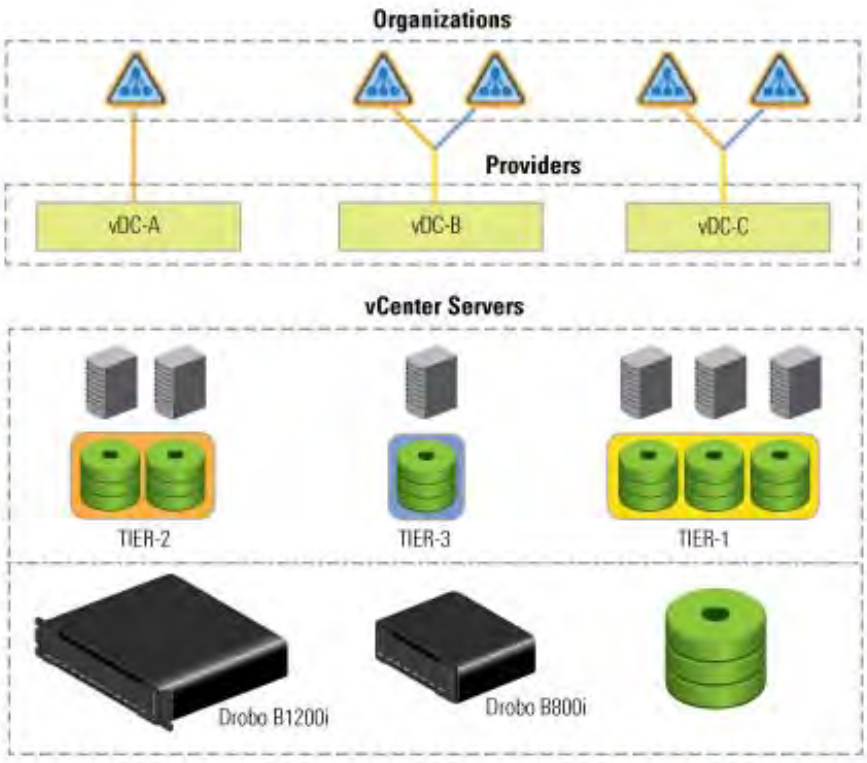
Companies of all sizes are looking for their IT department to deliver virtualization solutions as a service. VMware vCloud enables IT administrators to leverage existing VMware technologies to build public or private clouds. VMware vCloud is an approach to pool IT resources on-demand as self-managed virtual infrastructures. This architecture also enables tiered service levels, an important part of cloud computing.

More and more IT administrators look at the cloud as the next frontier onto which IT resources are being moved to. Companies, as well as service providers, require that existing and new resources are easier to provision, manage and monitor. While VMware's vCloud Director is a technology first used by service providers, it can be use in any sized organization to accomplish better service levels and lower costs. Drobo provides the easy-to-use storage component with a price structure enabling tier 2 or 3 storage alongside enterprise-class top-tier storage.

Topics

- What you will need & Drobo and vCloud basics
- Adding a provider vDC
- Allocating resources to an organization
- Adding datastores to a provider vDC
- Appendix: Storage Profiles



What You Will Need

- Drobo B1200i or B800i iSCSI SAN storage
- Drobo Dashboard management software on one server (VM)
- Enterprise-grade 7200 RPM SAS or SATA disk drives recommended
- VMware vCloud components installed and configured

This document describes using Drobo with vCloud and assumes that the Drobo has been deployed and configured within the VMware virtualization infrastructure (ESX/ESXi and vCenter). For more information on using Drobo with VMware, refer to the VMware How-To document "Deploy VMware and Drobo as a Complete and Cost-Effective Virtualization Solution" in the How-To Guides section on www.drobo.com/resources.

Drobo and IOPS

For most users, particularly larger ones, Drobo devices are cost effective and match the profile for backup or lower-tier primary storage. Drobo model B800i supports SATA drives for the best price capacity but not optimized for IOPS. Drobo model B1200i supports SATA and SAS drives, as well as SSDs for a mixture of price/capacity and price/performance. By combining a small number of SSDs with high-capacity SAS drives, users can have Tier 2 storage that is high capacity and strong IOPS that otherwise would require a large number of high-speed SAS drives to achieve.

NOTE: Drobo does not provide an IOPS profile at an enterprise SSD level in the >10,000 IOPS range. For those Tier 1 requirements in larger organizations, enterprise tiering solutions or all-SSD storage would be required.

vCloud Director Basics

Think of vCloud as a layer on top of vCenter. Essentially all the resources within vCenter (servers, storage, etc.) are presented to vCloud Director, allowing IT administrators to easily manage these resources and present them to either private or public clouds. vCloud encompasses all aspects known to the IT administrator in one elegant, yet very diverse, ecosystem. Authentication, security, network, storage, virtualization, and compliance, to name a few, are part of this ecosystem.

Among the many components of vCloud, this document focuses on storage and where and how you can leverage the advantages of Drobo iSCSI volumes in a vCloud deployment.

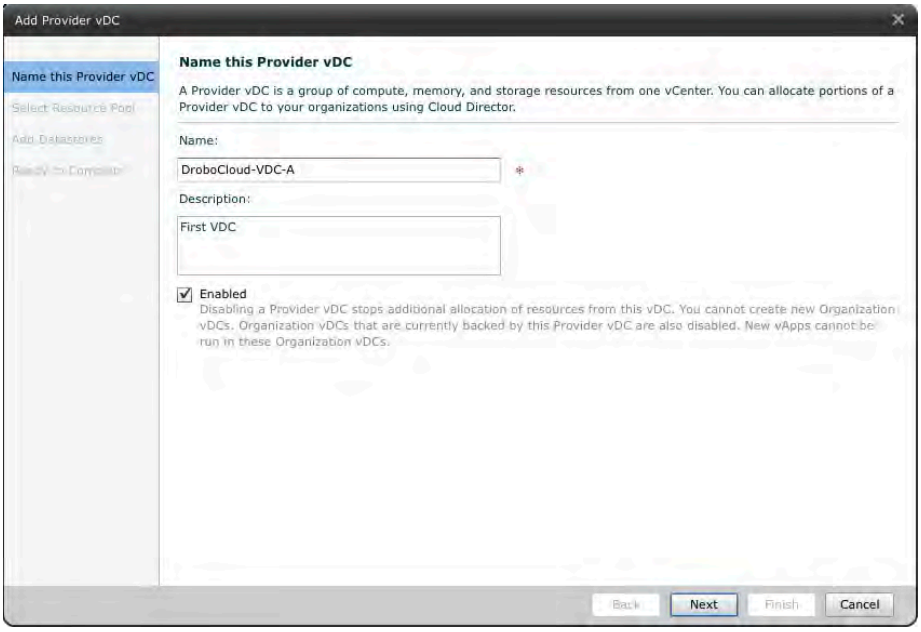
Make sure that the minimum requirements specified in the "vCloud Director Installation and Configuration Guide," have been met and running successfully:

- vCloud Director
- vShield Manager
- One or more ESX/ESXi hosts
- One or more vCenter servers

Adding a Provider vDC

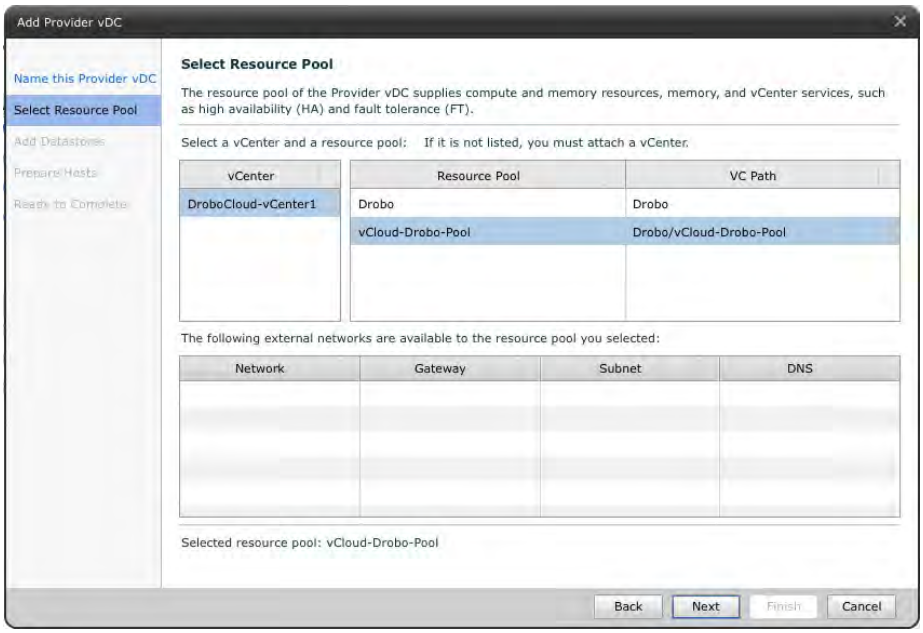
In the initial installation of vCloud Director, there are number of steps in which storage is involved. In this section, you will see how easy it is to add VMFS Datastores when adding a Provider vDC.

STEP 1



Enter the name and description of this "provider," in this example, Drobo.

STEP 2

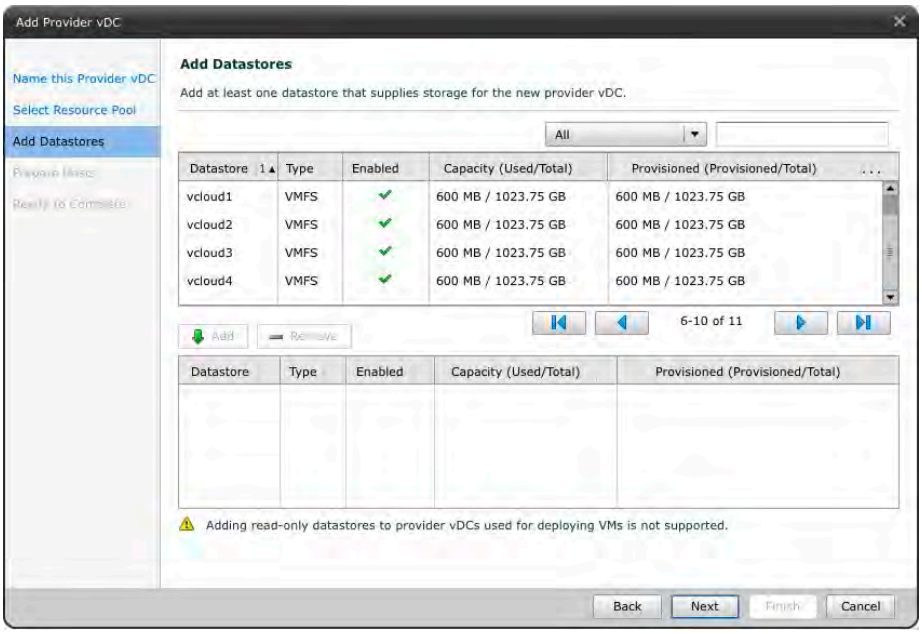


Select a vCenter server to connect to in the first column.

If more vCenter servers are connected, make sure you are selecting the vCenter that has access to the shared storage that you want to provision in this step.

This populates a list of resource pools. If no resource pools appear, you might not have created these resource pools in the vCenter server that you selected. In that is the case, log in to your vCenter server via a vSphere client. Also note that DRS needs to be enabled so that a resource pool can be created.

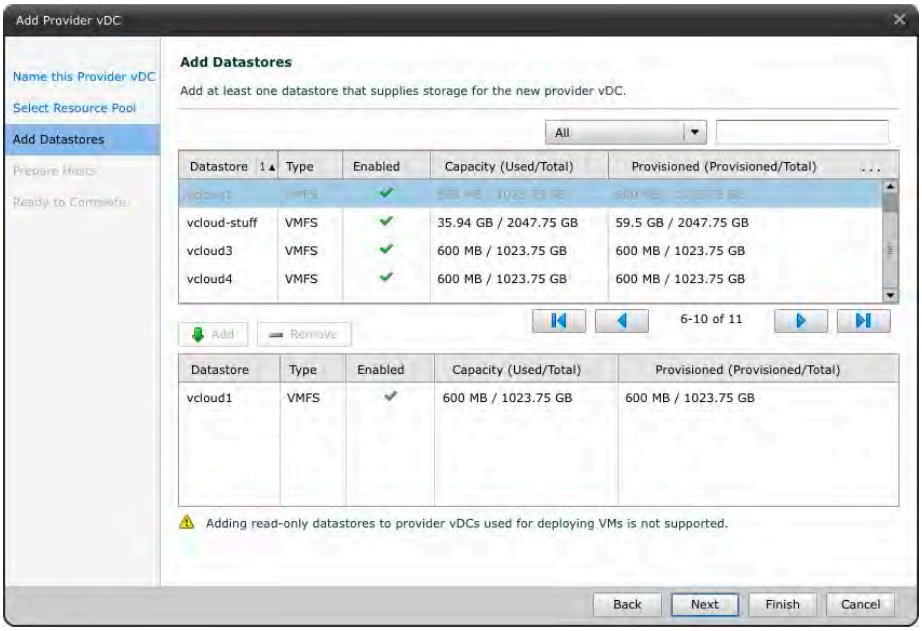
STEP 3



Select the VMFS datastores that you wish to present to this Provider vDC and click **Add**.

In this example, these are Drobo iSCSI volumes that were added as VMFS datastores to the vCenter server.

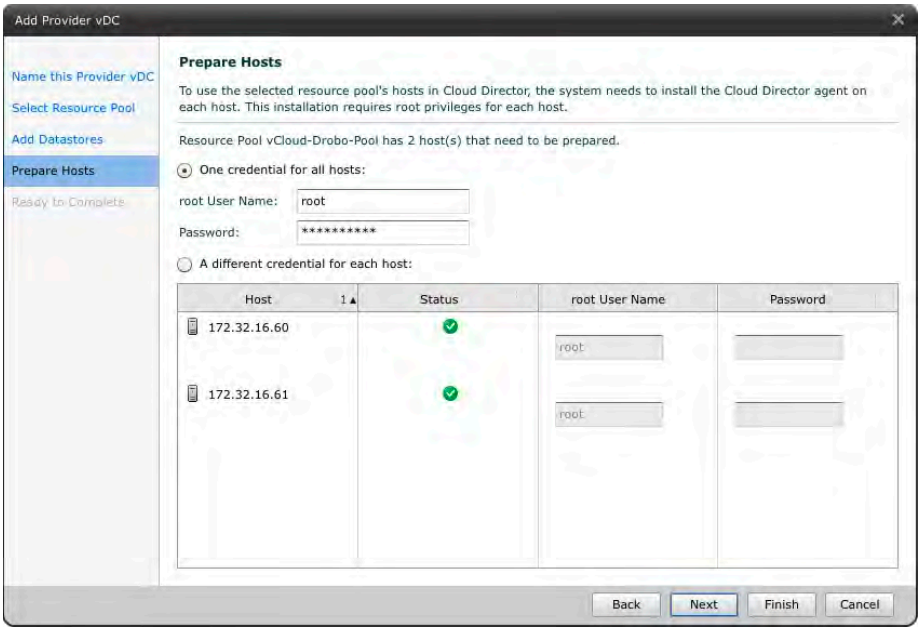
STEP 4



Once you have selected the datastores, click **Next**.

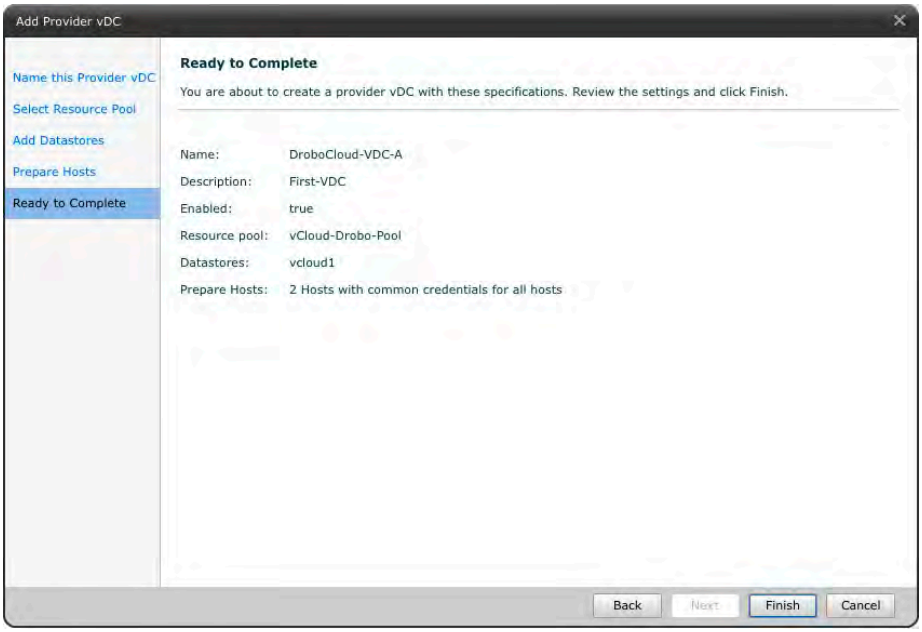
NOTE: Changing the name of a datastore in vCenter also changes the name in vCloud Director.

STEP 5



Provide the credentials so that vCloud Director can install the agent on each host to access the resource pools of the servers.

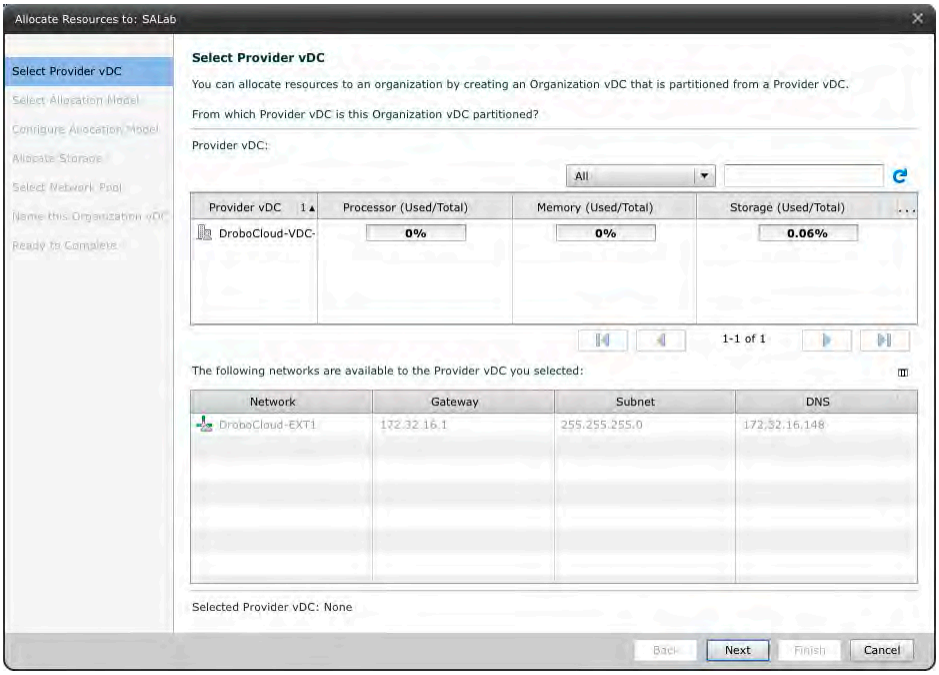
STEP 6



Review the summary and if everything looks OK, click **Next**.

Allocating Resources to an Organization

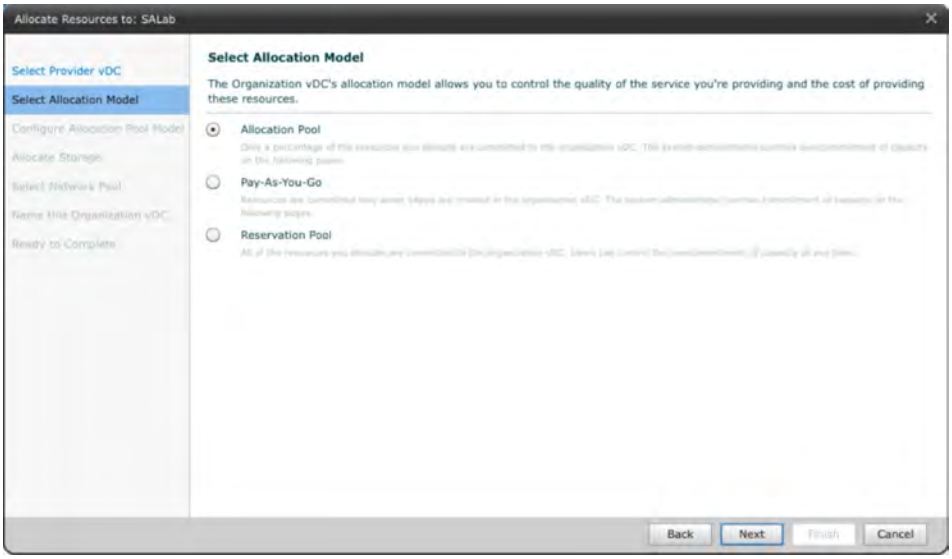
STEP 1



Select a Provider vDC and the appropriate network and click **Next**.

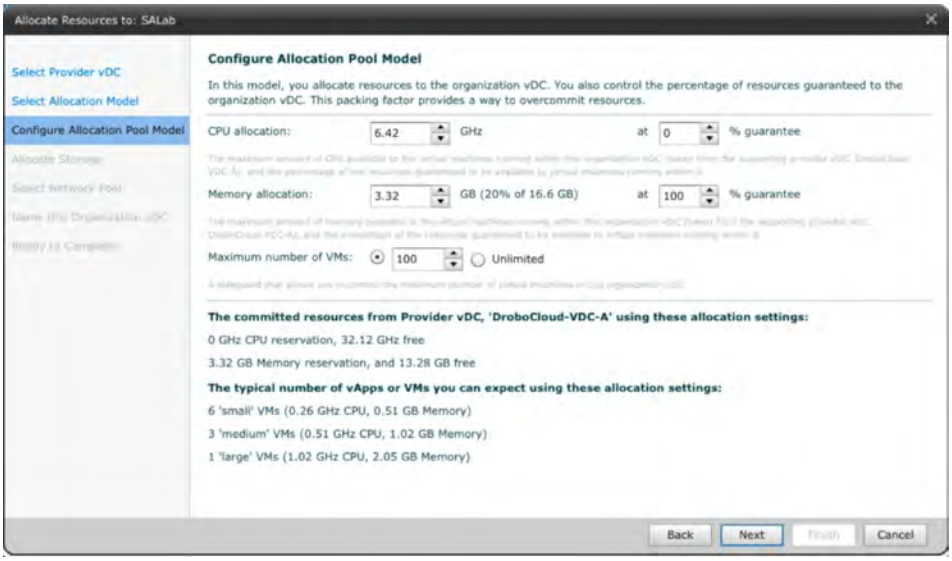
STEP 2

This step is very important since it represents how resources will be allocated to an organization. While storage is treated the same way across all models, the following article describes in detail the advantages of each and storage considerations (e.g., thin provisioning, limits): http://kb.vmware.com/kb/1026290.



Click **Select Allocation Model** on the left. In this example, select **Allocation Pool** and click **Next**.

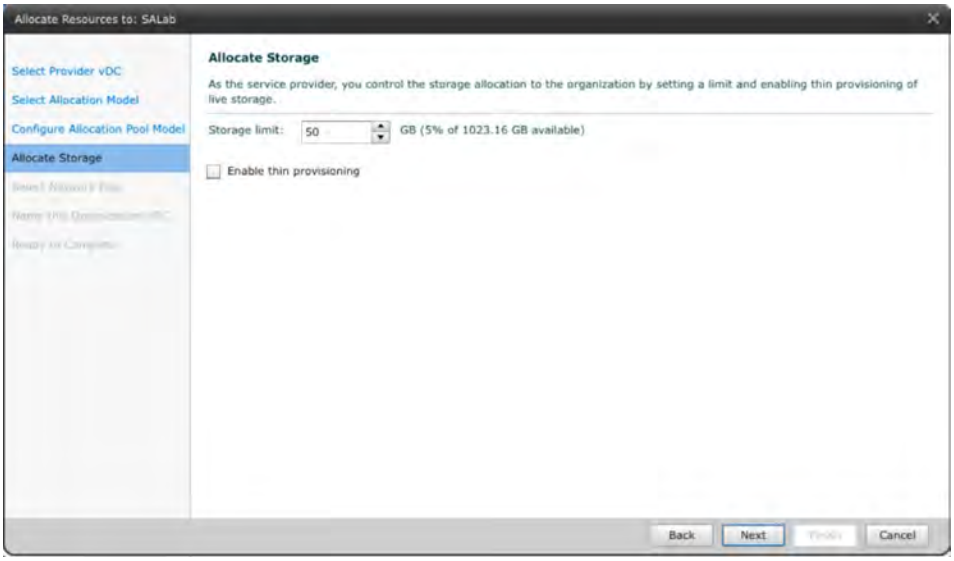
STEP 3



Click **Configure Allocation Pool Model** on the left, change settings if you wish, and click **Next**.

NOTE: These settings can be changed later. These setting are passed down to the vCenter resource pool.

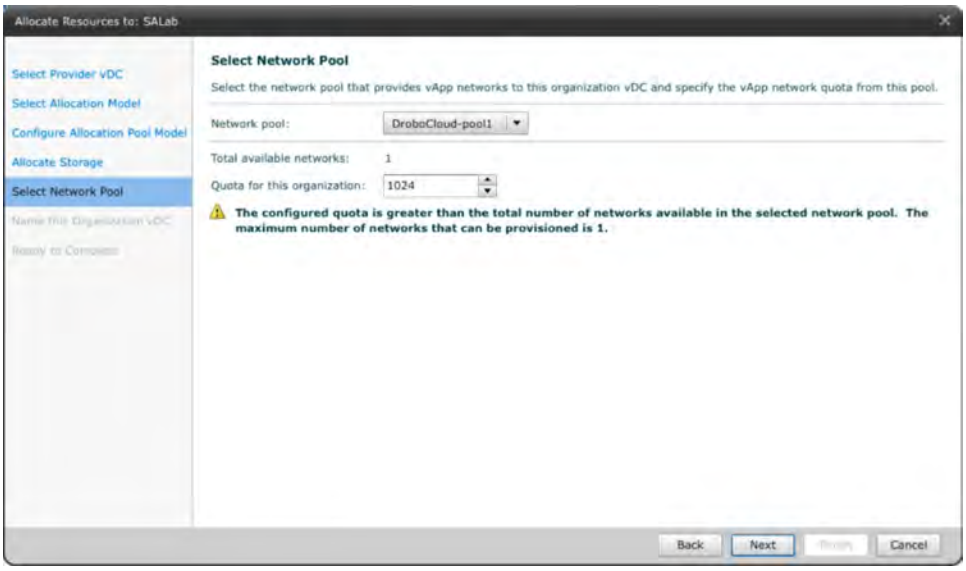
STEP 4



Click **Allocate Storage** on the left, commit the amount of space that you want the organization to have access to, and click **Next**.

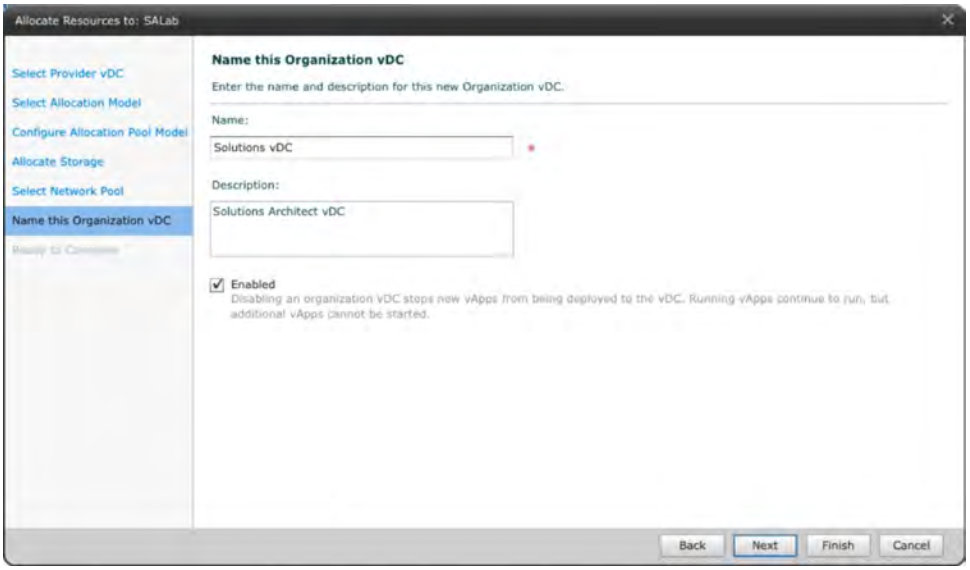
Note that you can enable thin provisioning even if the SAN storage array, in this case Drobo, is also thinly provisioned.

STEP 5



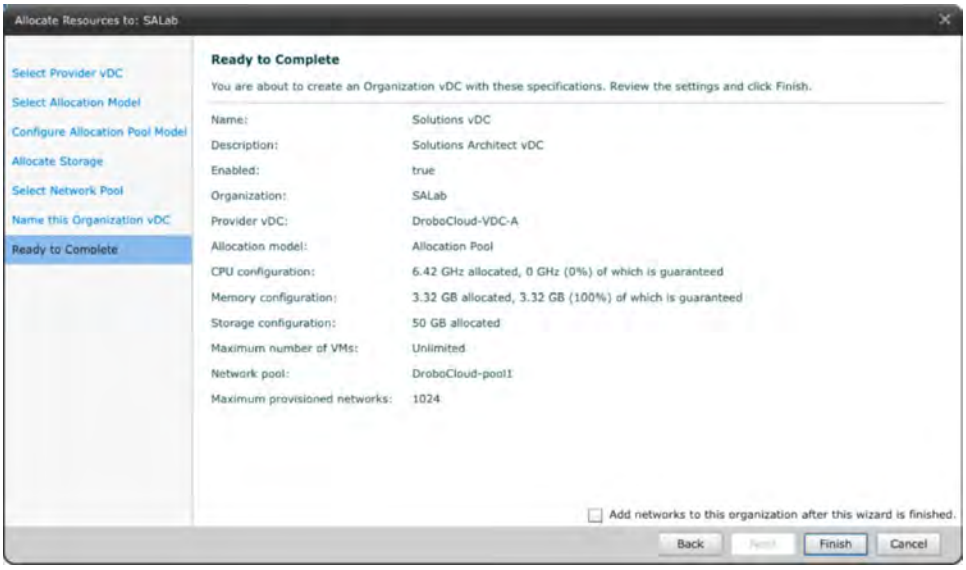
Click **Select Network Pool** on the left and click **Next**.

STEP 6



Click **Name the Organization vDC** on the left, enter a name and description for this Organization vDC, and click **Next**.

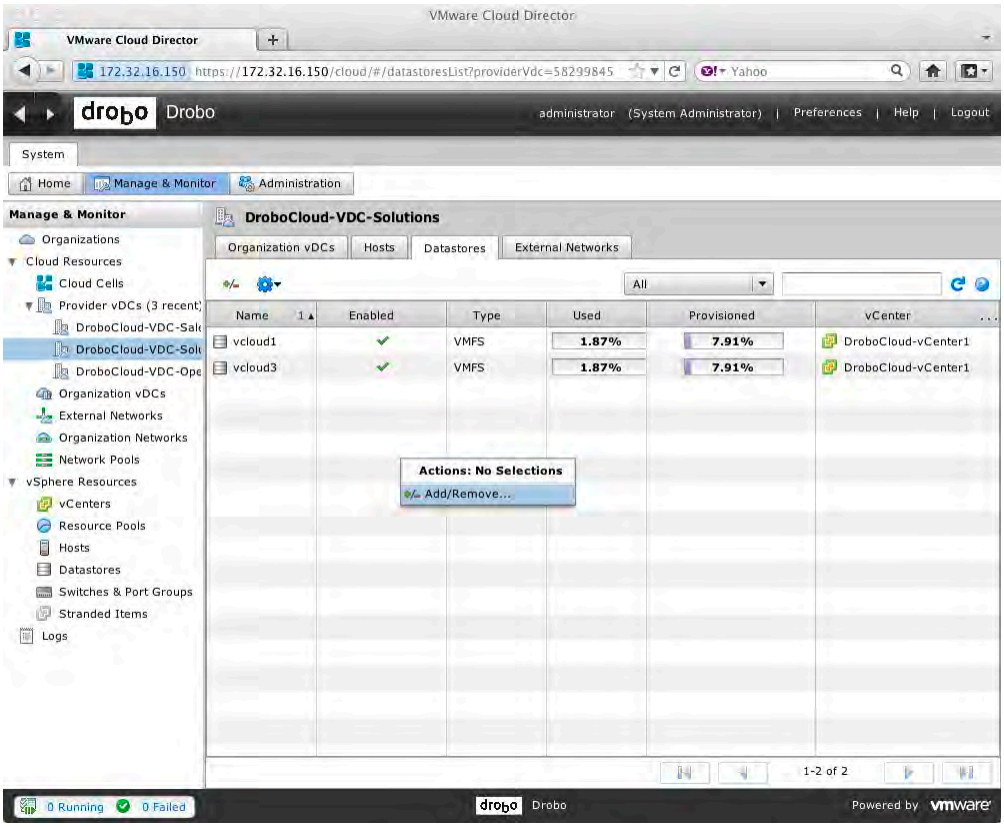
STEP 7



Review the summary and if everything looks OK, click **Finish**.

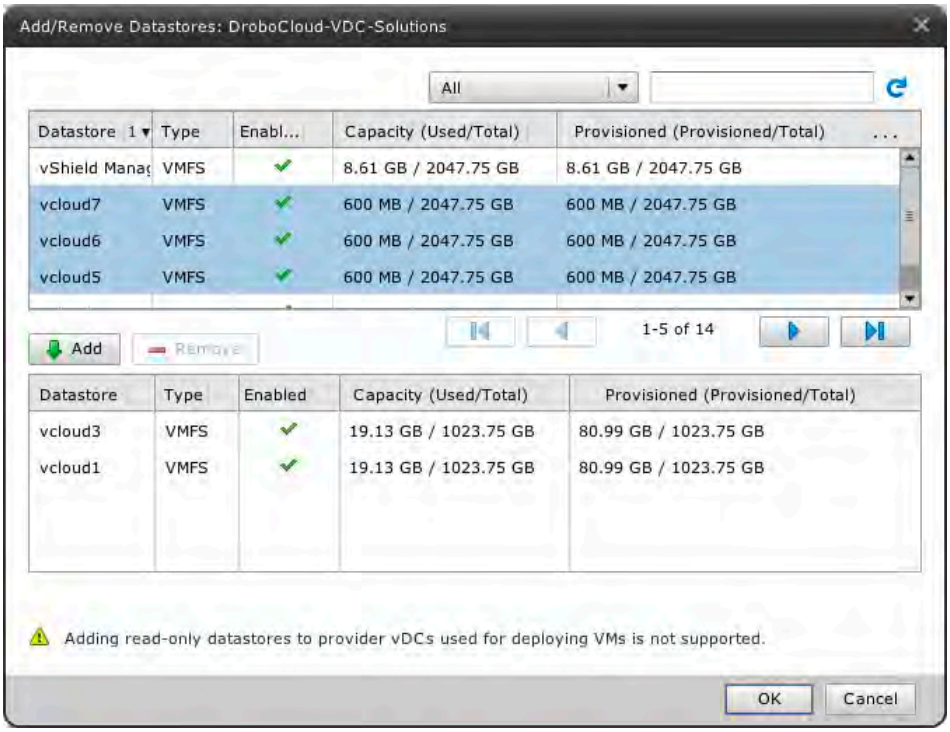
Adding Datastores to a Provider vDC

STEP 1



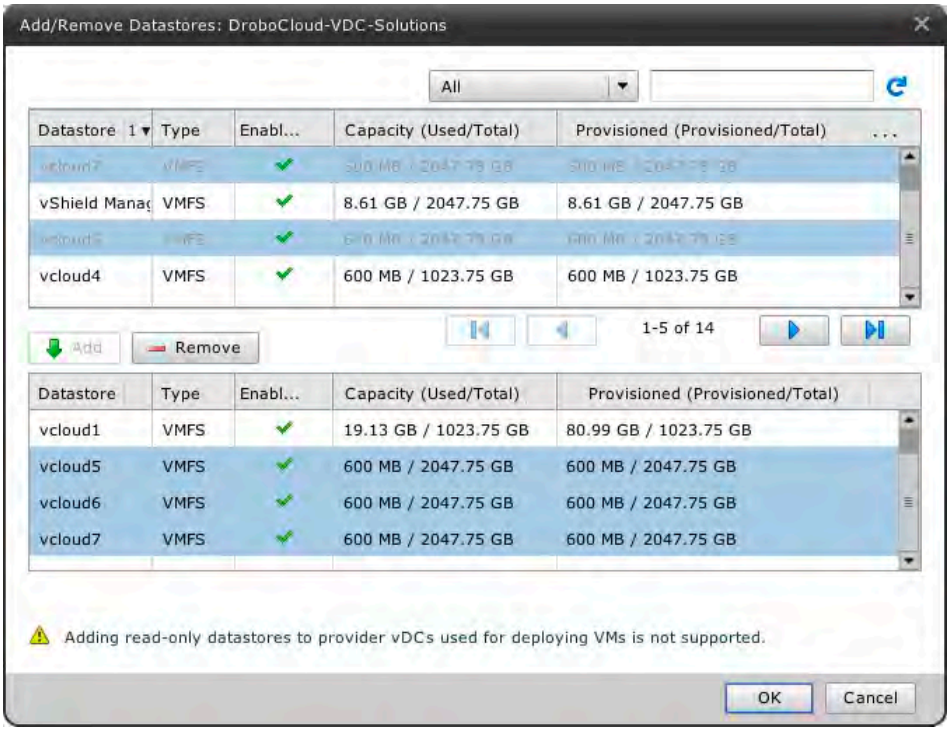
In vCloud Director, click the **Datastores** tab, right-click in the pane on the right, and choose **Add/Remove** from the menu.

STEP 2

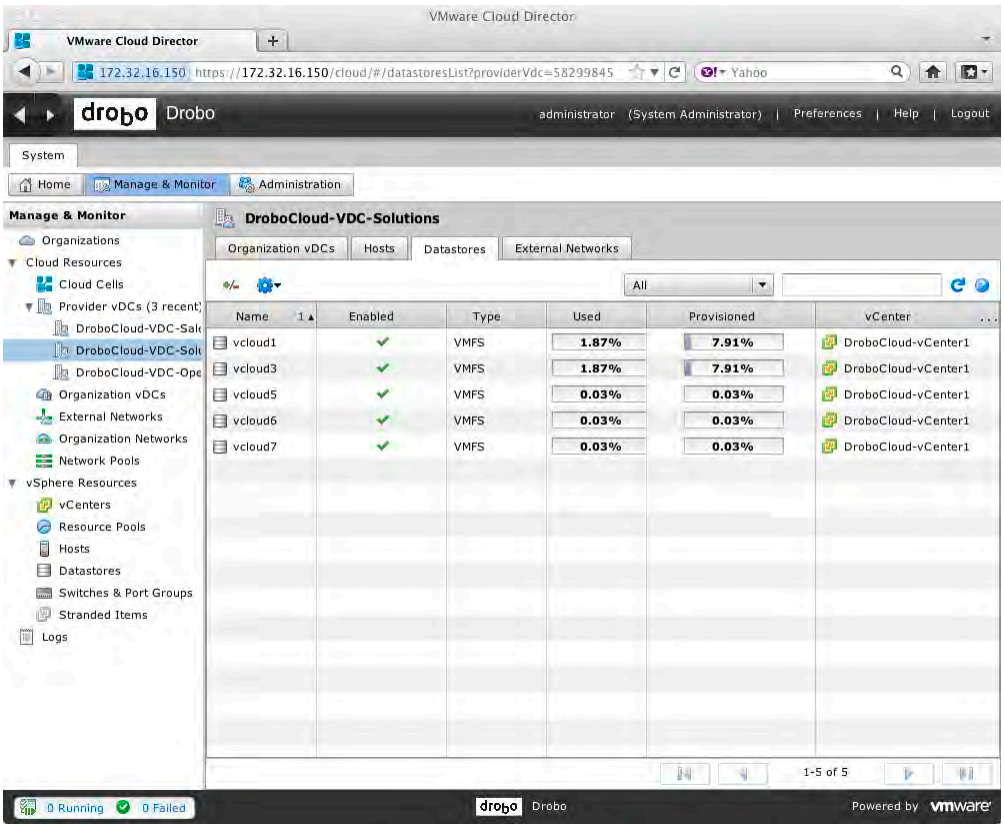


You can now select one or more datastores and click **Add**.

STEP 3



Review the newly added datastores and click **OK**.



Additional datastores are now ready and accessible for the Provider vDC and additional space can be committed to organizations.

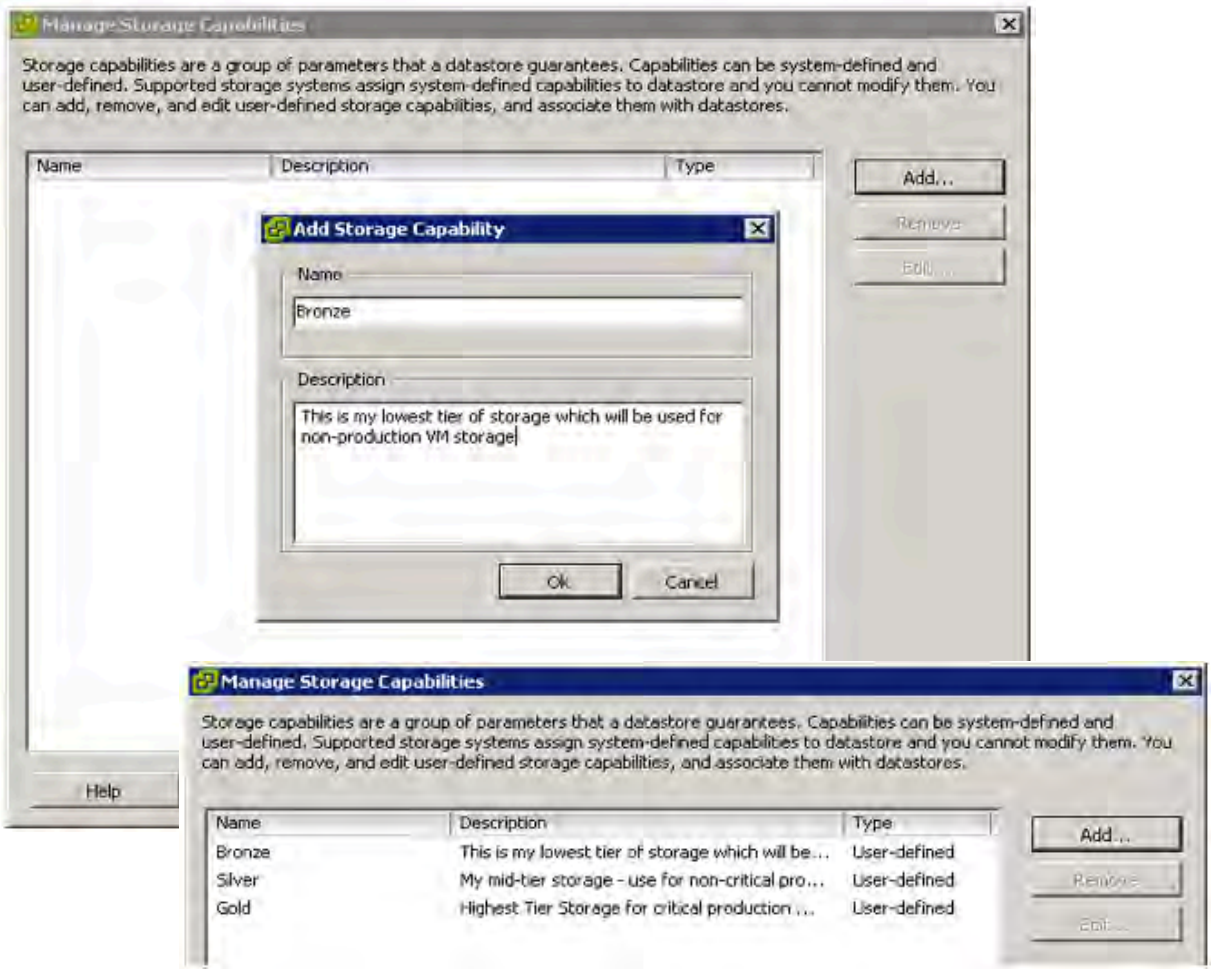
Appendix: Storage Profiles

Profile Driven Storage is a feature that allows you to easily and correctly select the datastore on which to deploy Virtual Machines. This selection is based on the capabilities of the datastore.

NOTE: This appendix is taken from a VMware blog available @ http://blogs.vmware.com/vsphere/2011/08/vsphere-50-storage-features-part-10-profile-driven-storage.html

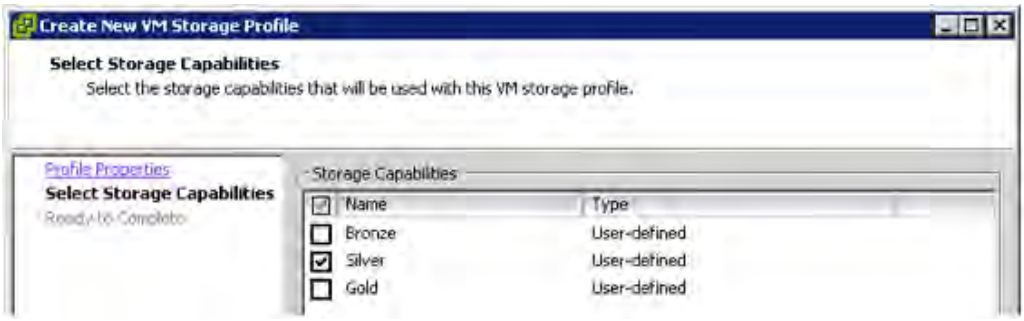
STEP 1: CREATE USER-DEFINED STORAGE CAPABILITIES

There are a number of steps to successfully use Profile Driven Storage. Before building a Storage Profile with Drobo, you must manually associate the capabilities fort the Drobo. From VMware vSphere, click the **VM Storage Profiles** icon in the Management section, and then start adding the user-defined storage capabilities (or business tags). In the VM Storage Profiles view, click **Manage Storage Capabilities** and add them in. In this example, a Bronze user-defined storage capability is created and described as the "lowest tier of storage which will be used for non-production VM storage."

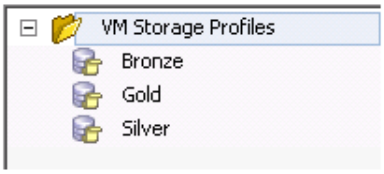


STEP 2: CREATE A VM STORAGE PROFILE

Back in the VM Storage Profiles view, click **Create VM Storage Profile**. First give the profile a name and description and then select the storage capabilities for that profile.

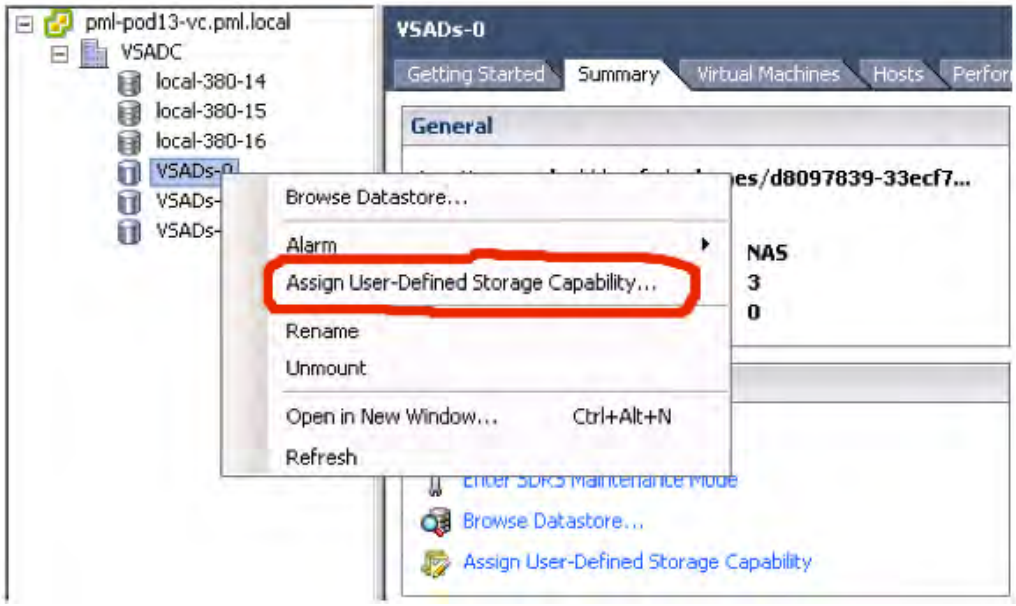


You can make a number of different profiles. For example, one profile for each tier of storage, three in all, each containing a different capability (Bronze, Silver & Gold).



STEP 3: ADD THE USER-DEFINED CAPABILITY TO THE DATASTORE

Right-click on a datastore and choose **Assign User-Defined Storage Capability** from the menu.



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