Solution Brief

NetApp Cloud Volumes ONTAP for Microsoft Azure

Simple and fast data management in the cloud

Key Benefits

- Control public cloud storage resources with the NetApp® Cloud Volumes ONTAP® software. ONTAP is the world's #1 open networked branded storage OS.*
- Multiple storage consumption models provide the flexibility that allows you to use just what you need, when you need it.
- Rapid point-and-click deployment from NetApp Cloud Manager enables you to deploy advanced data management systems in Microsoft Azure in minutes.

The Challenge

In today's IT ecosystem, the cloud has become synonymous with flexibility and efficiency. When you deploy new services or run applications with varying usage needs, the cloud provides a level of flexibility in your infrastructure that allows you to pay for what you need, when you need it. With virtual machines, the cloud has become a go-to deployment model for applications with variable usage patterns that can be spun up or spun down on demand or have unpredictable cycles.

Applications with fixed usage patterns often continue to be deployed in a more traditional fashion due to the economics in on-premises data centers. This situation creates a hybrid cloud environment for applications based on the model that best fits the application. In this hybrid cloud environment, data is at the center. It is the only thing of lasting value. It is the thing that needs to be shared and integrated across the hybrid cloud to deliver business value. It is the thing that needs to be secured, protected, and managed.

In particular, customers need to control what happens to their data no matter where it is. Although they can outsource infrastructure, applications, and services to the cloud, they can never outsource the responsibility they have for their business data. Customers have spent years controlling and aligning the appropriate levels of data performance, protection, and security in the data center to support their applications. Now, as they seek to pull in a mix of public cloud resources for infrastructure and apps, they need to maintain control of their data in this new hybrid cloud. They need a single, cohesive data environment, or Data Fabric, to give them control of their data no matter where it is.

Managing Data in the Cloud

Public cloud providers such as Microsoft Azure offer many functions, including infrastructure as a service, for which customers purchase raw compute and storage resources to use as they see fit. Customers can use cloud server environments to run their applications and the raw storage for data. For customers to utilize the storage in a way that is consistent with their on-premises data center, it is important that their data be controlled and protected.

Azure Cloud offers features and services that help with these issues. But how do you validate that your data is secure, under control, and consuming the least amount of cloud resources to address your needs? Can you simply get the data in and out of the cloud in a way that is consistent with your on-premises storage environments? Do your teams need to learn a new set of interfaces and tools? Does the storage have the functionality you need, such as file share services (SMB and NFS), data deduplication, or multiregion replication?

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* Source: IDC Worldwide Quarterly Enterprise Storage Systems Tracker 2018 Q1, June 2018 (Open Networked Enterprise Storage Systems revenue).

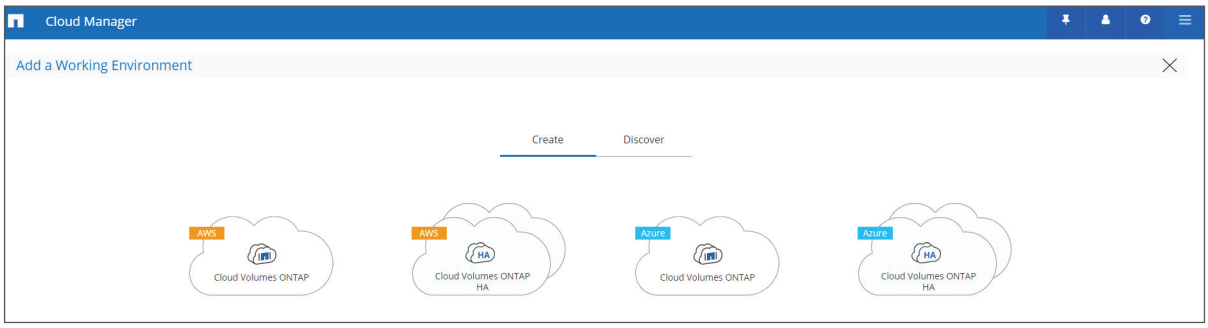

Figure 1) NetApp Cloud Manager.

NetApp Cloud Volumes ONTAP for Azure

NetApp Cloud Volumes ONTAP data management software delivers control, protection, and efficiency to your data with the flexibility of the Azure cloud. Cloud Volumes ONTAP is cloud-native data management software built on the NetApp ONTAP storage software, providing you with a superior universal storage platform that addresses your cloud data needs. Having the same storage software in the cloud and on your premises brings you the value of a Data Fabric without having to train your IT staff in all-new methods to manage your data.

Cloud Volumes ONTAP provides a data storage solution that fits many different customer requirements. These requirements range from disaster recovery, development, and test environments to cloud-based applications that require highly available non-disruptive operation, such as production business applications and file services using NFS and SMB. Cloud Volumes ONTAP is deployed and managed from NetApp Cloud Manager as a software-only solution on Azure compute instances managing Azure cloud storage. This capability enables customers to build a virtual storage environment directly on Azure resources.

Cloud Volumes ONTAP brings advanced NAS capabilities to your Azure cloud environment, making your data transition to the cloud a seamless experience for your traditional Microsoft applications. ONTAP gives you a unified data management experience across SMB, NFS, and iSCSI. With NetApp, you get zero-impact NetApp Snapshot™ copies, which provide near-instantaneous point-in-time backup and recovery copies of your data without consuming additional storage resources or affecting your application performance.

In addition, you minimize your storage footprint and cloud resource spend with storage efficiency features such as data deduplication and data compression, which can act on your primary data. With the NetApp SnapManager® tool suite, you get application consistency with those Snapshot copies. On top of all the local storage features, ONTAP provides #1 storage replication capabilities with NetApp SnapMirror® technology. This technology brings your hybrid cloud together by tying your on-premises AFF all-flash, FAS hybrid, and ONTAP Select software-defined storage to your Cloud Volumes ONTAP environment.

NetApp Cloud Manager

The cloud is often a new environment for many enterprises, and as you find a way to simplify your cloud resource usage, it is important to have tools available to enhance the experience. Cloud Manager software is a centralized management environment for your ONTAP software-based hybrid cloud storage environment, including the Cloud Volumes ONTAP, AFF, FAS, and ONTAP Select storage systems. Cloud Manager is the deployment environment for Cloud Volumes ONTAP and provides installation, resource assignment, and provisioning of data.

Cloud Manager provides day-to-day management activities for your Data Fabric endpoints and can automate your data movement to and from Azure. Cloud Manager integrates seamlessly with your cloud environment, allowing you to insert your Azure Cloud credentials to gather the resources you need to meet your storage requirements. With visibility into the resources consumed by each instance, Cloud Manager monitors and provides valuable feedback to the administrator about the cost of resources over time. This can help you decide when to move workloads to the most cost-efficient environment.

Cloud Manager Key Features

- Simplifies configuration and deployment of Cloud Volumes ONTAP
- Provides central point of control for all Cloud Volumes ONTAP instances
- Automates data movement between your premises and Azure
- Provides cost monitoring of your Azure cloud storage resources
- Eases license and entitlement and upgrade management
- Facilitates hybrid environments that include Cloud Volumes ONTAP, AFF, FAS, and ONTAP Select storage systems

Consumption Models

In addition to the features that Cloud Volumes ONTAP offers, there are two consumption methods: pay as you go and bring your own license (BYOL). Pay as you go is purchased directly from the Microsoft Azure Marketplace and is charged on an hourly basis. The BYOL model is a license purchased from NetApp that follows the Azure BYOL model and is installed in your Cloud Volumes ONTAP instance. BYOL subscriptions can be purchased in annual increments.

For application needs that are short term and/or for environments that must spin up or down on demand, the hourly pay-as-you-go consumption model is appropriate. If your application is more deterministic and/or will be used for longer periods of time, the annual subscription might be better. There are multiple solutions within each consumption model that start at a single node with 2TB raw capacity and range up to two-node high-availability (HA) environments with up to 368TB of raw capacity.

A True Hybrid Cloud

To help you determine the infrastructure that best fits your application and economic needs, NetApp offers a wide variety of options from which to choose. These options range from on-premises AFF or FAS storage systems, ONTAP Select software-defined storage, to in-the-cloud Cloud Volumes ONTAP software.

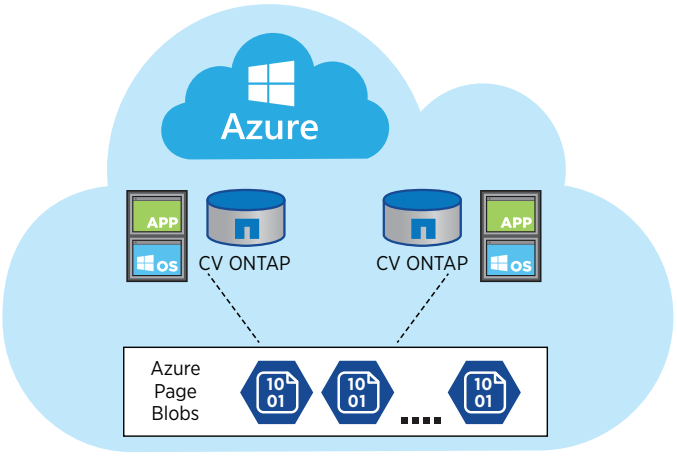

Figure 2) NetApp Cloud Volumes ONTAP HA for Microsoft Azure.

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

Table 1) Application environments and workload characteristics..

	CLOUD VOLUMES ONTAP FOR AZURE SINGLE NODE		CLOUD VOLUMES ONTAP FOR AZURE HIGH AVAILABILITY	
Licensing	Pay-as-you-go	BYOL	Pay-as-you-go	BYOL
High availability	No	No	Yes	Yes
Multiprotocol	NFS, SMB, iSCSI	NFS, SMB, iSCSI	NFS, SMB, iSCSI	NFS, SMB, iSCSI
Data protection	Snapshot, SnapMirror, SnapLock	Snapshot, SnapMirror, SnapLock	Snapshot, SnapMirror, SnapLock	Snapshot, SnapMirror, SnapLock
NetApp FlexClone® volumes	Yes	Yes	Yes	Yes
Tiering to Azure Blob	Yes	Yes	Yes	Yes
Encryption	• ONTAP encryption • Azure encryption with default keys	• ONTAP encryption • Azure encryption with default keys	• ONTAP encryption • Azure encryption with default keys	• ONTAP encryption • Azure encryption with default keys
Azure regions	See the full Azure regions availability list here.			
Disk types	Standard HDD, Standard SSD and Premium SSD	Standard HDD, Standard SSD and Premium SSD	Standard HDD and Pre-mium SSD	Standard HDD and Premium SSD
Procurement (license)	Azure Marketplace	NetApp	Azure Marketplace	NetApp
Solution capabilities	• Explore: DS3_v2, up to 2TB • Standard: DS4_v2 or DS13_v2, up to 10TB • Premium: DS5_v2 or DS14_v2, up to 368TB	BYOL: all above VMs, up to 368TB	• Standard: DS4_v2 or DS13_v2, up to 10TB • Premium: DS5_v2 or DS14_v2, up to 368TB	BYOL: all above VMs, up to 368TB
Support	Software support plan	Software support plan	Software support plan	Software support plan

APP LOCATION	NETAPP SOLUTION	APPLICATION PROPERTIES
On premises	AFF/FAS/ E-Series	Application usage pattern and resource requirements are well known, with long-term steady-state usage.
On-premises or at remote sites	ONTAP Select	Applications requiring cloudlike storage agility and deployment flexibility with enterprise-grade data protection, mobility, and consistent data management across the data fabric.
In the cloud	Cloud Volumes ONTAP	Applications have variable usage and variable storage pat-terns, or applications can benefit from rapid spin-up and/or rapid spin-down of storage.