

Solution Brief

NetApp ONTAP Select vNAS Solution

NAS services and Data Fabric flexibility over SAN storage

Key Benefits

- Deliver industry-leading NAS file services on your choice of commodity servers and datastores
- Protect your data by using built-in volume encryption and integrated backup and disaster recovery
- Manage data consistently with all storage supported by NetApp® ONTAP® across the Data Fabric

The Challenge/Opportunity

Providing enterprise-grade NAS services is a common challenge in hyper converged infrastructure (HCI) environments such as VMware vSAN as well as in SAN deployments.

vSAN is not a unified solution

VMware vSAN makes it easy to consolidate storage from distributed commodity servers, but it requires a third-party solution to provide NAS services.

SAN infrastructure is not sufficient

Existing SAN environments can't provide file services without the file system to control data storage and retrieval.

The Solution

Deploying NetApp ONTAP Select on vSAN- or SAN-hosted datastores allows customers to create a robust unified solution and take advantage of the ONTAP data replication functionality. This architecture is called ONTAP Select virtual NAS, or vNAS.

The ONTAP Select vNAS solution extends the functionality of ONTAP Select to provide industry-leading enterprise-grade NAS file services on top of bare-metal hypervisors.

Supporting single-node and multinode ONTAP Select deployments using VMware vSphere ESXi hypervisors, the vNAS solution supports both vSAN and VMFS datastores. vSAN datastores can be provisioned from both hybrid and all-flash vSAN configurations, effectively extending vSAN functionality to add NetApp NAS solutions. For VMFS datastores, the vNAS solution supports provisioning from all iSCSI, FC, and FCoE external arrays included in the VMware storage/SAN compatibility guide. It is also possible to install ONTAP Select on NFS datastores.

For a single-node vNAS solution, availability of the system is provided by the underlying data storage. For vSAN this is done via the storage policy and setting the failures to tolerate (FTT) and fault tolerance method (FTM) to the desired value. In the case of external arrays, data availability is provided by the HA capabilities of the array itself.

For a multinode vNAS solution, HA over vNAS is supported. Two-node HA can be configured on top of vSAN or an external array to provide maximum storage resiliency. Not only is data protected using the availability of the underlying storage, but also ONTAP Select HA adds an extra layer of resiliency for nondisruptive operation (NDO) and nondisruptive upgrade (NDU), making ONTAP Select vNAS a very robust solution.

Multiple instances per node are also supported. ONTAP Select instances not belonging to the same cluster can be configured on the same node. This feature adds many key benefits to the vNAS solution:

- Improved and optimized scalability
- Optimized cost
- Improved density

Customers can now take advantage of any spare capacity on hardware, allowing them to maximize utilization of existing resources.

Starting with ONTAP Select 9.2, the ONTAP Select vNAS solution also supports VMware HA, vMotion, and Distributed Resources Scheduler (DRS). After deployment of a single-node cluster that uses external storage or consumes a vSAN datastore, the node can be moved through VMware vMotion, HA, or DRS actions. The ONTAP Select Deploy utility can detect these movements and update its internal database to continue normal management of the node.

With ONTAP Select version 9.3, deployment flexibility and interoperability of the vNAS solution are improved even further. ONTAP Select VMs running on top of supported KVM hypervisors can now provision capacity from all iSCSI, FC, and FCoE external arrays supported by Red Hat Enterprise Linux (RHEL) KVM. Live KVM migration is also supported, both online and offline.

Benefits

The ONTAP Select vNAS solution is a cost-effective option to provide NAS services on HCI solutions that don't offer this service natively and to expand the services that can be provided over existing SAN environments.

Use Cases

The ONTAP Select vNAS solution offers considerable flexibility to companies with vSAN deployments in remote office or branch office locations. By taking advantage of the virtualization layer, companies can easily extend their environments to provide enterprise-level file and data replication services, leveraging the full potential of their vSAN investment.

The ONTAP Select vNAS solution is also an excellent alternative for IaaS providers interested in offering multi-tenant services. The vNAS solution provides a decoupled architecture that makes sure of data isolation and privacy, regardless of VM coresidency.

In both cases, data protection is also possible by replicating data back to the data center for backup and disaster recovery by using SnapMirror® software integrated with ONTAP Select.

Differentiation

The following benefits make the NetApp ONTAP Select vNAS solution a flexible and powerful offering.

Encryption

ONTAP Select supports data-at-rest encryption through NetApp Volume Encryption, which uses 256-bit AES keys.

Storage efficiency

Storage efficiency includes deduplication, compression, and compaction, which work at the ONTAP hosted file system level. Depending on the FTT/FTM settings, this could result in storage efficiencies that work across vSAN nodes. Storage efficiency features can work both inline and in the background.

Data management and protection

Because ONTAP Select is based on ONTAP 9, it supports the same data management and data protection tools used by engineered appliances. The list includes the NetApp OnCommand® management suite (OnCommand System Manager and Unified Manager, OnCommand Insight, OnCommand Workflow Automation, and SnapCenter®). From the data protection perspective, ONTAP Select supports SnapMirror, the SnapManager® suite, SnapRestore®, and FlexClone®. This allows ONTAP Select to benefit from a comprehensive ecosystem where data can be moved, protected, and managed with flexibility, efficiency, and security.

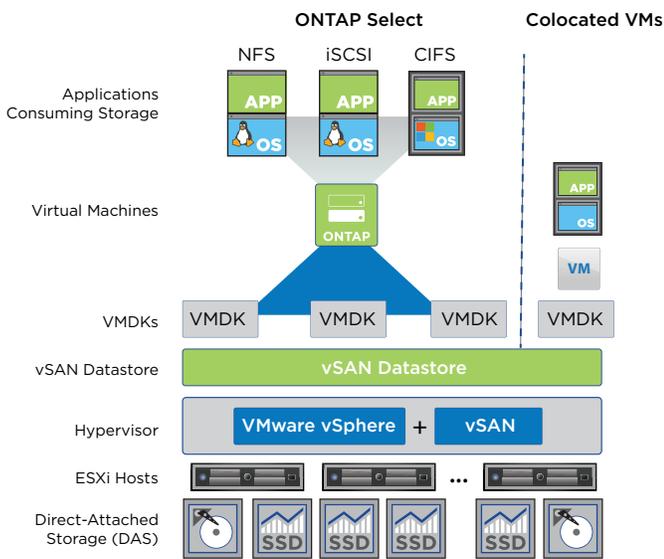


Figure 1) ONTAP Select on top of vSAN.

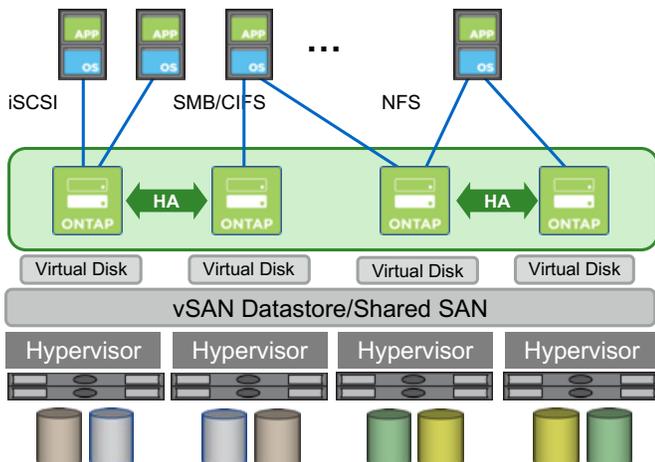


Figure 2) Multi-node vNAS on external arrays

Learn More About ONTAP Select

To learn more about ONTAP Select and its vNAS solution, visit the ONTAP Select page.

About NetApp

NetApp is the data authority for hybrid cloud. We provide a full range of hybrid cloud data services that simplify management of applications and data across cloud and on-premises environments to accelerate digital transformation. Together with our partners, we empower global organizations to unleash the full potential of their data to expand customer touchpoints, foster greater innovation and optimize their operations. For more information, visit www.netapp.com. #DataDriven