Quest and NetApp Integration

Rapid Provisioning with Flex Clone and vWorkspace

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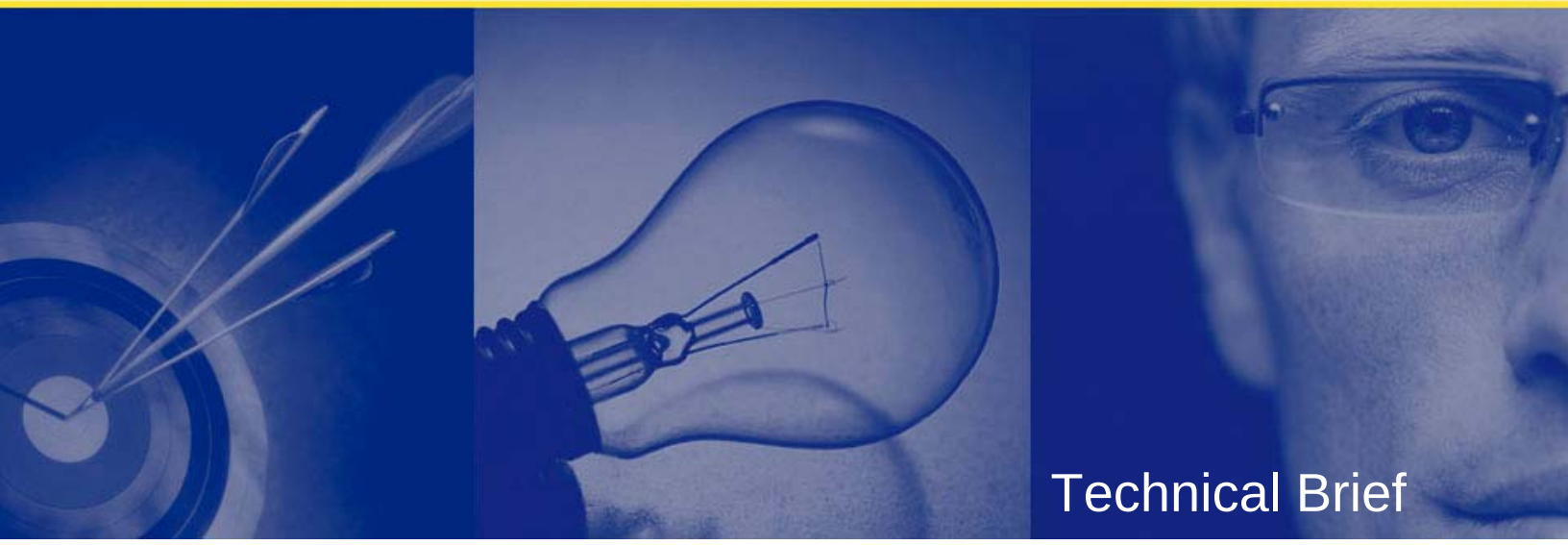
October 2009



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OVERVIEW

This document covers the integration of NetApp Storage Systems with Quest vWorkspace in a VMware environment.

You are required to be running Quest vWorkspace 6.2 or later, available from http://www.vworkspace.com, and NetApp Data ONTAP 7.3.1 or later, available from http://now.netapp.com.

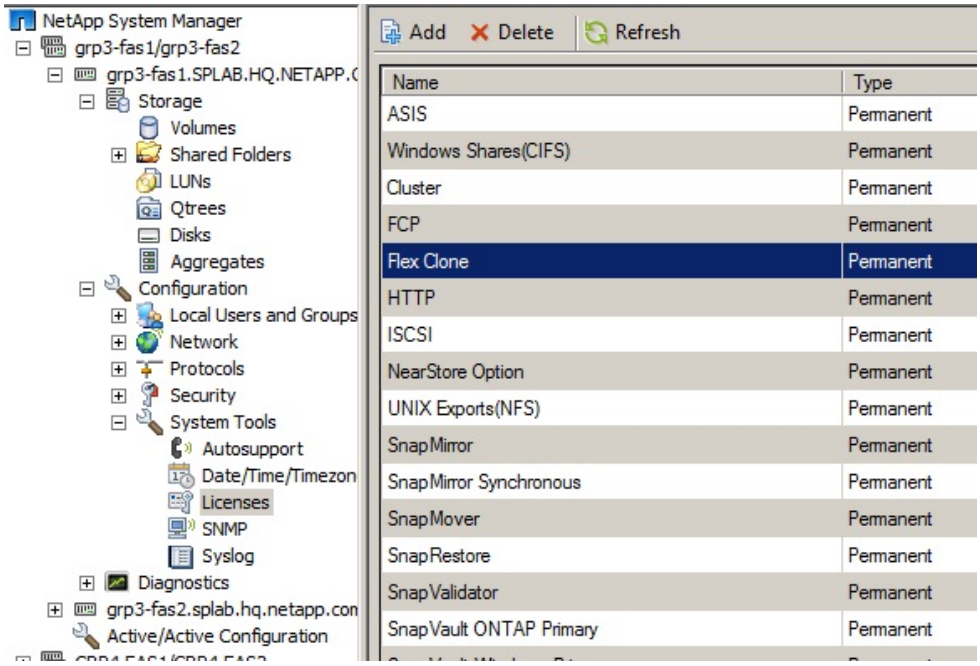
This whitepaper covers the configuration of the VMware and NetApp network that is typically required for this type of environment. NetApp has previously written a technical whitepaper that covers Virtual Desktop deployments on NetApp Storage Systems within a VMware environment. The NetApp TR3725 Whitepaper is available from http://media.netapp.com/documents/tr-3725.pdf.

This document assumes that an initial configuration has been applied to the NetApp controller in accordance with the software setup guide, available from http://now.netapp.com, and that Quest vWorkspace is installed and configured to communicate with VMware Virtual Center or vSphere.

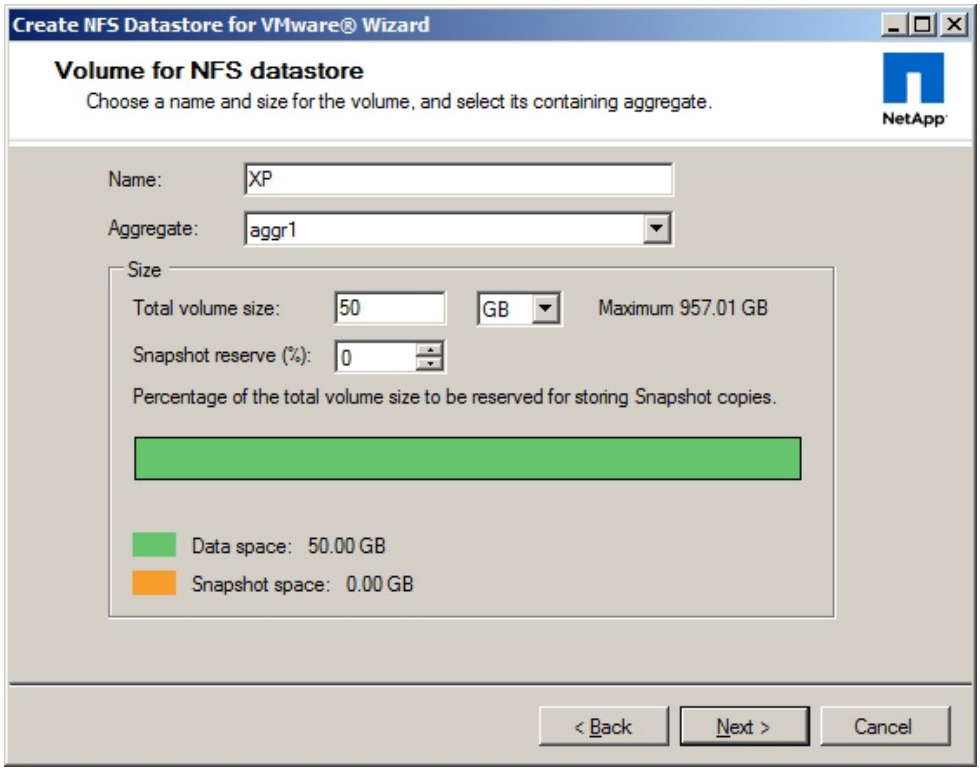
The NetApp Storage Systems supported are FAS2000, FAS900, FAS3000, V3000, FAS3100, V3100, FAS6000, V6000 and R200 platforms.

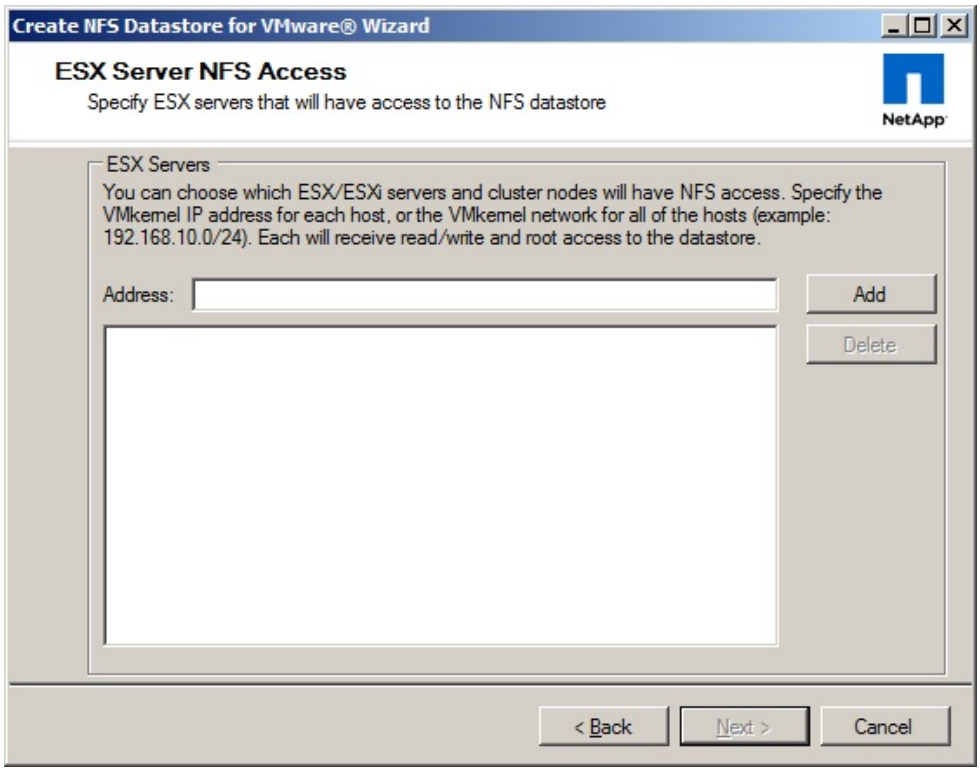
CONFIGURING THE NETAPP STORAGE CONTROLLER

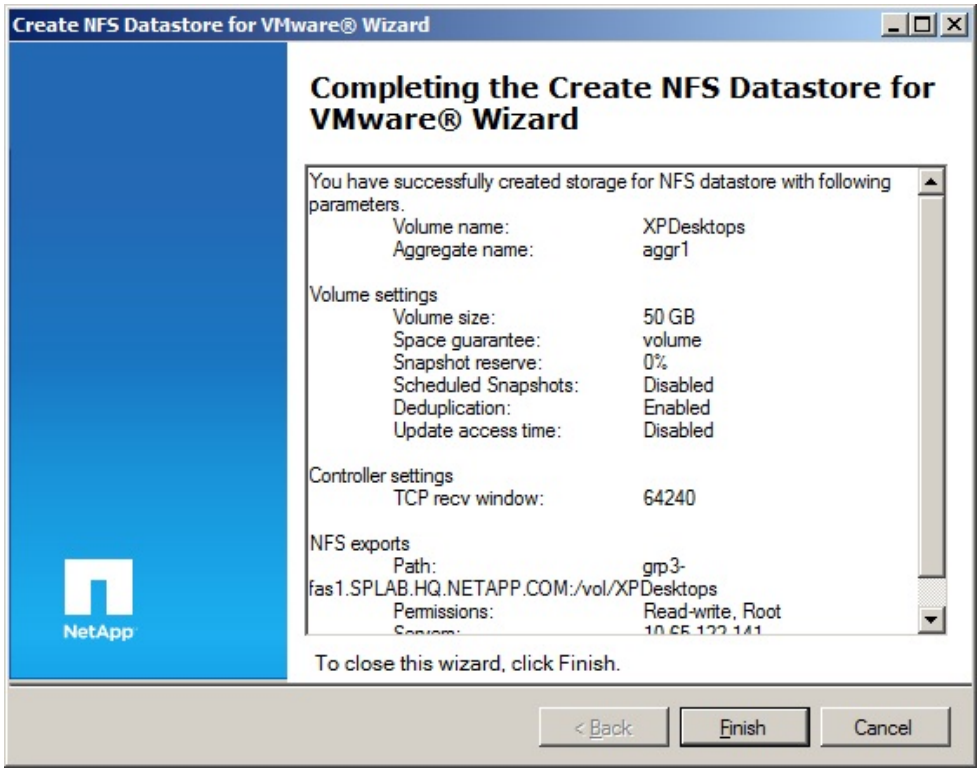
1. Open NetApp System Manager* to *Configuration -> System Tools -> Licenses* and ensure that you have applied ASIS, Unix Exports (NFS) and Flex Clone keys. Evaluation keys are on request, if required please contact your NetApp representative.



2. NFS is enabled by default therefore we are required to create a Volume to store the Flex Clones. The Create NFS Datastore for VMware is initiated by *Storage -> Create NFS datastore*. The sizing of this volume depends on the size of the template, as well as sufficient free space for the clones. If you require further sizing guidance please contact your respective NetApp and Quest representatives. There are some examples below of the datastore wizard.


Create NFS Datastore for VMware® Wizard
Volume for NFS datastore
Choose a name and size for the volume, and select its containing aggregate.
NetApp
Name:
XP
Aggregate:
aggr1
Size
Total volume size:
50
GB
Maximum 957.01 GB
Snapshot reserve (%):
0
Percentage of the total volume size to be reserved for storing Snapshot copies.
Data space: 50.00 GB
Snapshot space: 0.00 GB
< Back
Next >
Cancel


Create NFS Datastore for VMware® Wizard
ESX Server NFS Access
Specify ESX servers that will have access to the NFS datastore
NetApp
ESX Servers
You can choose which ESX/ESXi servers and cluster nodes will have NFS access. Specify the VMkernel IP address for each host, or the VMkernel network for all of the hosts (example: 192.168.10.0/24). Each will receive read/write and root access to the datastore.
Address:
Add
Delete
< Back
Next >
Cancel



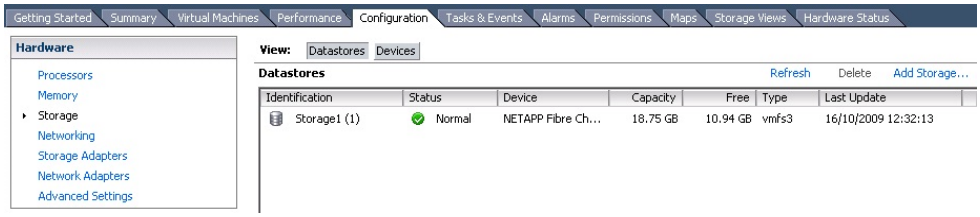
3. When NetApp Storage Controller configuration is complete, you may need to repeat these steps if you require additional datastores.

* NetApp Systems Manager is available for download, free of charge, from http://now.netapp.com.

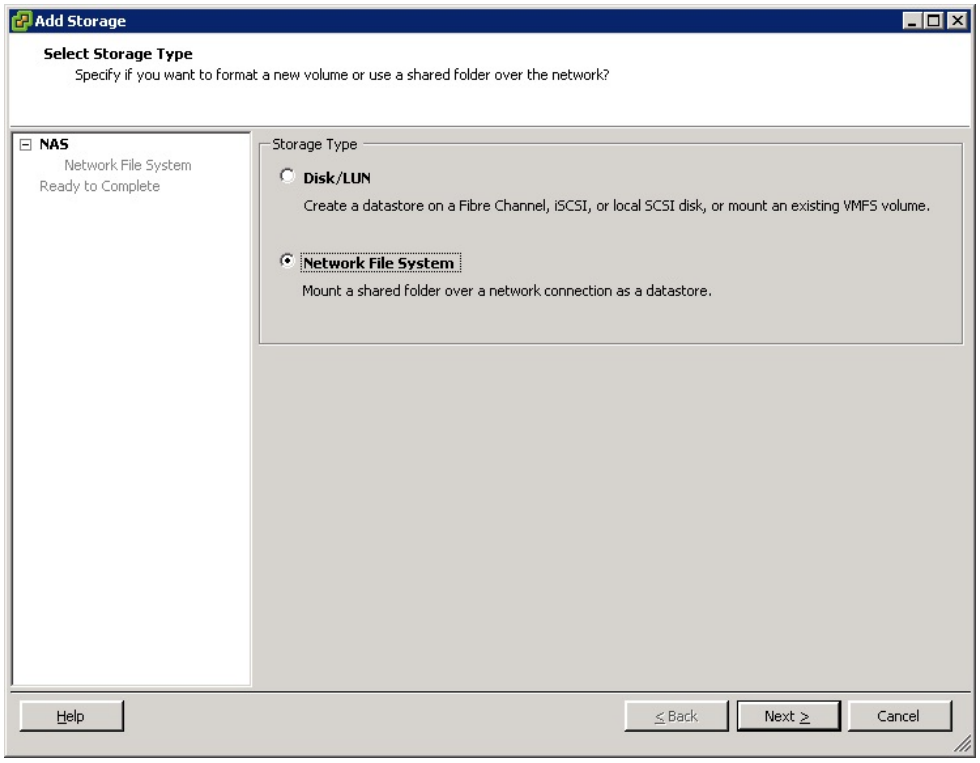
CONFIGURING VMWARE VIRTUAL CENTER OR VSPHERE

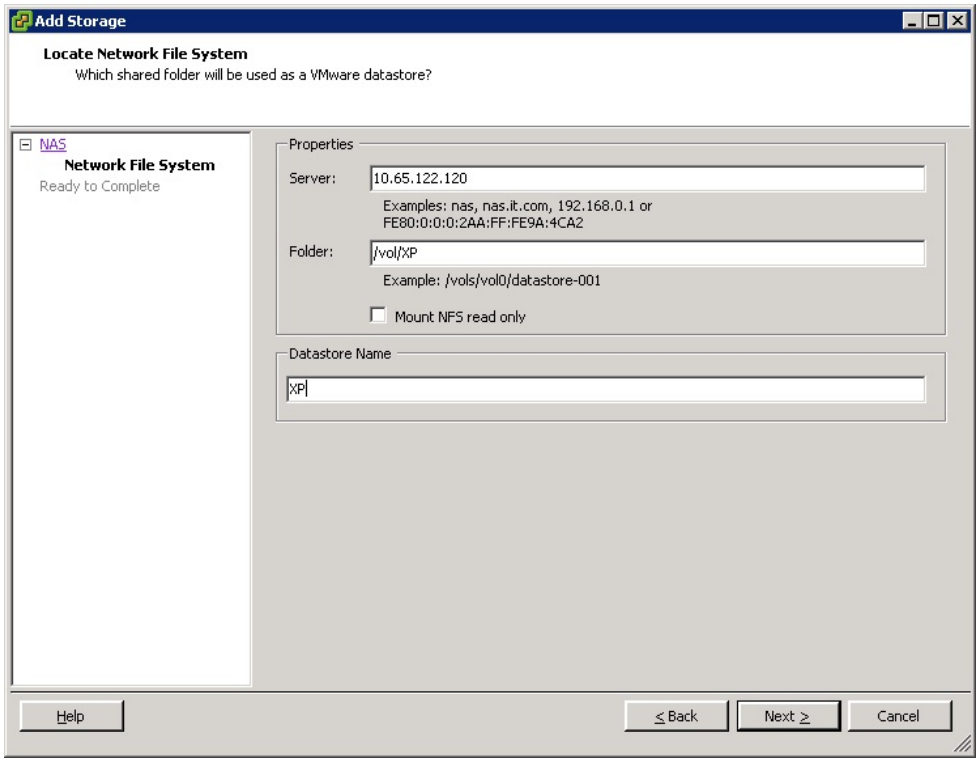
References to VC relate to either the Virtual Center or vSphere client. The assumption is made that VC is configured with ESX hosts, datacenter, and is licensed as required.

1. Ensure that you have created a VMkernel Port with connectivity to your NetApp Storage Contollers.
2. Within *Configuration -> Hardware -> Storage,* click on the *Add Storage* link.



3. Follow the *Add Storage* wizard to attach the volume created on the NetApp Storage Controller. Refer to the example below.





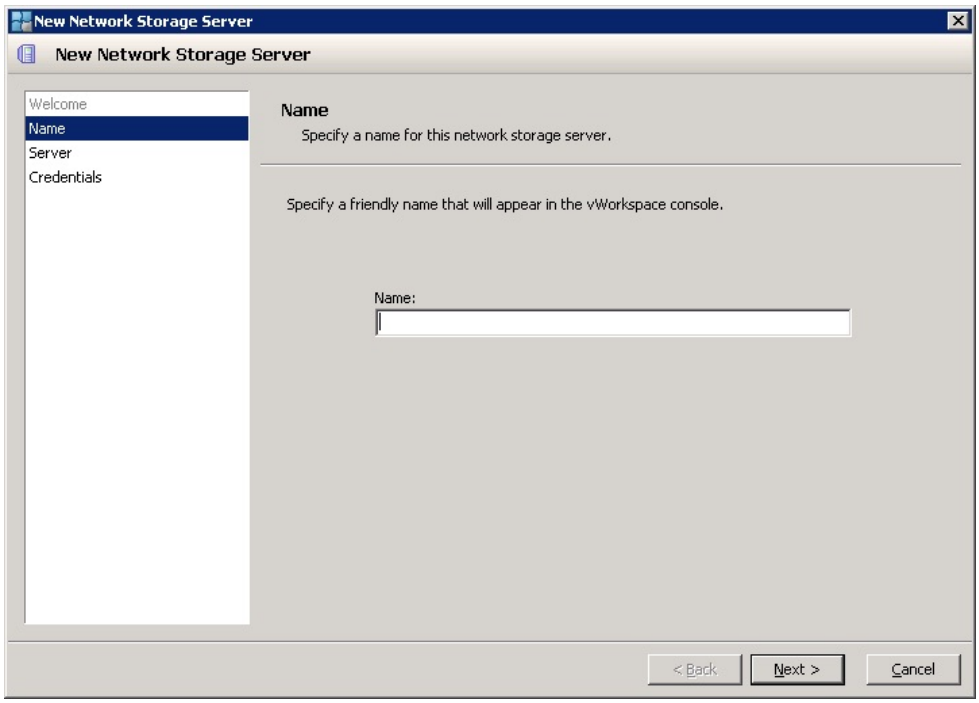
It is recommended that the volume name matches the datastore name. In the example above this would be XP. It is also worth noting that you must use the IP address and not the storage server name. For further network information, please refer to TR3725 as referenced in the Overview.

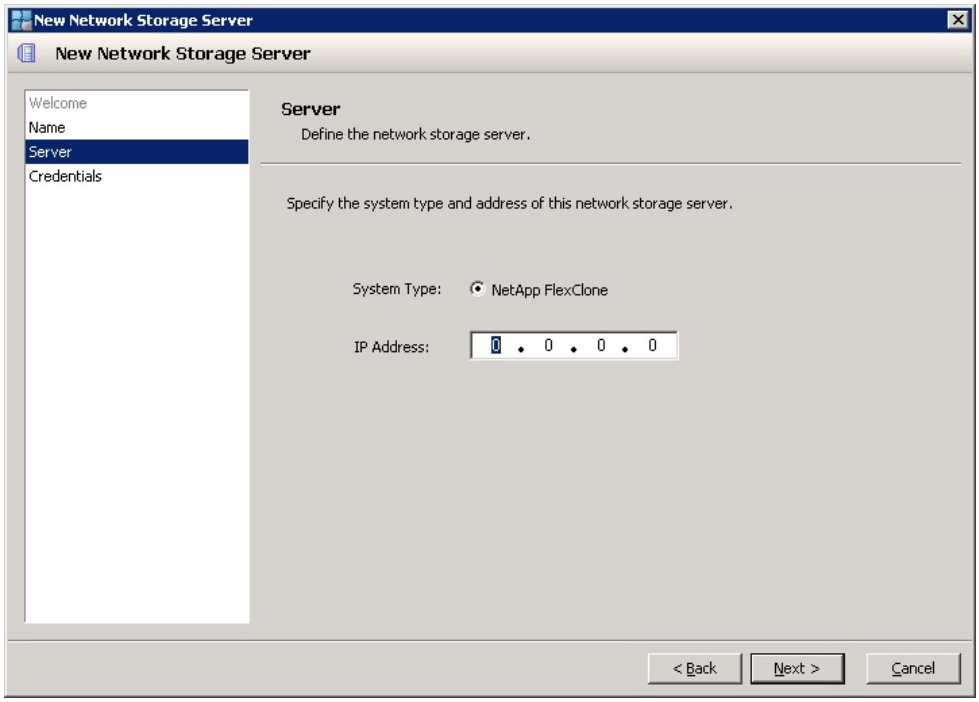
4. Create a Virtual Machine with the necessary configuration, if you have not done so already. This will then be used to clone or convert to a template. Before cloning or converting to a template you need to move the virtual machine to the NetApp datastore, as created in the previous steps.

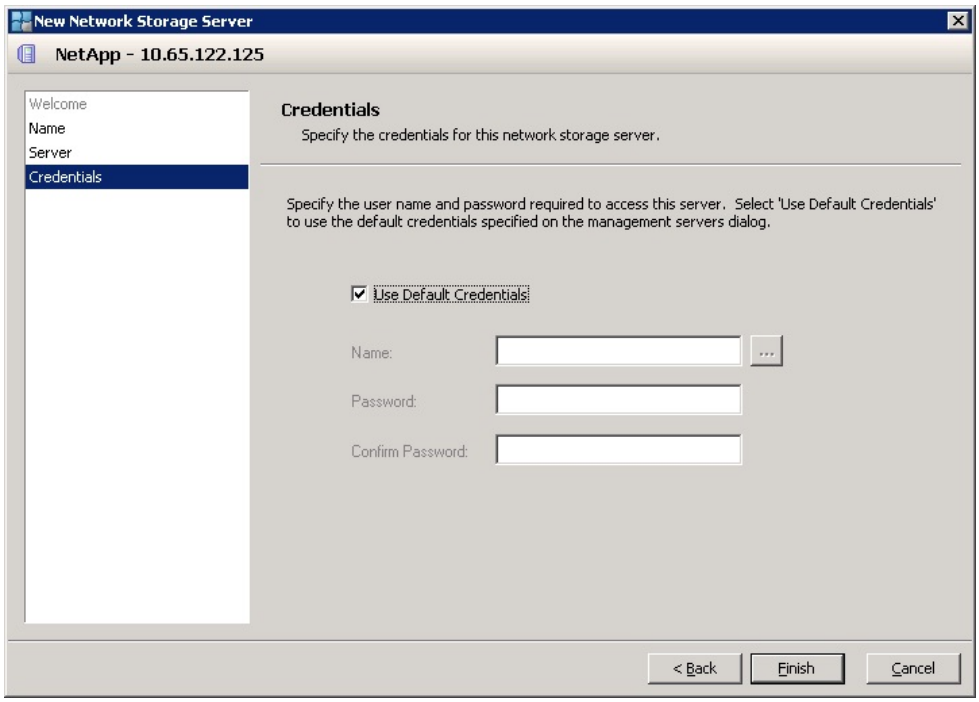
CONFIGURING QUEST VWORKSPACE

The following assumes that vWorkspace has been installed, licensed, and configured to communicate with VMware Virtual Center or vSphere.

1. Within the vWorkspace console, right-click Locations and select *Management Servers*. Highlight *Network Storage Server* and select *New*.
2. Define the NetApp Storage Server information in the Network Storage Server wizard. Access credentials can be set up on a per storage server basis in this wizard, or globally on the Management Servers window, Default Credentials section.



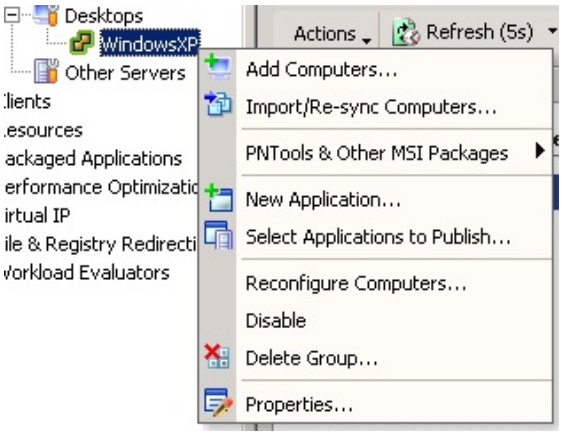

New Network Storage Server
New Network Storage Server
Welcome
Name
Server
Credentials
Server
Define the network storage server.
Specify the system type and address of this network storage server.
System Type:
NetApp FlexClone
IP Address:
0 . 0 . 0 . 0
< Back
Next >
Cancel


New Network Storage Server
NetApp - 10.65.122.125
Welcome
Name
Server
Credentials
Credentials
Specify the credentials for this network storage server.
Specify the user name and password required to access this server. Select 'Use Default Credentials' to use the default credentials specified on the management servers dialog.
Use Default Credentials
Name:
Password:
Confirm Password:
< Back
Finish
Cancel

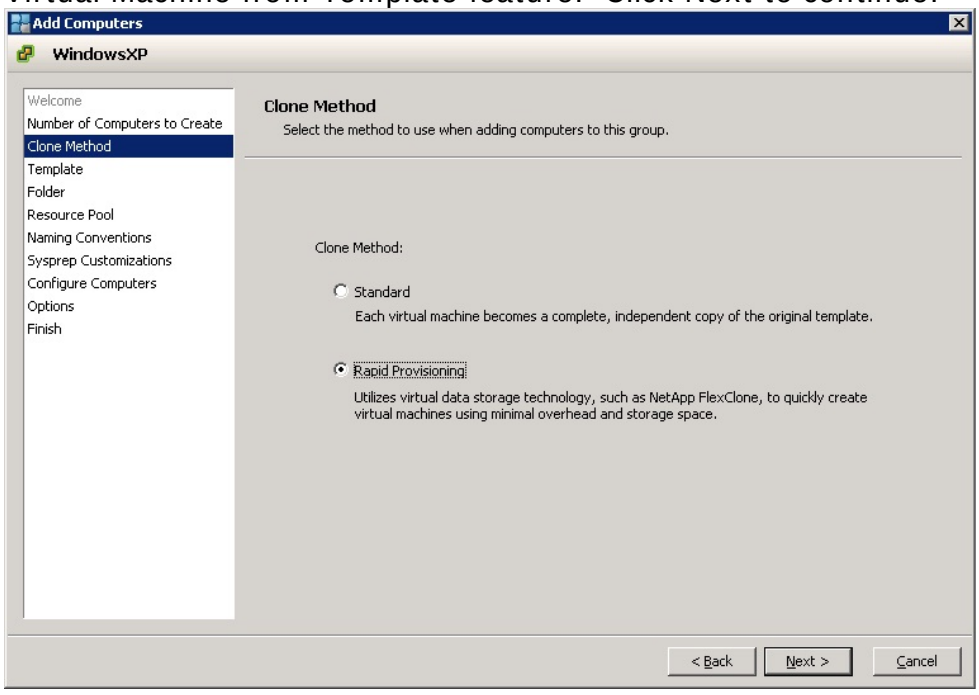
CREATING DESKTOPS WITHIN QUEST VWORKSPACE

The following steps assume that a desktop group has been created under *Locations -> <location name> -> Desktops* for the desktops that are to be added.

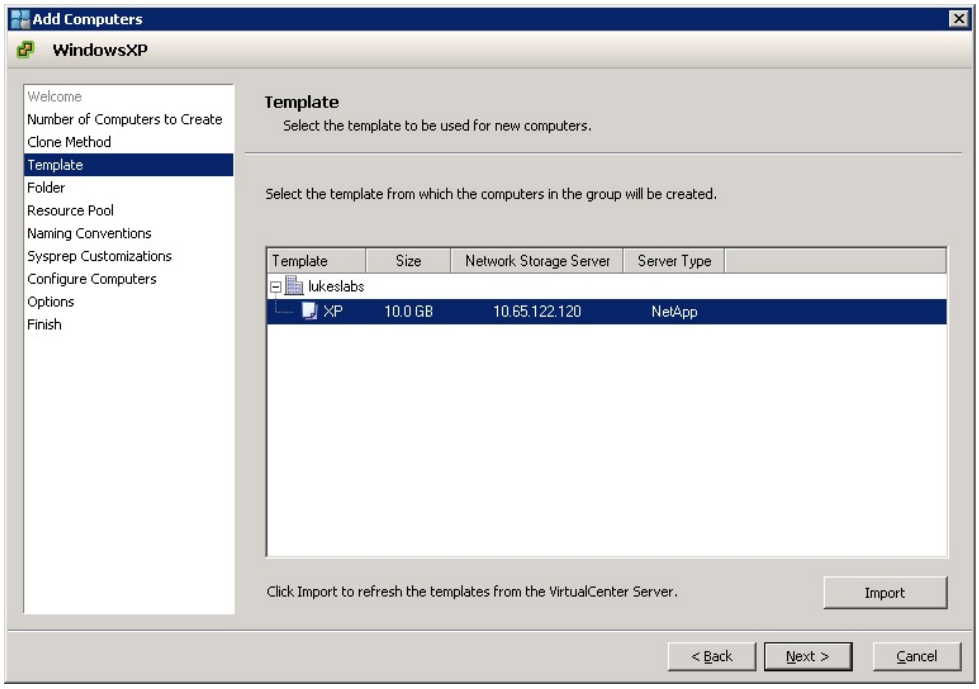
1. Highlight the desktop group name and then right-click and select *Add Computers*. You will then be presented with the Add Computers Wizard.



2. After the Welcome screen, enter the number of computers that are to be created. Once you have entered the number, click Next.
3. On the *Clone Method* window, select *Rapid Provisioning*. This initiates the NetApp Flex Clone method rather than the standard VMware create Virtual Machine from Template feature. Click Next to continue.

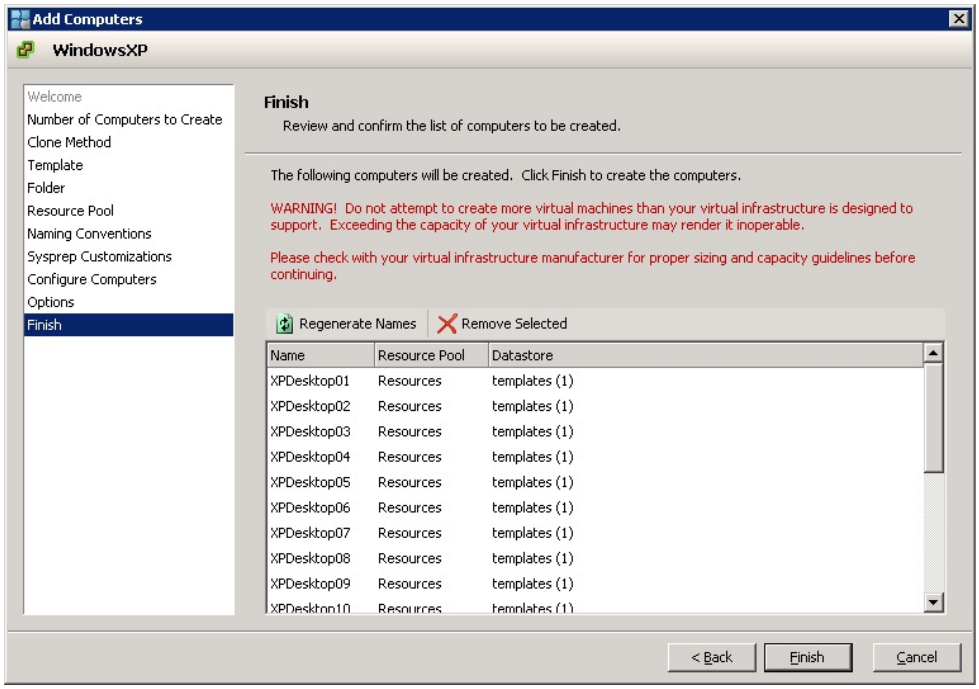


4. On the *Template* screen, click *Import* and then select the template. Verify that the server type is defined as NetApp. Click Next.

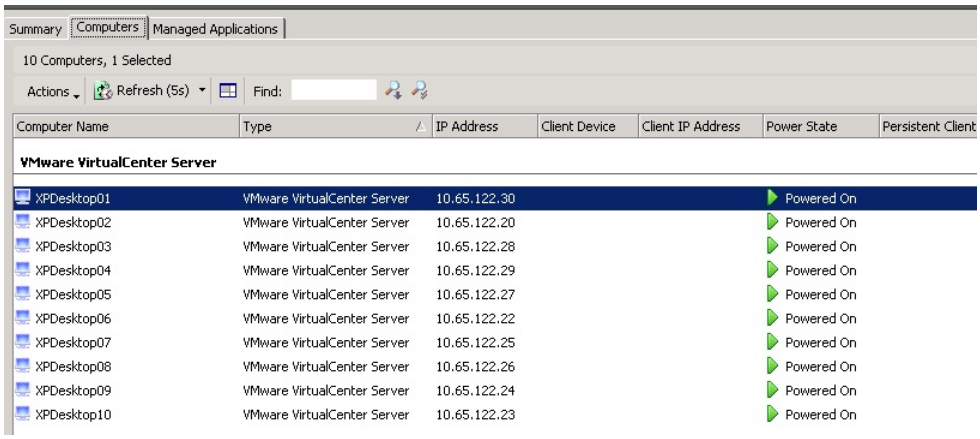


5. Continue through the wizard so that you can define the preferred VC Folder, Resource Pool, machine names, sysprep, virtual machine memory, and disk settings. You may need to click *Import* to retrieve the latest information from VC.

   At the end of the wizard you are presented with a summary screen. At this stage it is worth ensuring you have sufficient storage for the number of virtual machines. See the example below.



6. Once the desktops have completed, the console will look similar to the following.



TROUBLESHOOTING

The following section provides solutions to error messages that can be generated by this integration if not configured correctly.

Error: Within the Quest Console, when completing the *Add Computers* wizard, the *Template* window shows the template as *Server Not Defined* and not NetApp as expected.

Solution: This is most likely caused by the datastore being configured in Virtual Center or vSphere with the NetApp Storage Server name. It needs to be the IP address.

Error: When provisioning new desktops the message “Clone of “Datacenters/DC Name/vm/Template/” to “NewVMName” failed: Caught NetApp copy exception outside of first attempt” appears.

Solution: The probable cause is that a folder matching the target VM name already exists in Volume.

Error: When provisioning new desktops, the job starts, however fails immediately displaying “Clone of ‘Datacenters\DC Name\vm\XP\’ to ‘XPDesktop01’ failed “ in the vWorkspace console. In the example error, XP is the template and XPDesktop01 is the target Virtual machine.

Solution: This error could be generated for a number of reasons; the most likely is the NetApp Storage Server credentials. To understand the error, enable the log file by right-clicking the broker server name in the vWorkspace console and select Properties. On the Logging tab you can define the location and file name. Remember to switch off logging once you have generated the error.

If the error relates to the NetApp credentials, the error in the log will be similar to “Clone of "Datacenters/DC Name/vm/XP/" to "XPDesktop01" failed: Failed to get VM template info! Error: NetApp filer: 192.168.1.120 has not been connected. Call SetNaFiler() first”. To resolve this, check the credentials either specifically for the filer or the default credentials in *Locations -> Management Servers -> Network Storage*.

Error: When provisioning new desktops, the job starts, however, fails immediately displaying "Clone of 'Datacenters\DC Name\vm\XP\' to 'XPDesktop01' failed: Object reference not set to an instance of an object"in the vWorkspace console. In the example, error XP is the template and XPDesktop01 is the target Virtual machine. If you were to enable logging in vWorkspace you would see the same error message in the log file.

Solution: Typically this error is generated if the Flex Clone license does not exist on the NetApp Storage Controller.

If you experience any errors that are covered in this section, please contact the respective support organizations. Details for Quest and NetApp support can be found on the subsequent pages.

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