Quest and NetApp Integration
Rapid Provisioning with Flex Clone and vWorkspace

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October 2009

Technical Brief
CONTENTS

CONTENTS ......................................................................................... 1
OVERVIEW............................................................................................. 1
CONFIGURING THE NETAPP STORAGE CONTROLLER ....................... 2
CONFIGURING VMWARE VIRTUAL CENTER OR VSPHERE .................... 5
CONFIGURING QUEST VWORKSPACE............................................... 7
CREATING DESKTOPS WITHIN QUEST VWORKSPACE ...................... 9
TROUBLESHOOTING ........................................................................ 12
ABOUT QUEST SOFTWARE, INC. ....................................................... 14
    CONTACTING QUEST SOFTWARE .................................................. 14
    CONTACTING QUEST SUPPORT .................................................. 14
ABOUT NETAPP ................................................................................ 15
    CONTACTING NETAPP ............................................................... 15
    CONTACTING NETAPP SUPPORT ............................................... 15
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.

NetApp have previously written a technical whitepaper that covers Virtual Desktop deployments on NetApp Storage Systems within a VMware environment. This whitepaper covers the configuration of the VMware and NetApp network that is typically required for this type of environment, page 5 is the most relevant. The NetApp TR3770 Whitepaper is available from http://media.netapp.com/documents/tr-3770.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.
1. Within NetApp System Manager* under Configuration -> System Tools -> Licenses 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 for VMware. The sizing of this volume will depend 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 example screenshots below of the datastore wizard.
3. The NetApp Storage Controller configuration is complete, you may wish to repeat these steps if you require additional datastores.

CONFIGURING VMWARE VIRTUAL CENTER OR vSPHERE

From here on in 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 Controllers.
2. Within Configuration -> Hardware -> Storage section click on the Add Storage link.
3. Follow the Add Storage wizard to attach the volume created on the NetApp Storage Controller. Please refer to example screenshots below.
The recommendation is that 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 desired 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 assumption has been made 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. Within this wizard you will define the NetApp Storage Server information. You can either setup access credentials here on a per storage server basis or globally via the initial management servers screen, these are defined in the Default Credentials section. Example screenshots are below.
CREATING DESKTOPS WITHIN QUEST vWORKSPACE

The assumption has been made that a desktop group has been created under Locations -> <location name> -> Desktops for the desktops to be added to.

1. Highlight the desktop group name, right click and select Add Computers. You will then be presented with the Add Computers Wizard.
2. After the Welcome screen you will need to enter the number of desktops you wish to create, once you have entered the desired number click next.
3. On the Clone Method page select Rapid Provisioning. This initiates the NetApp Flex Clone method rather than the standard VMware create Virtual Machine from Template feature.
4. On the *Template* screen click the *Import* button and once completed select the desired temple, verify that the server type is defined as NetApp.

![Add Computers](image)

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, should you wish to change them. Bear in mind you may need to click the *Import* button to retrieve the latest information from VC.

Once you reach the end of the wizard you’ll be presented with a summary screen, at this stage it is worth ensuring you have sufficient storage for the desired number of virtual machines. Please see the example screen shot.
6. Once the desktops have completed the console will look similar to the following screenshot.
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 stepping through the Add Computers wizard the Template page shows my 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 where as 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 try to ascertain the error it would advised to enable the log file, to do this right click 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 you would need to check the credentials in Locations -> Management Servers -> Network Storage; either specifically for the filer or the default credentials.

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.
ABOUT QUEST SOFTWARE, INC.

Quest Software, Inc. delivers innovative products that help organizations get more performance and productivity from their applications, databases and Windows infrastructure. Through a deep expertise in IT operations and a continued focus on what works best, Quest helps more than 50,000 customers worldwide meet higher expectations for enterprise IT. Quest Software can be found in offices around the globe and at www.quest.com.

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Please refer to our Web site for regional and international office information.

Contacting Quest Support

Quest Support is available to customers who have a trial version of a Quest product or who have purchased a commercial version and have a valid maintenance contract. Quest Support provides around the clock coverage with SupportLink, our web self-service. Visit SupportLink at http://support.quest.com

From SupportLink, you can do the following:

- Quickly find thousands of solutions (Knowledgebase articles/documents).
- Download patches and upgrades.
- Seek help from a Support engineer.
- Log and update your case, and check its status.

View the Global Support Guide for a detailed explanation of support programs, online services, contact information, and policy and procedures. The guide is available at: http://support.quest.com/pdfs/Global_Support_Guide.pdf
ABOUT NETAPP

At NetApp, we bring together the world's most creative and dedicated people to help you affordably store, manage, protect, and retain one of your most precious assets—your data. We've built a reputation for innovative problem solving by creating products and solutions that deliver efficiency savings and enable breakthrough business capabilities.

With NetApp you can cut your IT costs in half, use up to 80% less storage, defer data center expansion, and accelerate your time to market. For more information please visit www.netapp.com

Contacting NetApp

Phone: 877-263-8277 (United States and Canada)
Web site www.netapp.com
Contact: http://www.netapp.com/us/contact-us/

Please refer to our Web site for regional and international office information.

Contacting NetApp Support

It's available around the clock, every day. You can access this support by phone, on the Web, and on-site. So no matter if it's 2 a.m. in Belfast or Boston, we have on-duty support staff armed with the spare parts you need to keep your business up and running.

Available anytime and anywhere, NOW™ (NetApp on the Web) features an array of self-service tools, including online technical assistance, software downloads, online service contract and product management, training and product programs, and reseller and partner resources.

For contact information and local toll free telephone numbers for NetApp technical support, please visit the following site: http://www.netapp.com/us/support/ngs-contacts.html