learn more

Trial requested

What do I get in a trial?

Secure Documents
Sharing, syncing and securing content from the cloud and on-premises storage services
Learn more

Pending

Select the **Manage** option to begin adding your apps and desktops.

Citrix **Workspace** Cloud | Apps and Desktops

Overview   Manage   Monitor   Downloads

Apps and Desktops

Simplify the delivery of Windows applications and desktops through Citrix Workspace Cloud. With the Apps and Desktops service, the control of delivery is hosted in the cloud, on the infrastructure you choose.

Citrix **Workspace** Cloud   Connector   **Cloud and Data Center**
                                                          Apps and Desktops

Receiver will launch an HTML5 web-based session to the XenDesktop Studio console. The Manage\XenDesktop Studio MMC session launch is limited to one session per administrator.

To configure a Machine Catalog

Click **Create a new Machine Catalog**. The wizard guides you through the process.
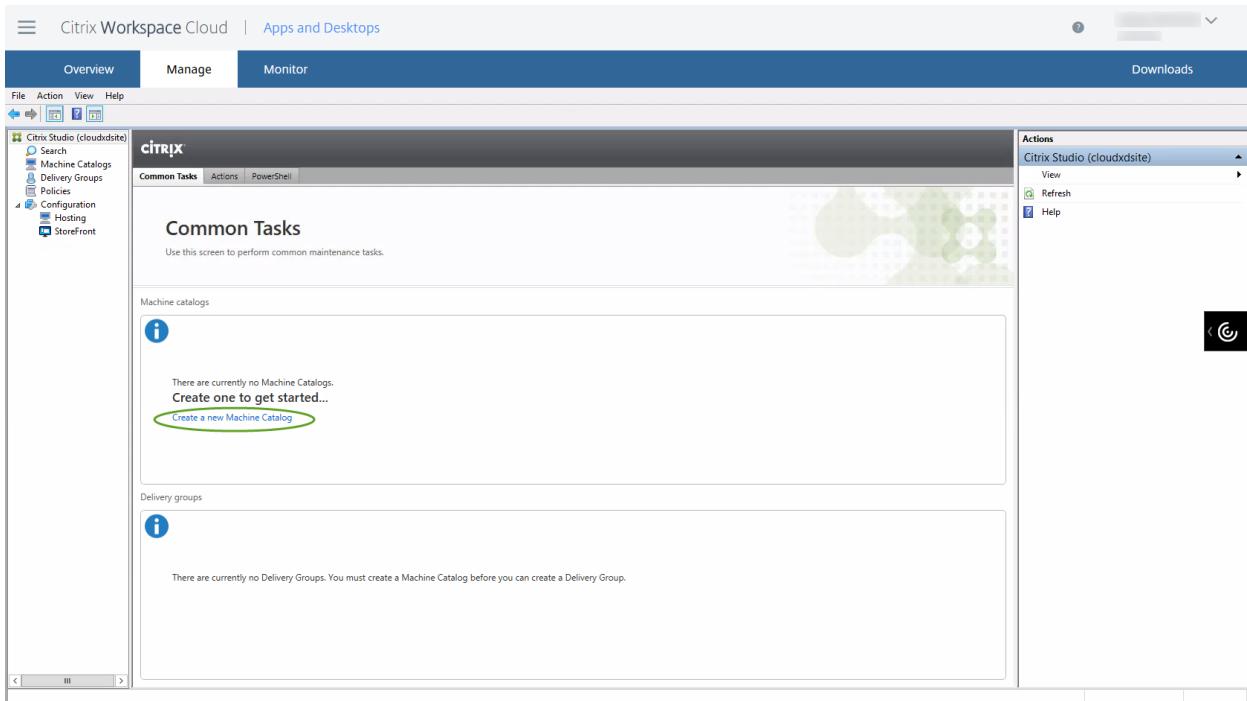
If your resource location is off premises (cloud-based), select the Windows Server OS option. For on-premises resources zones, either option can be selected.
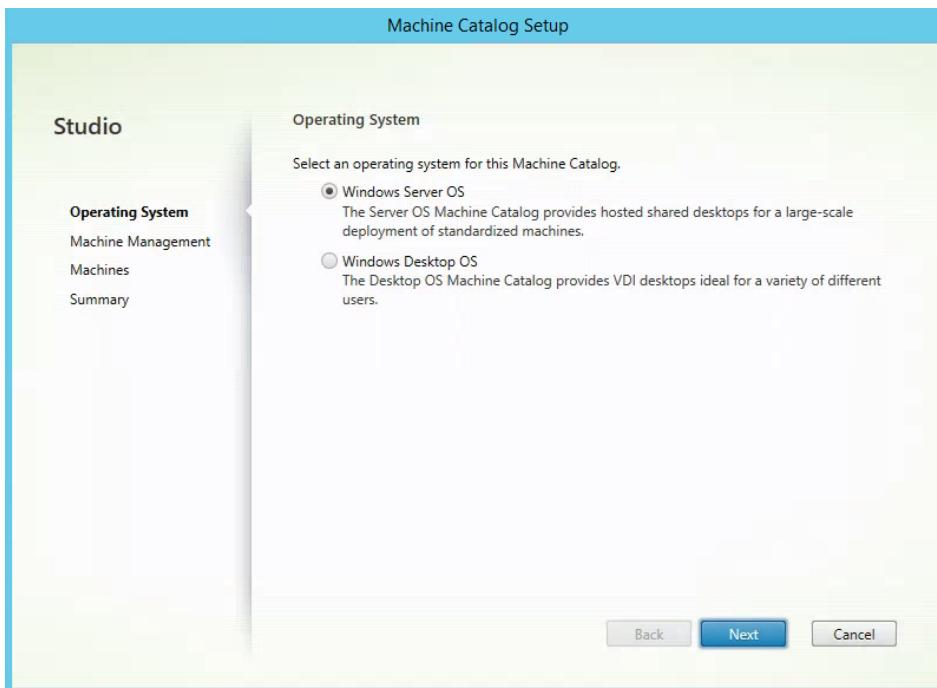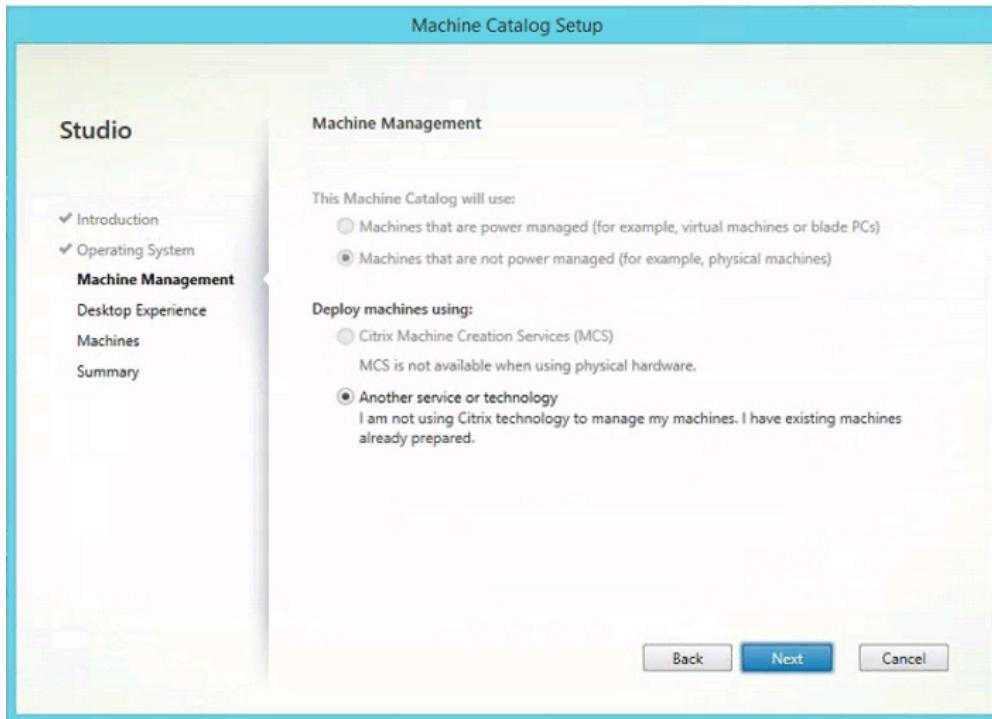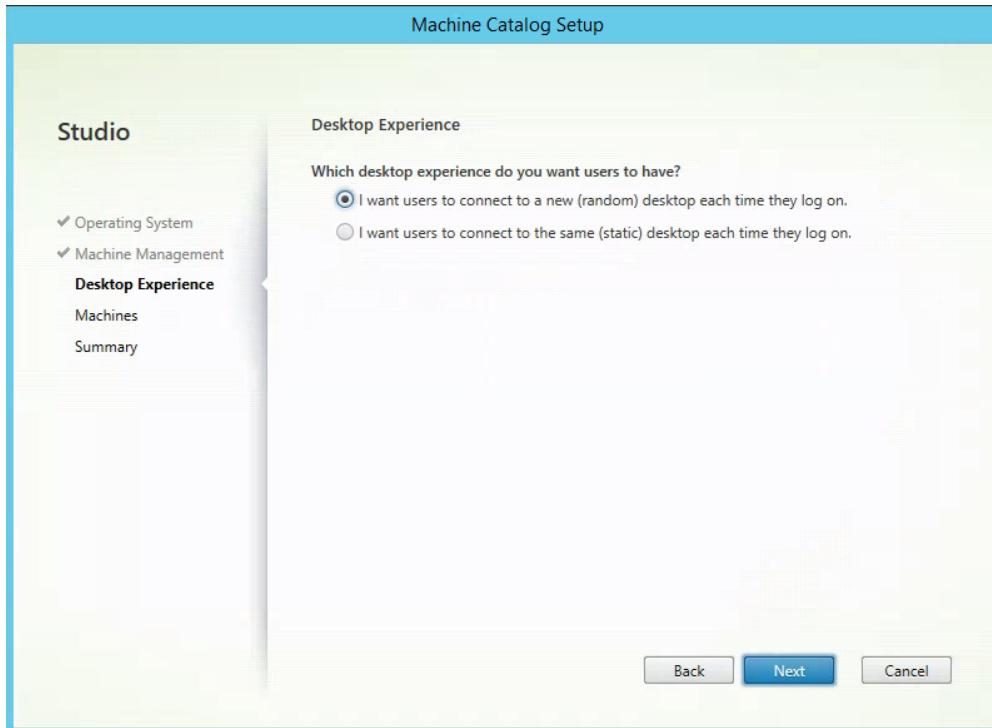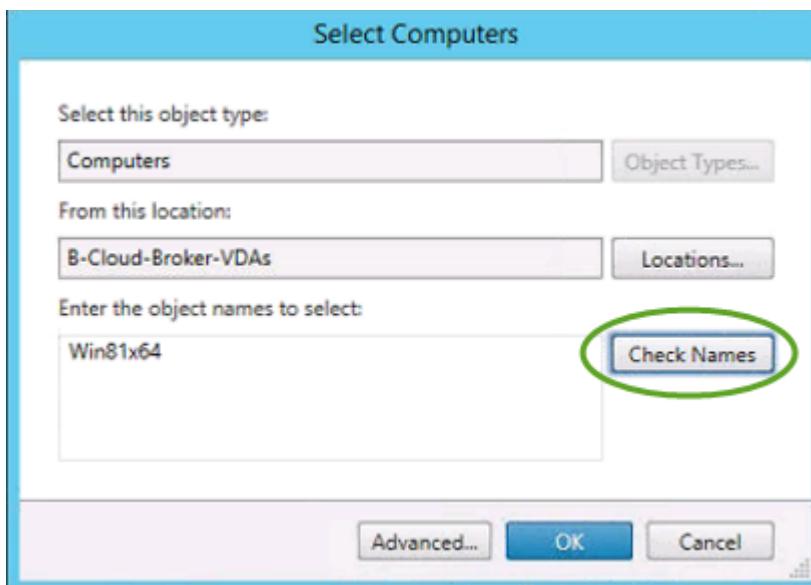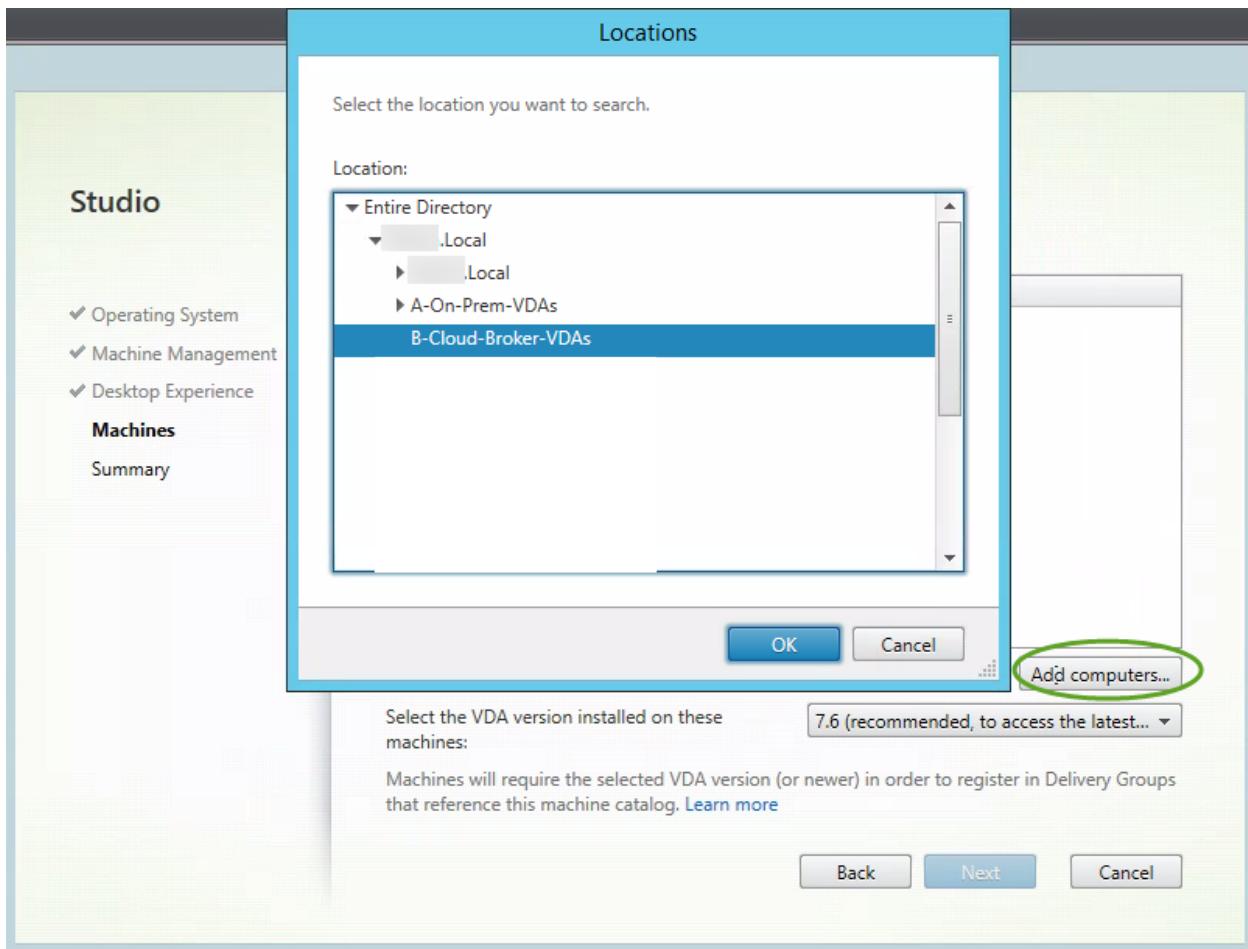
Note: For further details around MCS provisioning, see:
https://workspaceservices.uservoice.com/knowledgebase/articles/558417-configure-provisioning.

On the desktop experience screen, select the option based on your configuration needs.

Select the **Add computers** option and **Browse your domain** to find your VDAs.

Complete the process by providing a catalog name.

To configure a Delivery Group

Within the Citrix Studio console, click **Create a Delivery Group**.
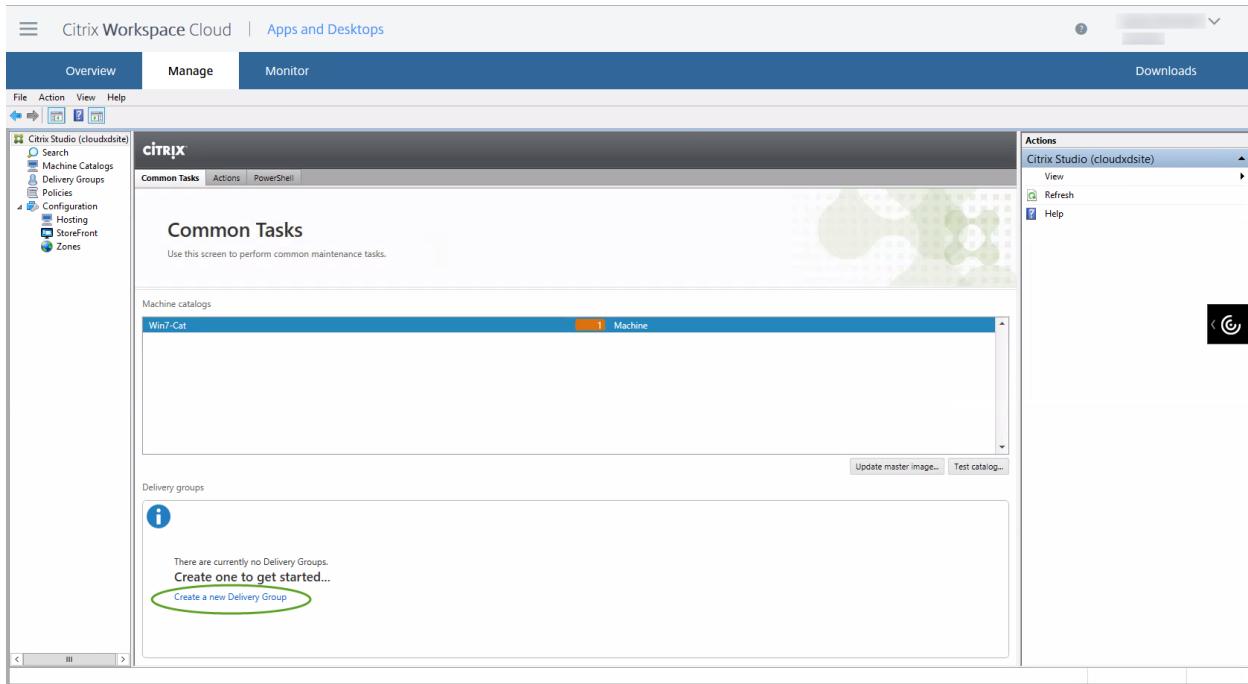
Choose the number of machines to be used for the Delivery Group.
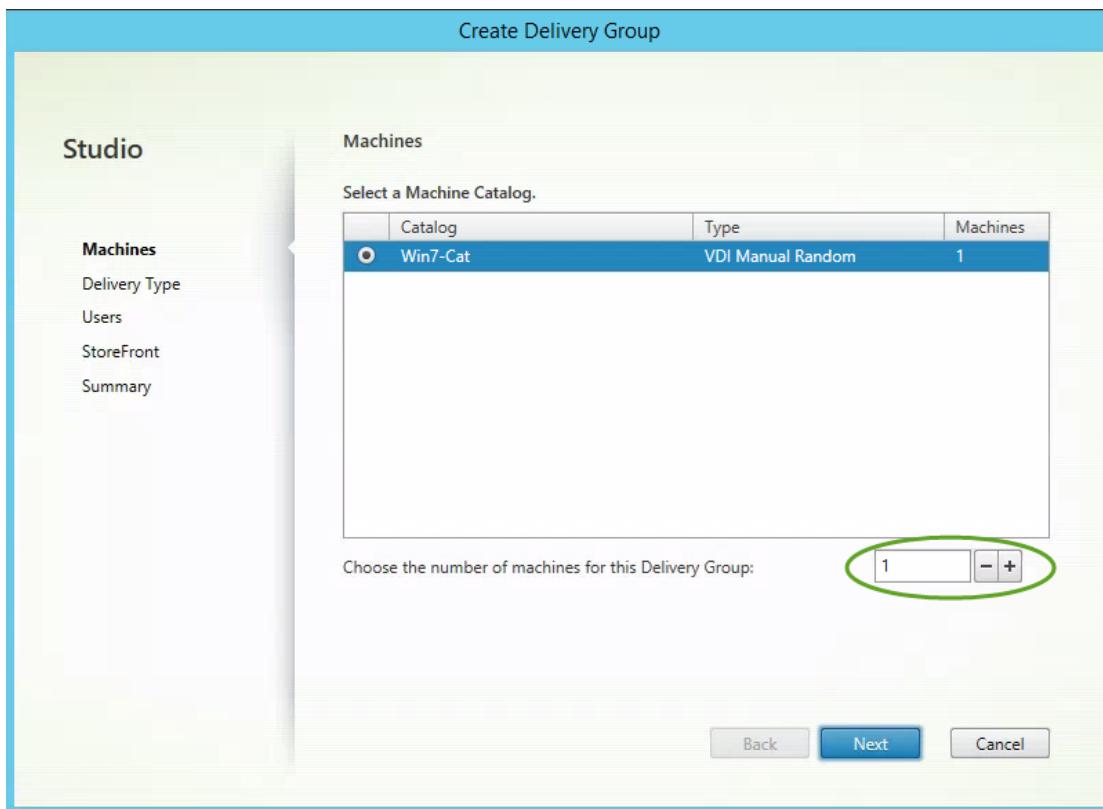
Select the Delivery Type, in this case by only providing a desktop.
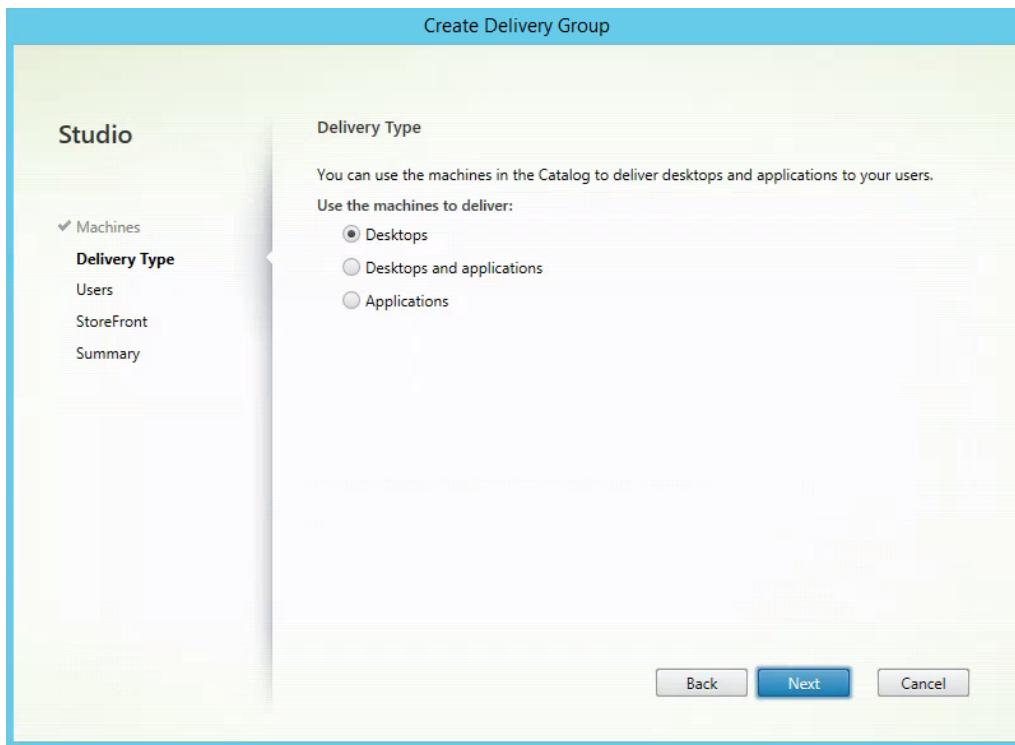
Manage users in the Identity and Access Management area in Workspace Cloud.
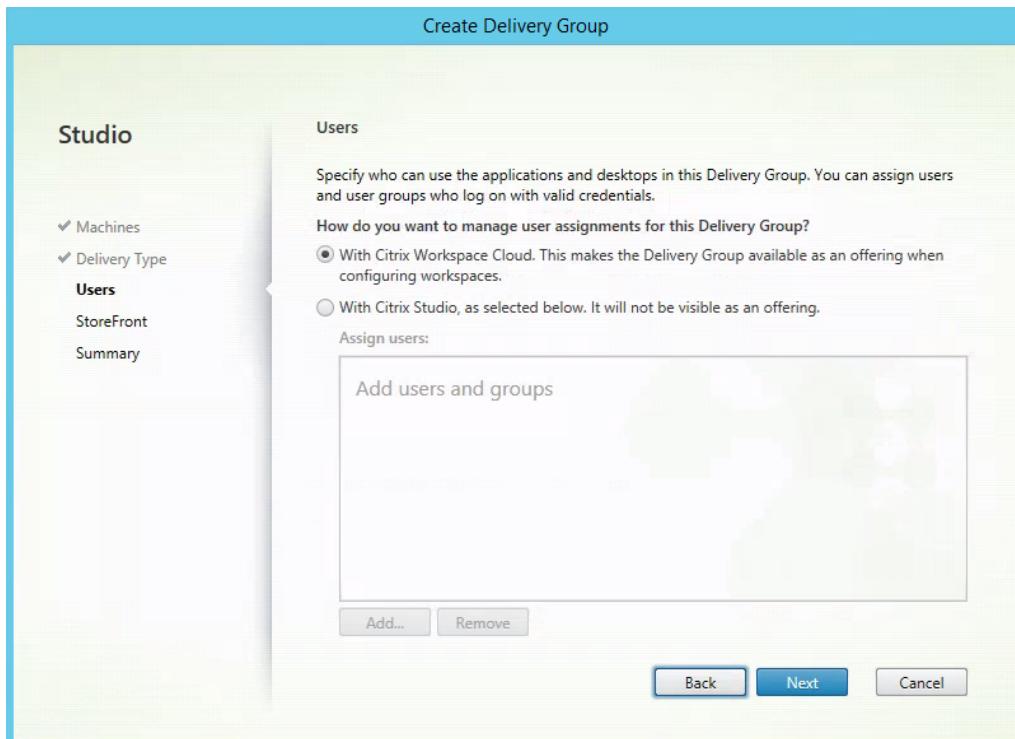
StoreFront configuration is covered later within this document. For now, select the **Manually, using a StoreFront server address that I will provide later** option, and click **Next**.
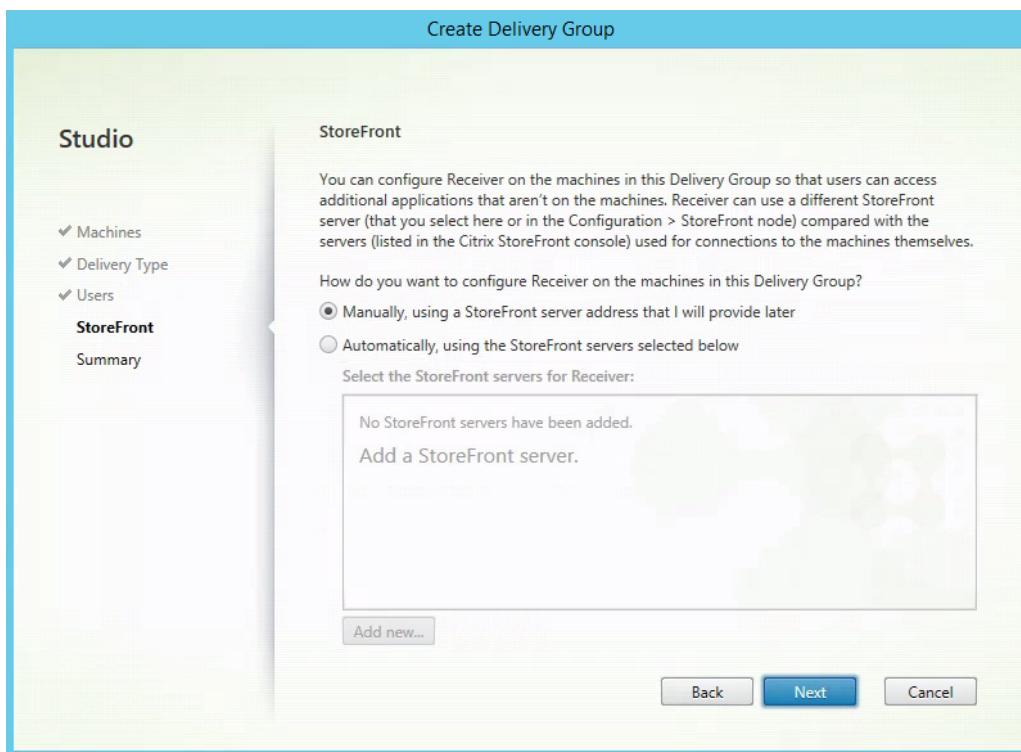
Complete the process by providing a Delivery Group name.

Note: This will be visible during connections to users.
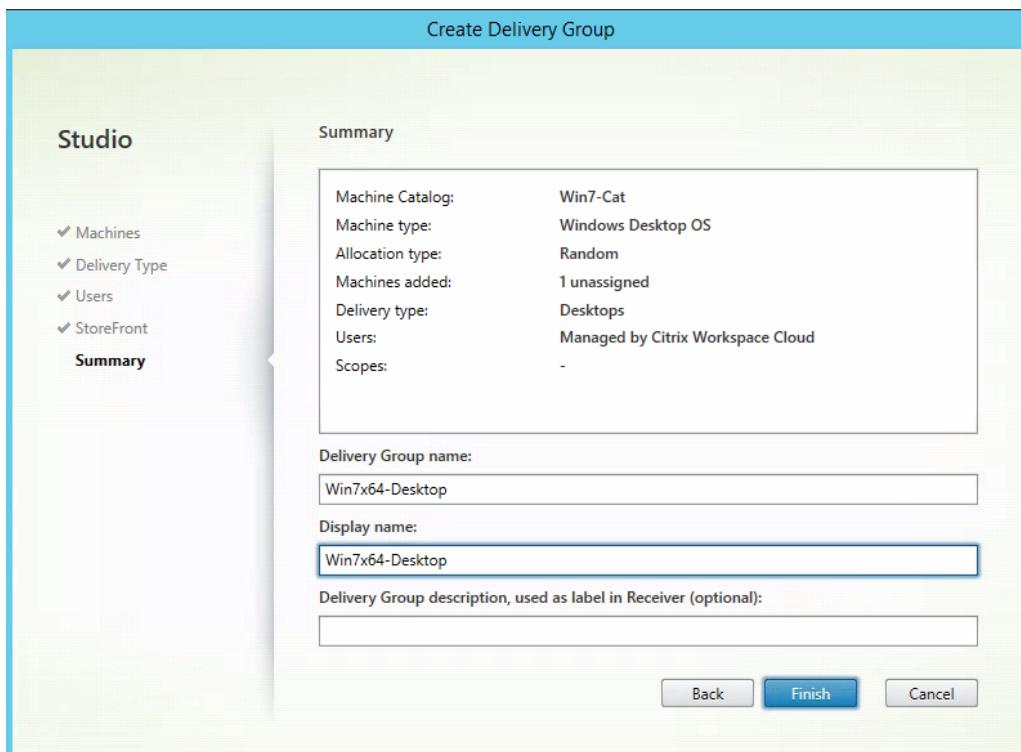
Ensure the VDA systems are powered on and are in the **Registered** state.

Configure your workspaces

From the navigation menu, click on the **+ Workspaces** option.

Provide a name for the workspace, and then click **Add**.

Select the **Create Workspace** button.

A new workspace has been created. Select this option circled below to configure it.

You now need to add subscribers to the workspace. These are the domain users who will access the desktop resource. Select the **Subscribers** tab as shown below.

Select a domain user or group from the drop-down list, and click **Search**. In the case below, the domain users group was used. Once you have added all users and groups needed, select the **Publish** button to complete the process.
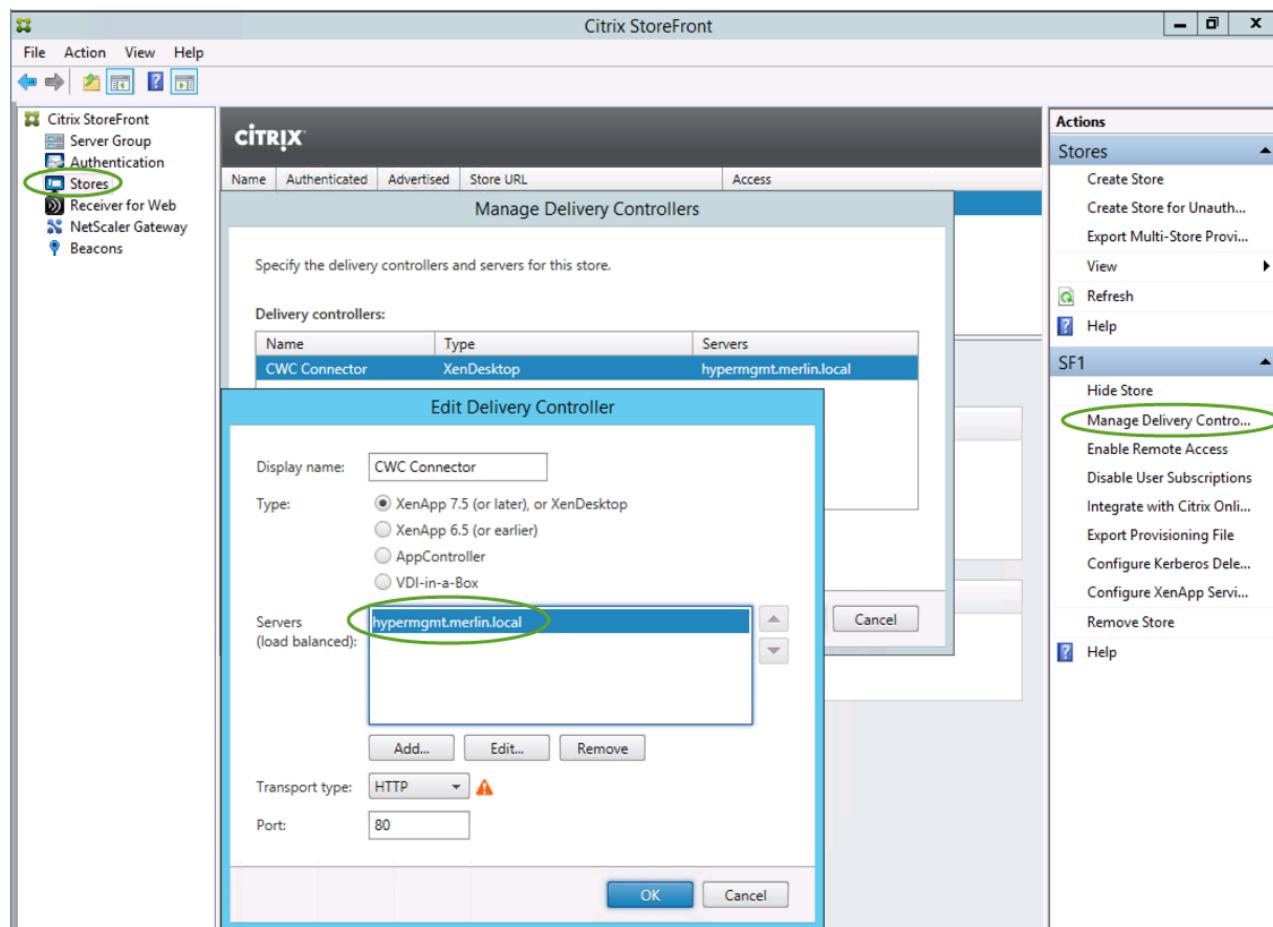
StoreFront configuration

For multiple server StoreFront deployments, external load balancing is required. You can use the NetScaler load-balancing feature to optimize the distribution of user connections across StoreFront servers in a multiple-server deployment.

On-premises-hosted StoreFront

For this configuration, NetScaler resides on the outside, or within the perimeter network (also known as a DMZ), and has access to a valid external website, while the StoreFront servers reside in an internal, on-premises domain.

For this example, it's required that the StoreFront servers can ping the Workspace Cloud Connector system. Also ensure that the transport type to be used is HTTP\80.

Cloud-hosted StoreFront

Note: Workspace Cloud allows for StoreFront management to be done via the control plane in the cloud. Access to the cloud-hosted StoreFront is via https://<customername>.xendesktop.net, and no additional configuration is needed.

Both an on-premises and cloud-hosted StoreFront system are supported at the same time; however, different URLs will be used for connection access.

For external remote access, you will need to have an optional NetScaler Gateway URL that will act as the ICA proxy for the connections. This can be configured manually in Studio by selecting the "Set NetScaler Gateway" option and configure based on your external NetScaler URL being used.
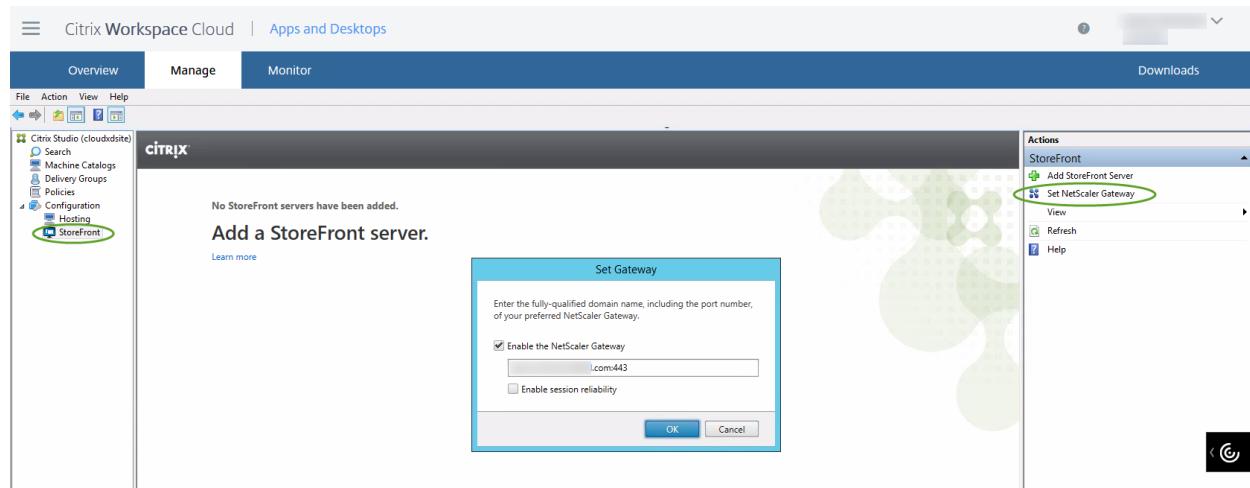
Configure NetScaler Gateway

The configuration of your NetScaler Gateway is needed for connections using on-premises StoreFront servers and selecting the Workspace Cloud Connector system as the Secure Ticket Authority Server (STA server).
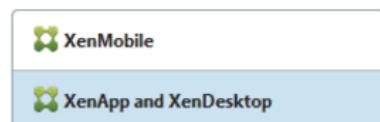
Configure the XenDesktop and StoreFront information, and provide the STA server correctly pointing to your Workspace Cloud Connector system. See the example shown below.

Integrate with Citrix Products

XenMobile
XenApp and XenDesktop

Storefront

StoreFront FQDN*

sf-lb-site.yourDomain.local

Site Path*

/Citrix/SF1Web

Single Sign-on Domain*

yourDomain

Store Name*

Store

Secure Ticket Authority Server*

http://workspace.connector.yourDon   +

Storefront Server*

192 . 168 . 1 . 100   ✕

192 . 168 . 1 . 101   ✕   +

Protocol*

SSL ▼

Port*

443

☑ Load Balancing

Virtual Server*

192 . 168 . 50 . 51

| Continue | Cancel |

You can monitor ICA connections from your NetScaler Gateway from the following location.


Note: You can also monitor ICA connections from /var/log/ns.log and check for ICASTART.

External URL connections for end users

Install Citrix Receiver on an external user device. From an web browser, enter the URL of the NetScaler Gateway URL you created earlier. Proceed to log on as a valid user to ensure that Citrix Receiver can connect to StoreFront through the NetScaler load balancer.
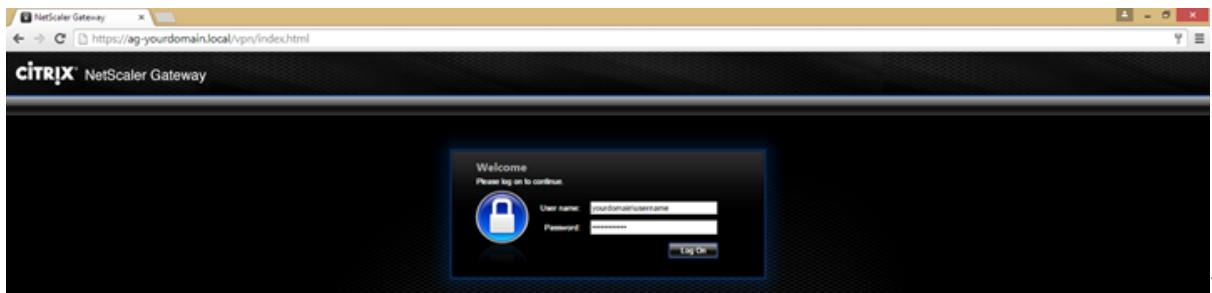
Upon NetScaler logon, the StoreFront connection occurs and your VDA desktop will launch automatically. To disable StoreFront automatic launch settings, refer to Citrix product documentation for more information at http:docs.citrix.com.
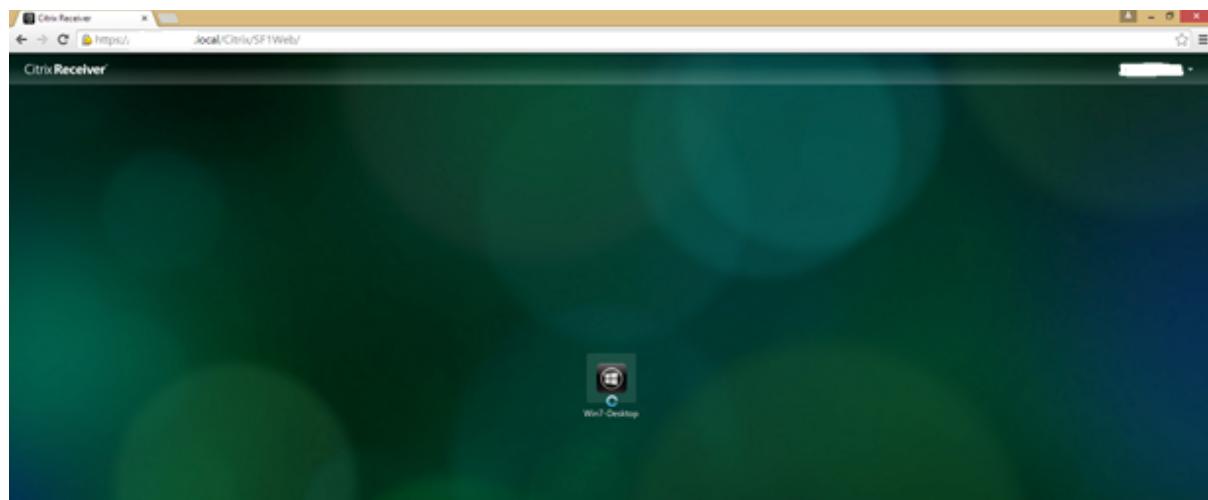
From a web browser, enter the URL of the cloud-hosted StoreFront URL. Proceed to log on as a valid user to ensure that Citrix Receiver can connect to StoreFront through the NetScaler acting as an ICA proxy.
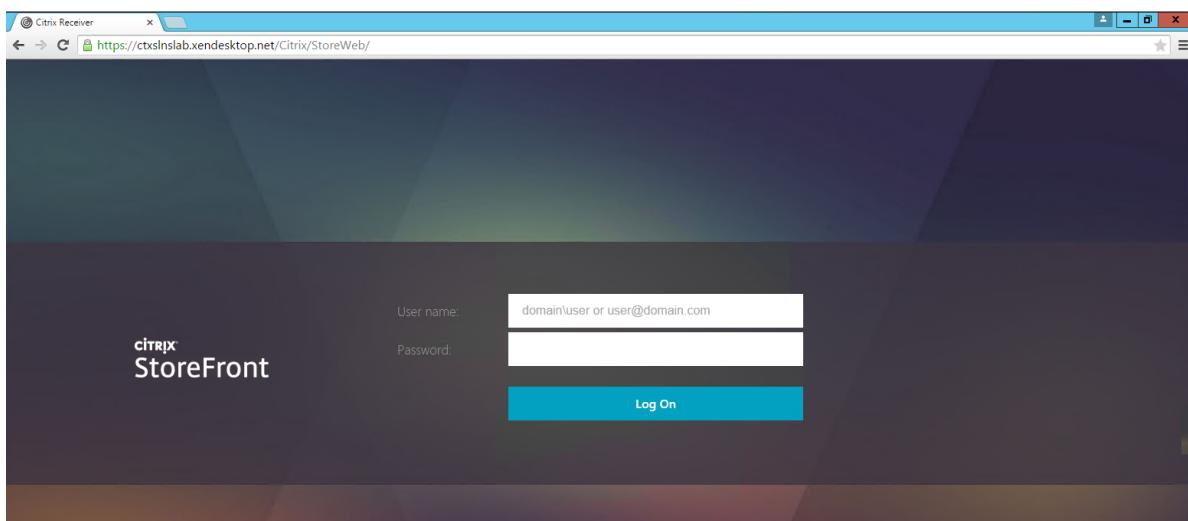
External ICA connection via the cloud-hosted StoreFront URL (Port 1494):

New StoreFront 3.0 Tech Preview connections are also supported.

You also have the ability to launch Director to monitor connectivity.

Some common Receiver launch connection issues can be seen if the VDA hasn't properly registered the ListOfDDCs entry. Ensure that the VDA is properly registered from the Manage option in Citrix Workspace Cloud/XenDesktop Studio.

Also check to make sure the STAs configured in both StoreFront and NetScaler are matching, as this can also cause this error.

Desktop Viewer	×
❌ The connection to "Win7-Desktop" failed with status (1110).	
	OK

Desktop Viewer	×
❌ The connection to "Win7-Desktop" failed with status (1030).	
	OK
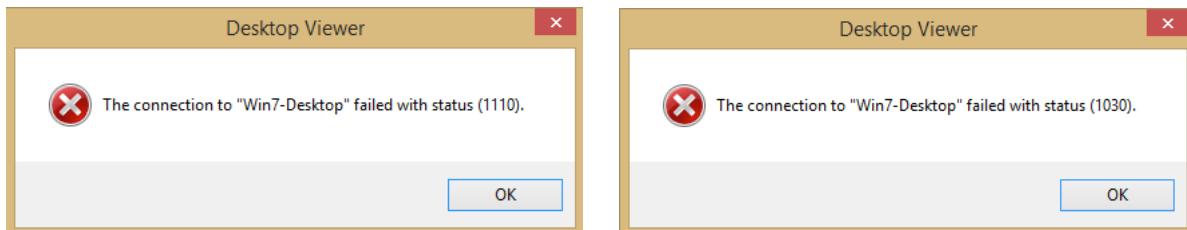
Section 4: References

- Citrix Workspace Cloud Product Documentation

http://docs.citrix.com/en-us/workspace-cloud/workspace-cloud.html

- NetScaler for the XenDesktop/XenApp Dummy

http://blogs.citrix.com/2012/04/10/netscaler-for-the-xendesktopxenapp-dummy/

- How to Configure NetScaler Gateway with StoreFront and App Controller

http://support.citrix.com/article/CTX139319

- Configuring NetScaler 10.1 Load Balancing with StoreFront 2.5.2 and NetScaler Gateway for App Orchestration 2.5

http://support.citrix.com/article/CTX140598

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