



## Overview

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## About the NetApp Data Storage System

The NetApp storage systems, such as the Fabric-Attached Storage (FAS) system and the NearStore system, function as both Network Attached Storage (NAS) and Storage Area Network (SAN) storage devices that support a multiprotocol environment for data access. These devices are called Unified Storage Devices (USDs).

A NetApp unified storage system supports multiprotocol data access. It can be configured as a Fibre Channel, an Internet Small Computer System Interface (iSCSI) SAN, and a NAS device simultaneously. The NetApp storage system supports storage objects such as aggregates, volumes, logical unit numbers (LUNs), Qtrees, and so on, and provides open interfaces such as Data ONTAP APIs, SNMP, SMI-S agent that enables you to monitor and manage various components of the NetApp storage system.

NetApp open interfaces are used for unified storage capacity management. These interfaces simplify the capacity management of the NetApp storage systems when multiple protocols are supported and multiple objects are being managed. The NetApp storage systems export data as files through two primary protocols: Network File System (NFS) and Common Internet File System (CIFS). Also, the storage system exports data as blocks through the Fibre Channel Protocol (FCP) or iSCSI, and operate as SAN-attached disk arrays.

For more information, see your NetApp documentation.

## NetApp Accounts

Cisco UCS Director supports the following types of NetApp accounts.

### NetApp OnCommand

OnCommand manages and monitors all NetApp appliances (filers and NetCache appliances) within a network, by accessing global and detailed status reports of current and past activities. Cisco UCS Director discovers all storage elements in the NetApp account, such as aggregates, raid groups, disks, volumes, LUNs, Qtrees, and so on. Typically, the discovery process takes about 5 minutes or within the time interval that you configured in System Tasks.

## NetApp Data ONTAP

Data ONTAP is an operating system used by the NetApp filer. Data ONTAP has two modes:

- **Cluster mode**—An architecture that is composed of a group of connected NetApp storage controllers (nodes) that share a global namespace (GNS). The physical NetApp storage controllers can have attached disk shelves, network interface cards (NICs), and flash cards. These components create a physical resource pool that is virtualized as a logical cluster to provide data access. Cisco UCS Director abstracts and virtualizes the physical equipment into logical resources, which allows data operations to be moved in a nondisruptive way. Cluster administrators can administer the entire cluster and the SVMs within the cluster.
- **Storage Virtual Machines (SVMs)**—An SVM (formerly known as a Vserver) is a secure virtual storage server that supports multiple protocols and unified storage. Each SVM is configured for client and host access protocols, such as iSCSI. Each SVM contains at least one volume and at least one logical interface. SVMs provide data access to clients without regard to physical storage or controller, similar to any storage system.

Depending upon the permissions and capabilities assigned by the cluster administrator, an SVM administrator can manage SVMs and their resources, including volumes, protocols, and services.