

## *Executive Overview*

# NetApp Strategy for Seamless Data Management in the Cloud

### KEY BENEFITS

NetApp's unique combination of cloud data management capabilities and partnerships creates unprecedented opportunity for customers to accelerate innovation and IT responsiveness.

- Confidently manage and maintain control of data across any cloud resource with a data fabric built on the NetApp® Data ONTAP® operating system, the world's #1 storage OS.
- Boost IT efficiency and flexibility with dynamic data portability innovation, only from NetApp.
- Support any workload with a choice of 300+ services built on NetApp from the industry's broadest ecosystem of cloud service providers, hyperscale cloud providers, and application and technology partners.

### A New Era for the Cloud

Today's IT organizations are under incredible pressure to respond rapidly to changing business needs. As organizations move to a cloud delivery model to reduce costs and increase flexibility, they shift from being builders and operators of their own data centers to being brokers of services that span both private and public cloud resources. The public cloud is rapidly becoming part of many IT organizations' strategy, with hundreds of cloud service providers and several hyperscale cloud providers, including Amazon Web Services, Microsoft Azure, Google, and VMware, offering a range of infrastructure and application services to complement a private cloud strategy.

NetApp enables organizations to confidently manage and maintain control of their data across any cloud, accelerating innovation and IT responsiveness. By providing a single data fabric that spans private cloud, service providers, and hyperscale cloud providers, NetApp allows organizations to optimize IT delivery by integrating enterprise-class data management and

control with the flexibility, speed, and economics of the public cloud.

### The Challenge

#### Maintaining control in the cloud

The flexibility and economics of public cloud computing appeal to many organizations because public cloud computing allows them to become more nimble and responsive to a dynamic and growing business environment. At the same time, however, organizations need to feel confident that they can move to the public cloud without introducing new risk.

Although cloud compute resources can be easily dialed up and down, data has "gravity," making it more challenging to provide the same level of flexibility in a cloud context. The distance between data and compute impacts performance, but moving data closer to compute or to other clouds can be time consuming and inefficient with data formats that are often incompatible across cloud resources. These challenges constrain cloud use by limiting choice, increasing cost, and impeding IT responsiveness.

# NetApp enables organizations to confidently manage and maintain control of their data across any cloud, accelerating innovation and IT responsiveness.

Traditional data center environments enable IT to control every aspect of their data, from performance and security to data protection and governance. As the public cloud is added to the portfolio of services, it is critical for IT to be able to maintain control of data across a hybrid cloud environment. Organizations evaluating public cloud resources also need the flexibility to avoid being locked into a particular cloud provider or cloud management solution.

In addition, IT organizations must learn to support a modern constituency of end users, such as developers, who are eager to create new, flexible, and responsive IT resource environments and who see the public cloud as a means to achieve this goal on their own.

In this hybrid cloud approach, seamless data management across cloud resources is critical to enable IT organizations to complement a private cloud with a public cloud strategy that doesn't introduce new risk, complicate policies, or result in the loss of control of valuable business information.

## **Bringing It All Together** **Delivering seamless data management and control**

NetApp is building on its proven portfolio of cloud solutions so that organizations can take the cloud

to the next level. NetApp's unique combination of capabilities and partnerships allows enterprise organizations to embrace the hybrid cloud with seamless data management and full control of data across private cloud, cloud service provider, and hyperscale cloud provider resources. At the heart of this data fabric is a universal data platform that allows dynamic data portability and gives customers an extensive choice of technologies, applications, and cloud providers with which to deliver cloud-based services to their end users.

### **Universal data platform**

NetApp simplifies data management and provides consistent data services across clouds with clustered Data ONTAP, delivering secure multi-tenancy, proven storage efficiency, seamless scalability, and nondisruptive operations. NetApp further extends the ubiquity of Data ONTAP, already the world's #1 storage operating system, by enabling it to run on a broad range of third-party hardware.

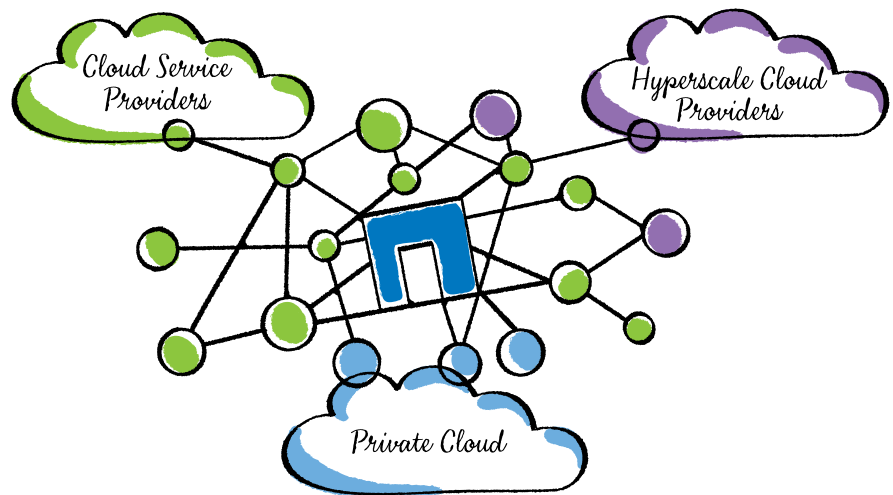
NetApp Storage Virtual Machine technology breaks down the physical barriers that bind data to specific hardware. This allows organizations to deploy Data ONTAP across cloud resources in a variety of forms, including on the NetApp unified and optimized FAS platform, within the

FlexPod® converged infrastructure, on third-party storage arrays with V-Series, or as a virtual storage appliance running Data ONTAP in the cloud within a Software-Defined Storage framework.

Only NetApp's versatile single-storage platform can be deployed across all types of private and public cloud resources on a variety of vendor hardware platforms to eliminate format and compatibility barriers to data movement. With management they are familiar with across all instances of Data ONTAP, organizations can confidently leverage Data ONTAP's proven performance to improve operational efficiency, lower cost, and reduce risk in their enterprise cloud environments.

### **Dynamic data portability**

With Data ONTAP as the universal data platform across their clouds, organizations will be able to respond instantly to ever-changing demands with NetApp's integrated data portability technologies, which dynamically move data and applications among cloud resources and providers. By leveraging the world's #1 storage replication software, NetApp SnapMirror® technology, and other innovative technologies for on-the-fly translation between hypervisor environments, users will be able to quickly and efficiently move data between cloud resources. This will give



them the flexibility to maintain choice among best-in-class cloud providers and to balance workloads across any cloud resource.

NetApp is the only data management provider that gives customers the ability to quickly and reliably shift between capital and operational expenditures. With NetApp, organizations can use on-premises private cloud storage in a capex model and easily shift to and from an opex model as data is moved, leveraging the flexibility and economics of public cloud compute and applications. NetApp's data-portability capabilities also allow organizations to easily replicate data between private or public cloud resources for integrated data protection and innovative disaster recovery.

With NetApp's universal data platform and dynamic data portability, organizations can remove barriers between private and public clouds, creating a reliable data fabric that enables data stewardship to be maintained across all resources.

#### **Extensive Customer Choice**

Further amplifying the value of the cloud data fabric is the unprecedented level of choice that organizations have to deploy and manage NetApp cloud solutions. With NetApp, organizations can choose from a broad ecosystem of technology solutions and cloud provider

options when deciding where, how, and with whom to leverage clustered Data ONTAP throughout the cloud. Organizations can build the foundation of their private cloud environments with any of the leading virtualization frameworks, including those from VMware, Microsoft, Citrix, Oracle, and Red Hat.

From a cloud management perspective, NetApp partners with all of the leading orchestration and automation providers, including VMware, Microsoft, Citrix, HP, IBM, BMC, CA, and Cisco, and works with open source initiatives including OpenStack and CloudStack. NetApp's commitment to open source and our leadership position in these communities are key components in enabling a best-in-class approach when deploying the cloud.

As organizations consider where and with whom to leverage Data ONTAP in the public cloud, they can choose from over 300 NetApp based cloud services delivered by over 175 service providers around the globe; these providers include OBS, Verizon Terremark, AT&T, Rackspace, ACS, and T-Systems. NetApp further extends choice in the public cloud by being the only major storage supplier to partner with Amazon Web Services, establishing a cornerstone for further collaboration with a broader set of hyperscale cloud providers.

With the versatility of Data ONTAP, organizations can choose how to deploy the universal data platform among multiple clouds, including Data ONTAP running on optimized NetApp storage, running on third-party storage, and as a virtual storage appliance in a cloud. All of these options, when combined, create a powerful framework for IT organizations to create innovative solutions among multiple, otherwise disparate cloud resources. They also allow best-in-class flexibility for seamless data management and preservation of control in a hybrid cloud environment.

In addition, organizations can team with NetApp Professional Services and a wide choice of partners to realize more quickly the benefits of Data ONTAP and increase the return on their storage and cloud investments. To learn more, visit NetApp's Services and Support website <http://www.netapp.com/us/services-support/>

#### **Start with a Proven Foundation**

NetApp's cloud strategy is built on a proven foundation of leading cloud solutions that deliver a scalable, efficient, and reliable data infrastructure for cloud environments for both enterprise organizations and public cloud providers. These offerings comprise a growing portfolio of solutions that span the private cloud, cloud service providers, and hyperscale cloud providers.

## Private cloud solutions

NetApp is a market leader in helping customers deploy private cloud solutions in the data center. With a broad portfolio of technologies and solutions forged from strong alliances with a full spectrum of leading vendors, NetApp enables organizations to deliver their own IT services with greater cost savings, utilization, and efficiency. NetApp's technology innovation and alliance partnerships for the private cloud include:

- NetApp Clustered Data ONTAP—The foundation of proven storage efficiency, seamless scalability, and nondisruptive operations.
- FlexPod—The converged infrastructure platform of choice, delivered with our alliance partner Cisco, that streamlines the deployment and management of server, networking, and storage.
- NetApp Storage Solution for VMware Private Cloud—A storage platform that enhances the full value of VMware® virtualization and cloud solutions for the data center.
- NetApp Storage Solution for Microsoft Private Cloud—Microsoft named NetApp its 2013 Server Partner of the Year and 2012 Private Cloud Partner of the Year.
- Cloud Management Solutions—These enable NetApp storage and data management to be fully integrated with leading cloud orchestration and automation software platforms; we also continue to take a leadership role in open-source options such as OpenStack.

Visit <http://www.netapp.com/us/solutions/cloud/private-cloud/> for more information about how NetApp helps customers reduce complexity and cost with private cloud solutions.

## Cloud service provider solutions

To complement our portfolio of private cloud solutions, NetApp enables a global ecosystem of public cloud service providers that deliver a range of cloud services to the enterprise data

center. Leveraging a similar set of solutions found in the private cloud, with clustered Data ONTAP and FlexPod at the core, NetApp and its service provider partners have created the means for enterprise organizations to take advantage of the benefits of the public cloud through easy portability, provider choice, and consistent data services. The NetApp Partner Program for Service Providers includes:

- Over 175 service providers throughout the world who deliver services built on the NetApp cloud data infrastructure. This enables the most reliable, efficient, and cost-effective services for both the cloud provider and its customers.
- More than 300 NetApp based cloud services that are delivered to enterprise organizations, including storage, infrastructure, desktop, backup, disaster recovery, database, and business applications as a service.

Visit <http://solutionconnection.netapp.com/partner-directory.aspx> to learn more about how cloud services from NetApp enabled cloud providers can help organizations leverage the benefits of NetApp in the public cloud.

## Hyperscale cloud provider solutions

NetApp also enables customers to fully embrace the benefits of hyperscale cloud providers including Amazon Web Services (AWS). With a growing interest in and often mandates from IT leadership to adopt hyperscale cloud services, organizations are eager to leverage the flexibility and economics of large-scale cloud computing with the management and control of enterprise-class storage. NetApp is at the forefront of enabling the movement to the hyperscale cloud by collaborating with AWS and offering NetApp Private Storage for AWS. This solution:

- Couples the power of NetApp clustered Data ONTAP with AWS compute and storage capabilities for on-demand performance computing, efficient disaster recovery,

and optional multitiered backup and recovery

- Allows bidirectional replication of data between a private cloud and an AWS Direct Connect data center, so organizations can leverage hyperscale cloud computing while retaining full control and portability of their business information

Visit <http://www.netapp.com/us/solutions/cloud/amazon-web-services.aspx> to learn more about how organizations can harness the scale and flexibility of hyperscale cloud providers while maintaining enterprise-class data management and control.

## Embrace the Cloud with Confidence

Cloud solutions from NetApp and its extensive cloud partner ecosystem take the worry and complexity out of managing and maintaining control of data across private and public cloud resources, fostering greater innovation and IT responsiveness.

- Start with a private cloud or a NetApp based public cloud and easily evolve to a hybrid cloud while retaining the proven efficiency, availability and scalability benefits of clustered Data ONTAP.
- Respond instantly to ever-changing business demands with data portability technologies that allow data and workloads to move seamlessly in the cloud.
- Choose best-in-class technologies and providers to create the optimal cloud data fabric to best support diverse workloads.

## About NetApp

NetApp creates innovative storage and data management solutions that deliver outstanding cost efficiency and accelerate business breakthroughs. Discover our passion for helping companies around the world go further, faster at [www.netapp.com](http://www.netapp.com).

Go further, faster®



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