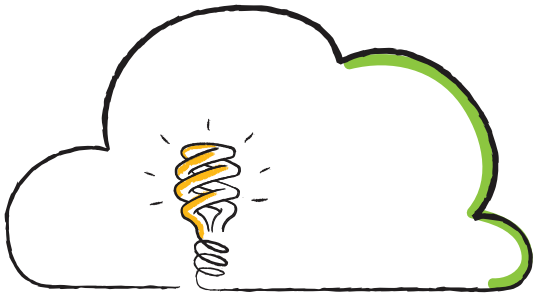

Executive Overview

# The Data Fabric Enabled by NetApp

**KEY BENEFITS**

NetApp's combination of cloud data management capabilities and partnerships creates an unprecedented opportunity for customers to accelerate innovation and IT responsiveness. With the Data Fabric enabled by NetApp, your organization can:

- Align costs with demand by managing and maintaining control of your data across clouds with the efficiency and versatility of a universal data platform based on the NetApp® Data ONTAP® OS. NetApp Data ONTAP is the world's #1 branded storage OS.[1]
- Gain agility by leveraging the elasticity and on-demand benefits of a hybrid cloud with your choice of service providers.
- Reduce risk by deploying a common set of data services and integrated data portability between cloud resources.

## A New Era for the Cloud

Today's IT organizations are under incredible pressure to respond to changing business needs, and they are rapidly moving toward a hybrid cloud delivery model to become more responsive while reducing costs and increasing flexibility. The public cloud is quickly becoming part of many IT organizations' strategy, with hundreds of cloud service providers and many hyperscale cloud providers, including Amazon Web Services (AWS), 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 data fabric that spans a private cloud, service providers, and hyperscale cloud providers, NetApp allows organizations to embrace the cloud on their own terms by integrating enterprise-class data management and control with the flexibility, speed, and economics of the public cloud.

## The Challenge

### Maintaining control and choice 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 integrate public cloud resources 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 affects 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.

1. Source: IDC Worldwide Quarterly Disk Storage Systems Tracker 2014 Q3, December 2014 (Open Networked Disk Storage Systems revenue).

# 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 organizations 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 a choice of 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

### 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 innovative combination of capabilities and partnerships allows enterprise organizations to embrace the hybrid cloud on their own terms—with seamless data management and full control of data across a blend of resources in the data center, near the cloud, and in the cloud.

At the heart of the customer's hybrid cloud is a universal data platform that allows dynamic data portability and gives customers an extensive choice of technologies, applications, and cloud providers to help them deliver cloud-based services to their end users. NetApp's universal data platform built on Data ONTAP offers customers multiple deployment and procurement options so that they can adjust easily and efficiently, aligning with changing business needs.

### Extensive customer choice

With the Data Fabric enabled by NetApp, organizations can choose from a broad ecosystem of technology solutions and cloud provider options when deciding where, how, and with whom to leverage NetApp storage and data management solutions throughout the cloud.

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 with the NetApp Cloud ONTAP™ operating system as a virtual storage appliance deployed on demand as software in the cloud. All 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 data control in a hybrid cloud environment.

Organizations can build the foundation of their private cloud environments with the NetApp OnCommand® portfolio of management software and leverage 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 the leading orchestration and automation providers, including VMware, Microsoft, Citrix, HP, IBM, BMC, CA Technologies, and Cisco, and works with open-source initiatives, including OpenStack and CloudStack. NetApp's commitment to open source and its 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 400 NetApp based cloud services that are delivered by over 275 service providers around the globe. These providers include IBM SoftLayer, Verizon Terremark, AT&T, CenturyLink, and SunGard. NetApp further extends choice in the public cloud by being the only major storage supplier to partner with AWS, Microsoft Azure, and IBM SoftLayer, establishing a cornerstone for greater collaboration with a broader set of cloud providers.

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 the NetApp Services and Support webpage, *http://www.netapp.com/us/services-support/*.

**Universal data platform**

NetApp simplifies data management and provides consistent data services across clouds with clustered Data ONTAP. NetApp Data ONTAP is the world's #1 branded storage operating system.[2] It delivers nondisruptive operations, seamless scalability, and proven storage efficiency. NetApp further extends the ubiquity of Data ONTAP 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 NetApp FlexArray™ software; or as software only with Cloud ONTAP, a virtual storage appliance that runs Data ONTAP in the cloud. With management features that they are familiar with across all instances of Data ONTAP, organizations can confidently leverage the proven performance of Data ONTAP to improve operational efficiency, lower costs, and reduce risk in their enterprise cloud environments.

**Dynamic data portability**

With Data ONTAP running across their clouds, organizations can respond instantly to ever-changing demands by using NetApp's integrated data portability technologies, which dynamically move data and applications among cloud resources and providers. By leveraging the industry-leading NetApp SnapMirror® storage replication software and the new OnCommand Cloud Manager portal, users can quickly and efficiently move data between cloud resources. This gives them the flexibility to maintain choice among best-in-class cloud providers and to balance workloads across any cloud resource.

Only NetApp gives customers the ability to quickly and reliably shift between capital and operational expenditures with a common data platform. 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 hybrid cloud environment that enables data control to be maintained across the customer's choice of resources.

2. Source: IDC Worldwide Quarterly Disk Storage Systems Tracker 2014 Q3, December 2014 (Open Networked Disk Storage Systems revenue).

## Start with a Proven Foundation

NetApp's cloud strategy is built on a proven foundation of industry-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 and OnCommand management software—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 servers, networking, and storage.
- NetApp Storage Solution for VMware® Private Cloud and NetApp for Microsoft Private Cloud—Storage platforms that enhance the full value of VMware and Microsoft platforms.
- Cloud management solutions—Integration 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. By leveraging a similar set of solutions found in the private cloud, with clustered Data ONTAP at its 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 275 service providers throughout the world who deliver services built on the NetApp cloud data infrastructure, 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.

### Expanding options for connecting to clouds

With a growing interest in public cloud services—and often mandates from IT leadership to adopt them—organizations are eager to leverage the flexibility and economics of multiple large-scale cloud providers with the management and control of enterprise-class storage. NetApp is at the forefront of enabling this movement with an expanding list of options:

- NetApp Private Storage for Cloud—Couples the power of NetApp clustered Data ONTAP with choice across multiple cloud providers such as AWS, Microsoft Azure, and IBM SoftLayer for on-demand performance computing, efficient disaster recovery, and optional multitiered backup and recovery.
- Cloud ONTAP—Leverages the same benefits of clustered Data ONTAP in the cloud with on-demand, pay-as-you-go options.
- NetApp StorageGRID® Webscale—Provides reliable object-based storage that connects private clouds with public cloud resources, including Amazon S3.
- NetApp SteelStore—Opens new pathways to cloud-based backup and archive solutions while preserving existing storage investments.

Visit *http://www.netapp.com/us/solutions/cloud/private-storage-cloud/index.aspx* to learn more about how organizations can harness the scale and flexibility of public cloud providers while maintaining choice and enterprise-class data management and control.

## Embrace the Cloud with Confidence

The Data Fabric enabled by NetApp takes the worry and complexity out of managing and maintaining control of data across private and public cloud resources, fostering greater innovation and IT responsiveness. Your organization can:

- Choose best-in-class technologies and providers to create your optimal hybrid cloud to best support diverse workloads.
- 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.

## About NetApp

Leading organizations worldwide count on NetApp for software, systems and services to manage and store their data. Customers value our teamwork, expertise and passion for helping them succeed now and into the future.

**www.netapp.com**

NetApp®

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