



Business use cases

ONTAP Select

NetApp

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Business use cases

Business needs and usage scenarios

ONTAP Select is suitable for several different types of applications based on the inherent flexibility provided through the hypervisor virtualization.

Deployment

From a high level, you can deploy ONTAP Select in two different ways regarding the workload on the hypervisor host servers.

Dedicated deployment

With the dedicated deployment model, a single instance of ONTAP Select runs on the host server. No other significant processing runs on the same hypervisor host.

Collocated deployment

With the collocated deployment model, ONTAP Select shares the host with other workloads. Specifically, there are additional virtual machines, each typically running computational applications. These compute workloads are local to the ONTAP Select cluster. This model supports specialized application and deployment requirements. As with the dedicated deployment model, each ONTAP Select virtual machine must run on a separate and dedicated hypervisor host.

Storage

ONTAP Select can be used as primary or secondary storage, depending on your business needs.

Primary storage

In certain cases, you may choose to deploy ONTAP Select as your primary storage platform. These types of implementations vary and depend on the workload characteristics of the applications as well as your business objectives.

Disaster recovery and secondary storage

You can use ONTAP Select to implement additional storage that augments your primary storage capabilities. The additional storage can be used to support your organization's disaster recovery efforts and data backup plans.

Development and testing

As you deploy various applications within your organization, you can use ONTAP Select as an integral part of the overall application development and testing process. For example, you may need temporary

storage to hold test input or output data. The length of these types of deployments can vary based on the application characteristics and requirements.

Remote and branch office

Deploy ONTAP Select in remote office/branch office (ROBO) situations to support smaller offices while maintaining centralized administration and control.

The following ROBO configurations are supported on VMware ESXi:

- Two-node cluster with HA capability
- Single-node cluster

The ONTAP Select VM can be collocated with application VMs, making it an optimal solution for ROBOs.

Using ONTAP Select to provide enterprise-class file services while allowing bidirectional replication to other ONTAP Select or FAS clusters enables resilient solutions to be built in low-touch or low-cost environments. ONTAP Select comes prepopulated with feature licenses for CIFS, NFS, and iSCSI protocol services as well as both SnapMirror and SnapVault replication technologies. Therefore, all of these features are available immediately upon deployment.



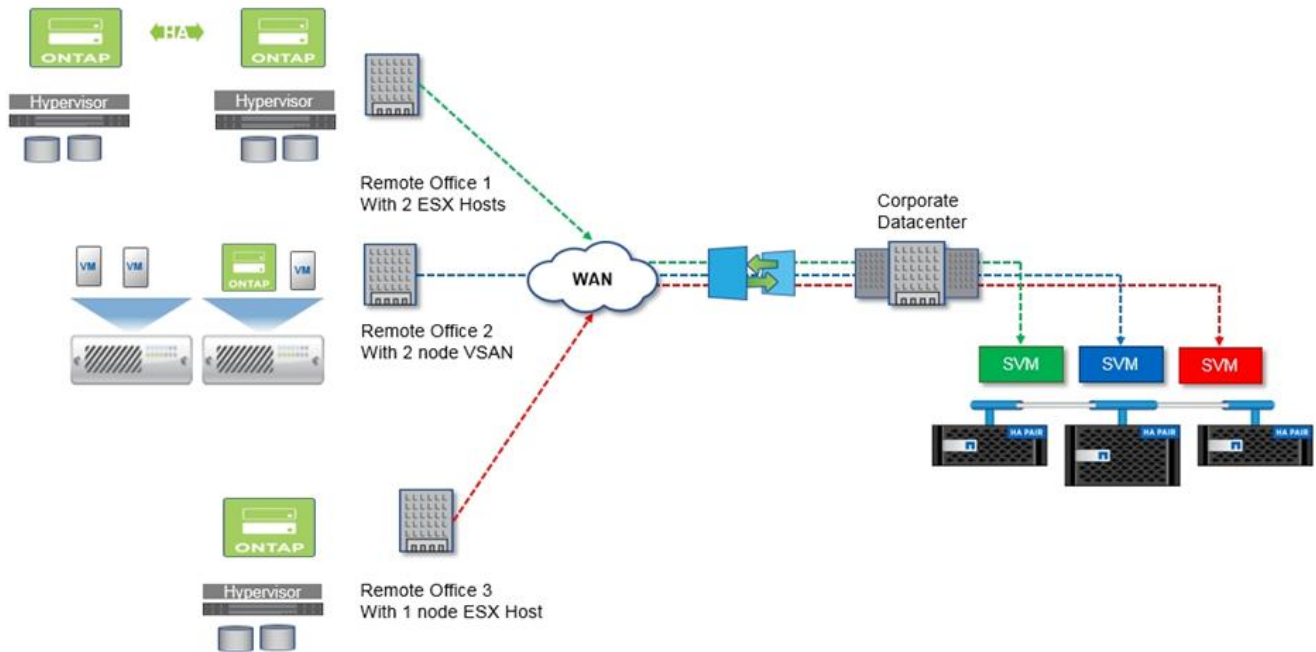
Because all VMware vSphere licenses are supported, you can choose the vSphere Remote Office Branch Office Standard or Advanced license instead of the Enterprise or Enterprise Plus license.

All vSphere and VSAN licenses are now supported.

An ONTAP Select two-node cluster with a remote mediator is an attractive solution for small data centers. In this configuration, HA functionality is provided by ONTAP Select. The minimum networking requirement for a two-node ONTAP Select ROBO solution is four 1Gb links. A single 10Gb network connection is also supported. The vNAS ONTAP Select solution running on VSAN (including the two-node VSAN ROBO configuration) is another option. In this configuration, the HA functionality is provided by VSAN. Finally, a single-node ONTAP Select cluster replicating its data to a core location can provide a set of robust enterprise data management tools on top of a commodity server.

The following figure depicts a common remote office configuration using ONTAP Select. Schedule-driven SnapMirror relationships periodically replicate the data from the remote office to a single consolidated engineered storage array located in the main data center.

Scheduled backup of remote office to corporate data center



Private cloud and data center

ONTAP Select is ideally suited to support one or more private clouds within your organization. A common use case is to provide storage services for private clouds built on commodity servers.

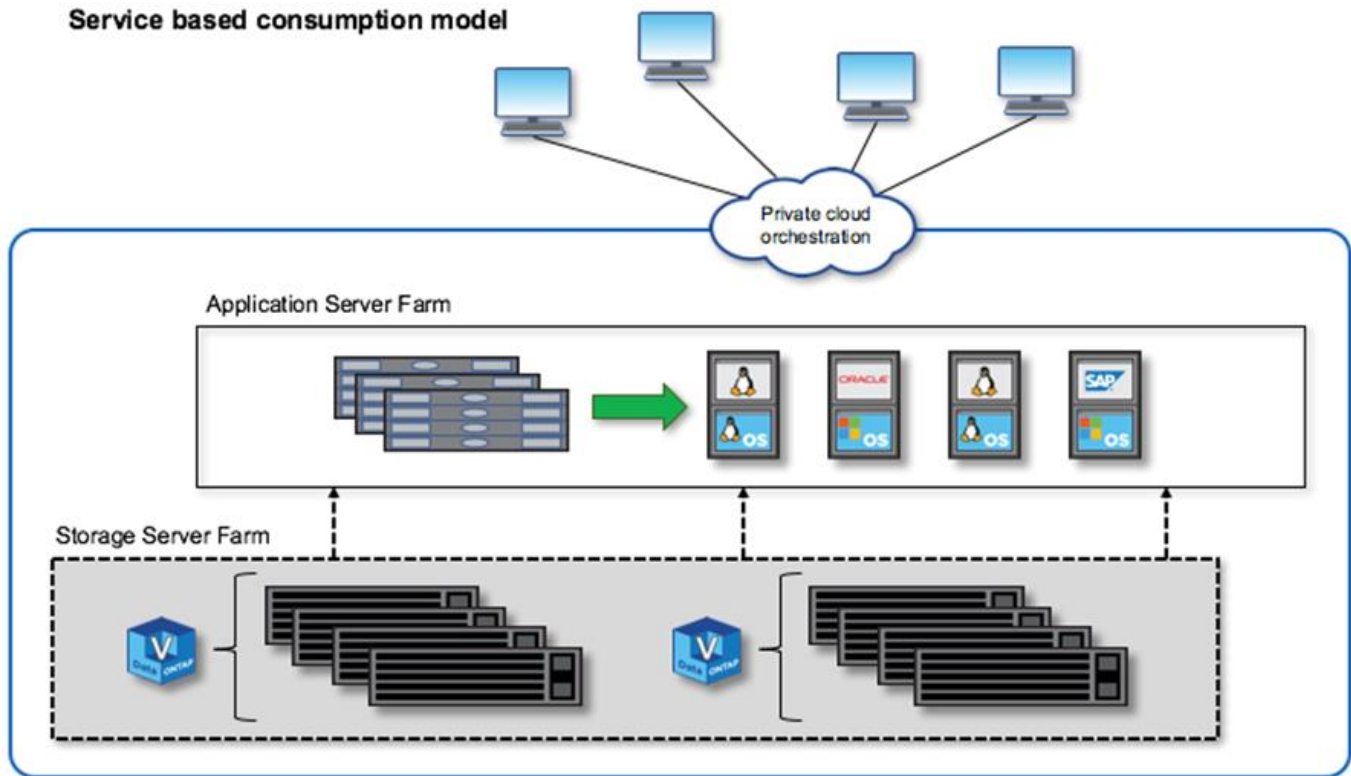
Like the public cloud, a private cloud provides flexibility as well as rapid setup and teardown. In addition, a private cloud offers improved security and control.

The following figure shows how a storage farm provides computation and locally attached storage to the ONTAP Select VMs, which provide storage services upstream to an application stack. The entire workflow, from the provisioning of SVMs to the deployment and configuration of application VMs, is automated through a private cloud orchestration framework.

This is a service-oriented private cloud model. Using the HA version of ONTAP Select creates the same ONTAP experience you would expect on higher-cost FAS arrays. Storage server resources are consumed exclusively by the ONTAP Select VM, with application VMs hosted on separate physical infrastructure.

Private cloud built on DAS

Service based consumption model



MetroCluster software defined storage

ONTAP Select MetroCluster SDS offers enhanced protection and a cost effective implementation.

A two-node cluster can be stretched between two locations if certain minimum requirements are met. This architecture fits neatly in between hardware-based MetroCluster and single data-center clusters (hardware-defined or software-defined). The requirements for the ONTAP Select MetroCluster SDS highlight the general flexibility of software-defined storage solutions as well as the differences between it and the hardware-based MetroCluster SDS. No proprietary hardware is required.

Unlike MetroCluster, ONTAP Select uses the existing network infrastructure and supports a network latency of up to 5ms RTT with a maximum jitter of up to 5ms, for a total of 10ms maximum latency. A maximum distance of 10km is also a requirement, although the latency profile is more important. Separation requirements in the market space have more to do with physical separation than the actual distance. In some instances, this can mean different buildings. In other instances, it can mean different rooms in the same building. Regardless of the actual physical placement, what defines a two-node cluster as a MetroCluster SDS is that each node uses a separate uplink switch.

As part of the two-node HA configuration, a mediator is required to properly identify the active node during a failover and avoid any split-brain scenario in which both nodes remain independently active during a network partition. This operation is identical to the regular two-node HA configuration previously available. For proper protection and failover during site failure, the mediator should be in a

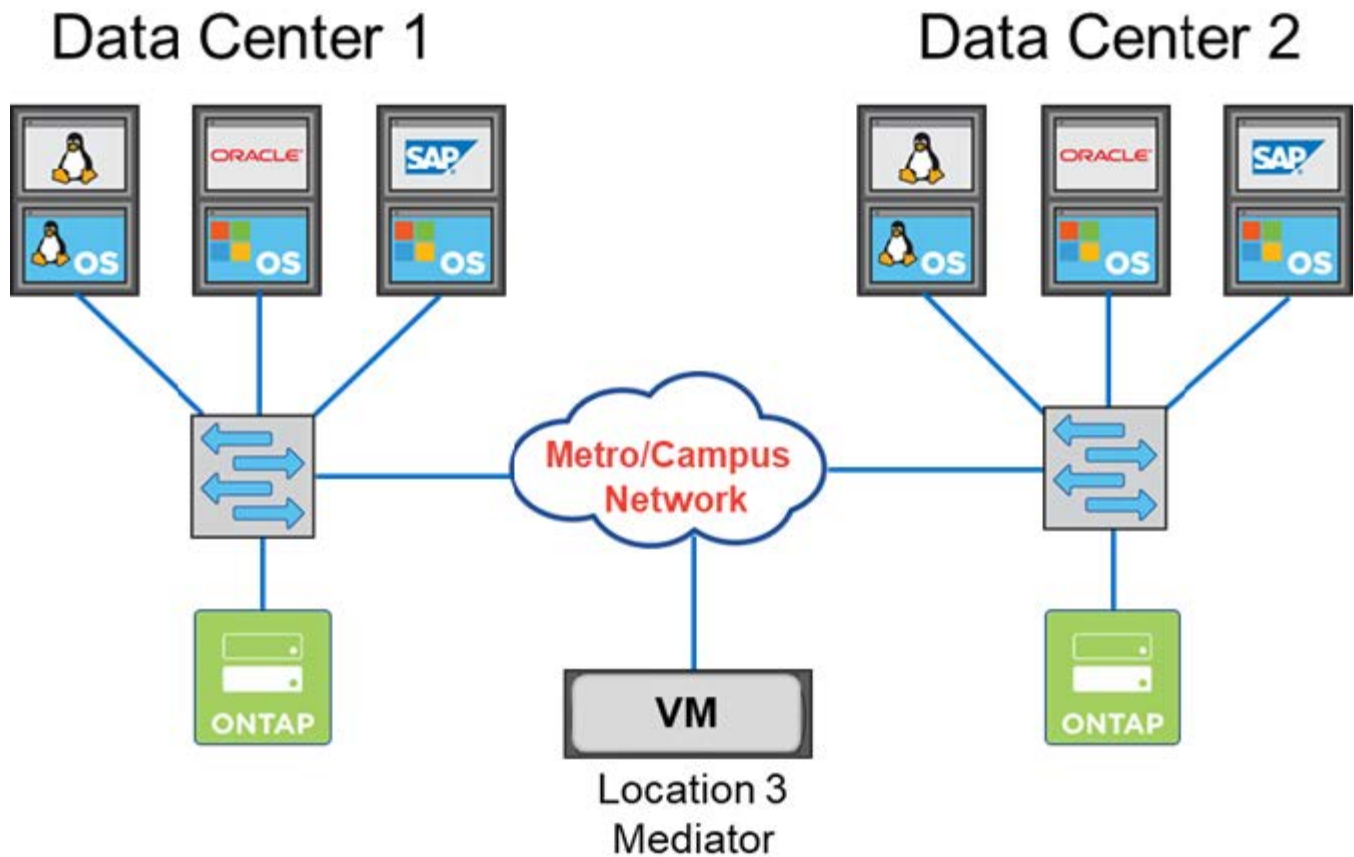
different site from the two HA nodes. The maximum latency between the mediator and each ONTAP Select node cannot exceed 125ms.

With this solution, enterprise customers can confidently take advantage of the flexibility of a software-defined storage solution on commodity hardware. They can deploy with peace of mind knowing their data is protected with an enterprise-grade, 0 RPO solution.

ONTAP Select MetroCluster SDS provides the following benefits:

- MetroCluster SDS provides another dimension (data center to data center) of protection for ONTAP Select. Customers can now take advantage of this extra level of protection in addition to leveraging all the benefits of software-defined storage and ONTAP.
- MetroCluster SDS provides business-critical data protection with a 0 RPO and automatic failover. Both the data storage and the application access points are automatically switched over to the surviving data center or node with zero intervention from IT.
- MetroCluster SDS is cost effective. It takes advantage of the existing networking infrastructure to enable stretched resiliency between the HA pair, and no additional hardware is required. It also provides active/active data access and data center redundancy in the same cluster.

MetroCluster SDS



Metro/Campus Network:

- 5ms RTT/5ms jitter
- Maximum latency 10ms
- 10KM distance between nodes

For more best practices and other requirements, see the sections [Two-node HA versus multi-node HA](#) and [Two-node stretched HA \(MetroCluster SDS\) best practices](#).

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