



Terminology and key concepts

ONTAP Select

David Peterson
November 21, 2019

This PDF was generated from https://docs.netapp.com/us-en/ontap-select/concept_terminology.html on October 18, 2020. Always check docs.netapp.com for the latest.

Table of Contents

Terminology and key concepts 1

Terminology and key concepts

As you begin to explore ONTAP Select and plan a deployment, it is helpful to first become familiar with the terminology and key concepts.

ONTAP Select Deploy

ONTAP Select Deploy is the administration utility that you use to deploy ONTAP Select clusters. The Deploy utility runs in a dedicated Linux virtual machine. You can access the Deploy utility through the web user interface, CLI management shell, and REST API.

Hypervisor host versus ONTAP Select node

A *hypervisor host* is the core hardware platform that hosts an ONTAP Select virtual machine. When an ONTAP Select virtual machine is deployed and active on a hypervisor host, it is considered to be an *ONTAP Select node*.

ONTAP Select cluster

You can create an *ONTAP Select cluster* composed of one, two, four, six, or eight nodes. Multi-node clusters always contain one or more HA pairs. For example, a four-node cluster consists of two HA pairs. A single node cluster does not provide HA capability.

Preparation of the hypervisor host environment

Before using the Deploy administration utility to deploy an ONTAP Select cluster, you need to prepare the hypervisor hosts where ONTAP Select will run, including the storage and networking environments. This host pre-configuration is done outside of the ONTAP Select product based on the current requirements and limitations.

Evaluation versus production deployments

Every ONTAP Select node runs with either an *evaluation license* or a *purchased license*. An evaluation license allows you to evaluate ONTAP Select prior to deploying it in a production environment. The evaluation license is automatically generated and applied. If you deploy a cluster in a production environment, you must purchase a license which involves choosing:

- Licensing model
- Storage capacity
- Platform license offering

Capacity tiers licensing model

The capacity tiers licensing model is the original option when licensing storage for an ONTAP Select deployment. It is based on the ONTAP model used with NetApp AFF and FAS. A separate license is required for each node. The storage capacity is locked to the node and perpetual (no renewal required).

Capacity pools licensing model

The capacity pools licensing model was introduced with ONTAP Select 9.5 using Deploy 2.10. A separate license is required for each storage capacity pool. The capacity pool license is locked to a License Manager instance (that is a Deploy instance) and must be renewed based on the terms of your purchase. You can license and use any number of capacity pools in your organization. However, because the capacity pools are shared by the ONTAP Select nodes, fewer licenses are typically required than capacity tiers licensing.

License Manager

The License Manager is a software component which supports capacity pools licensing. It is currently part of the Deploy administration utility. LM leases storage to the ONTAP Select nodes from the shared pools it manages. The *License Lock ID* is a numeric string uniquely identifying each LM instance, and therefore each Deploy instance. You must use both the capacity pool license serial number and LLID to generate a license file.

Platform license offerings

There are three license offerings available which determine the size capabilities of the ONTAP Select virtual machine when you purchase a license:

- Standard
- Premium
- Premium XL

For more information, see the two sections *Plan* and *License*.

Storage pools versus datastores

An ONTAP Select *storage pool* is a logical data container designed to abstract and hide the underlying physical storage. A storage pool is hypervisor-independent. When deployed on an ESXi hypervisor host, the ONTAP Select storage pool is synonymous with the VMware *datastore*.

Cluster MTU

Cluster MTU is a feature allowing you to configure the MTU size used on the internal network used with an ONTAP Select multi-node cluster. The Deploy administration utility adjusts the MTU size as you configure the HA pairs to accommodate your networking environment. You can also manually set the value.

ONTAP Select vNAS

The ONTAP Select vNAS solution allows an ONTAP Select node to access VMware datastores on external storage. With ONTAP Select vNAS, a local RAID controller is no longer needed; the RAID functionality is assumed to be provided by the remote storage. ONTAP Select vNAS can be configured in the following ways:

- VMware vSAN
- Generic external storage array

In both cases, the external storage must be configured prior to creating an ONTAP Select cluster or expanding the storage capacity of an existing node.

Node re-hosting

When you deploy a cluster that uses external storage available through the ONTAP Select vNAS solution (either VMware vSAN or a generic external storage array), the ESXi virtual machine hosting the ONTAP Select node can be moved through actions utilizing the following VMware features:

- vMotion
- High Availability (HA)
- Distributed Resource Scheduler (DRS)

The ONTAP Select Deploy utility detects the movement of the virtual machine as part of executing an operation on the cluster, such as:

- cluster online
- cluster offline
- storage add

When a virtual machine is moved, the Deploy utility updates its internal database and configures the new ESXi host. All actions performed on the ONTAP Select node are blocked until the movement of the virtual machine and Deploy updates are completed.

Mediator service

The ONTAP Select Deploy utility includes a mediator service which connects to the nodes in the active two-node clusters. This service monitors each HA pair and assists in managing failures.



If you have one or more active two-node clusters, the ONTAP Select Deploy virtual machine administering the clusters must be running at all times. If the Deploy virtual machine is halted, the mediator service is unavailable and HA capability is lost for the two-node clusters.

MetroCluster SDS

MetroCluster SDS is a feature that provides an additional configuration option when deploying a two-node ONTAP Select cluster. Unlike a typical two-node ROBO deployment, the MetroCluster SDS nodes can be separated by a much greater distance. This physical separation enables additional use cases, such as disaster recovery. You must have a premium license or higher to use MetroCluster SDS. In addition, the network between the nodes must support a minimum latency requirement.

Credential store

The Deploy credential store is a secure database holding account credentials. It is used primarily to register hypervisor hosts as part of creating a new cluster. See the *Plan* section for more information.

Storage efficiency

ONTAP Select provides storage efficiency options that are similar to the storage efficiency options present on FAS and AFF arrays. Conceptually, ONTAP Select with direct-attached storage (DAS) SSDs (using a premium license) is similar to an AFF array. Configurations using DAS with HDDs and all vNAS configurations should be considered similar to a FAS array. The main difference between the two configurations is that ONTAP Select with DAS SSDs supports inline aggregate level deduplication and aggregate level background deduplication. The remaining storage efficiency options are available for both configurations.

The vNAS default configurations enable a write optimization feature known as single instance data logging (SIDL). With ONTAP Select 9.6 and later releases, the background ONTAP storage efficiency features are qualified with SIDL enabled. See the *Deep dive* section for more information.

Cluster refresh

After creating a cluster, you can make changes to the cluster or virtual machine configuration outside of the Deploy utility using ONTAP or hypervisor administration tools. You can also migrate a virtual machine which causes configuration changes. When these changes occur, the Deploy utility is not automatically updated and can become out of sync with the state of the cluster. You can use the cluster refresh feature to update the Deploy configuration database. Cluster refresh is available through the Deploy web user interface, CLI management shell, and REST API.

Software RAID

When using direct-attached storage (DAS), RAID functionality is traditionally provided through a local hardware RAID controller. You can instead configure a node to use *software RAID* where the ONTAP Select node provides the RAID functionality. If you use software RAID, a hardware RAID controller is no longer needed.

ONTAP Select image install

Beginning with ONTAP Select Deploy 2.8, the Deploy administration utility contains only a single version of ONTAP Select. The version included is the most current available at the time of release. For example, Deploy 2.8 contains ONTAP Select 9.4. The ONTAP Select image install feature allows you to add earlier versions of ONTAP Select to your instance of the Deploy utility, which can then be used when deploying an ONTAP Select cluster. See [Add ONTAP Select images for more information](#).



You should only add an ONTAP Select image with a version that is earlier than the original version included with your instance of Deploy. Adding later versions of ONTAP Select as they become available is not supported.

Administering an ONTAP Select cluster after it is deployed

After you deploy an ONTAP Select cluster, you can configure the cluster as you would a hardware-based ONTAP cluster. For example, you can configure an ONTAP Select cluster using System Manager or the standard ONTAP command line interface.

Related information

Adding an ONTAP Select image to Deploy

Copyright Information

Copyright © 2020 NetApp, Inc. All rights reserved. Printed in the U.S. No part of this document covered by copyright may be reproduced in any form or by any means-graphic, electronic, or mechanical, including photocopying, recording, taping, or storage in an electronic retrieval system-without prior written permission of the copyright owner.

Software derived from copyrighted NetApp material is subject to the following license and disclaimer:

THIS SOFTWARE IS PROVIDED BY NETAPP “AS IS” AND WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHICH ARE HEREBY DISCLAIMED. IN NO EVENT SHALL NETAPP BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

NetApp reserves the right to change any products described herein at any time, and without notice. NetApp assumes no responsibility or liability arising from the use of products described herein, except as expressly agreed to in writing by NetApp. The use or purchase of this product does not convey a license under any patent rights, trademark rights, or any other intellectual property rights of NetApp.

The product described in this manual may be protected by one or more U.S. patents, foreign patents, or pending applications.

RESTRICTED RIGHTS LEGEND: Use, duplication, or disclosure by the government is subject to restrictions as set forth in subparagraph (c)(1)(ii) of the Rights in Technical Data and Computer Software clause at DFARS 252.277-7103 (October 1988) and FAR 52-227-19 (June 1987).

Trademark Information

NETAPP, the NETAPP logo, and the marks listed at <http://www.netapp.com/TM> are trademarks of NetApp, Inc. Other company and product names may be trademarks of their respective owners.