



Datasheet

# ONTAP 9 Data Management Software

Simplify your transition to the modern data center

## Key Benefits

### Simplify Deployment and Management

- Deploy new workloads in under 10 minutes
- Unify data management across flash, disk, and cloud
- Gain a global view of storage with a single management console

### Flexibly Support Changing Business Needs

- Deploy on engineered systems, converged infrastructure, software-defined storage, and cloud
- Support current and modern software platforms
- Manage SAN and NAS workloads on a unified storage architecture

### Power Your Enterprise Applications

- Deliver rich data services with high performance and consistent low latency
- Reduce storage costs with the most comprehensive data reduction technologies
- Eliminate planned and unplanned downtime for continuous business availability
- Scale capacity and performance without disruption

## The Challenge

Businesses today need to address competitive pressures by evolving into digital enterprises that speed innovation and enable better business decisions. They must take a more modern approach to their data storage while integrating into their existing environment. Businesses must also manage data wherever it resides—on the premises and in the cloud—while reducing costs and operating with existing IT staff.

## The Solution

Simplify your transition to a modern data center with NetApp® ONTAP® 9, the next generation of the industry's leading enterprise data management software. It combines new levels of simplicity and flexibility with powerful data management capabilities and storage efficiencies.

With ONTAP 9, you can build a hybrid cloud that is the foundation of a Data Fabric that spans flash, disk, and cloud. Seamlessly manage your data as it flows to wherever you need it most to make the best possible decisions for your organization. ONTAP 9 addresses the challenges that face your digital enterprise by:

- Simplifying deployment and data management
- Flexibly supporting your changing business needs
- Powering your enterprise applications

You can simplify your storage environment with proven operational efficiency. Deploy and configure new storage systems for enterprise workloads—Oracle, SAP, Microsoft SQL Server, VDI, and VMware—in under 10 minutes. Automate important processes to increase productivity. Secure your data with built-in encryption. Gain a global view of your storage with a single management console. Perform updates during regular work hours without disrupting applications or users.

With ONTAP 9, flexibly deploy on your choice of architectures—engineered systems, software-defined storage (SDS), and the cloud—while unifying data management across all of them. You can modernize your infrastructure with new software stacks such as Dockers and OpenStack. Add capacity as you grow across both SAN and NAS environments. Plus, combine all-flash and hybrid flash storage nodes into a larger storage cluster and connect them to the cloud, enabling you to nondisruptively move and access your data from the node that delivers the best combination of performance, capacity, and cost efficiency

Accelerate your enterprise applications with flash while not compromising on the rich data services that you need. You can start small and grow with your business by scaling your storage environment, leveraging high-capacity SSDs or hard disk drives (HDDs) and growing up to 24 nodes in a cluster. Reduce your overall storage costs by leveraging leading ONTAP data reduction technologies to minimize your storage footprint and maximize your effective capacity. Plus, you are able to service your infrastructure without disrupting access to user data and applications, even during regular business hours. With ONTAP 9, support your business operations with continuous availability and leading data protection.

### **Simplify Deployment and Management**

Whether adding new workloads or managing your existing environment, it is important to simplify your processes to maximize the efficiency of your staff. ONTAP gives you a common set of features across deployment architectures, which simplifies complex tasks so your IT staff can be more productive and focus on addressing business priorities. When your data doubles in size, it no longer means that you have twice as much work to manage.

### **Deploy in less than 10 minutes**

New fast provisioning workflows enable you to deploy new storage systems for key workloads—Oracle, SAP-HANA, SQL Server, VDI, and VMware—in under 10 minutes from power on to serving data. Years of NetApp experience and best practices are integrated into the system manager wizard and factory configurations, enabling you to quickly set up your new configuration by answering a few questions. And as you deploy new workloads, ONTAP 9 gives you the visibility to know which node has the most performance capacity available for optimally deploying the new workload.

### **Unified data management**

Simplify operations by unifying data management across a hybrid cloud that can span flash, disk, and cloud running SAN and NAS workloads. You can increase the efficiency of your staff and easily move your data between nodes to where it's needed most. ONTAP is the foundation for a Data Fabric that gives you freedom, choice, and control across your storage environment.

### **Simplified, powerful management capabilities**

The NetApp OnCommand® software portfolio includes management products ideally suited to manage virtualized private and hybrid cloud environments. You can centrally monitor capacity, availability, performance, and data protection. And take advantage of storage service analytics to make better informed decisions about your storage.

Use our OnCommand management platform to automate your storage processes. Plus, integrate the storage processes into your data center orchestration platform for end-to-end service delivery for your private and hybrid cloud services.

### **Flexibly Support Your Changing Business Needs**

ONTAP 9 provides the flexibility you need to design and deploy your storage environment across the widest range of architectures, so you can match the approach that's best for your evolving business needs:

- NetApp engineered systems: All Flash FAS (AFF) systems and hybrid disk FAS systems
- Converged infrastructure: FlexPod®
- On commodity servers as SDS: ONTAP Select
- In front of third-party arrays: FlexArray®
- Next to the cloud: NetApp Private Storage (NPS) for Cloud
- In the AWS cloud: ONTAP Cloud

You can seamlessly move your data between each to get your data onto the optimal environment for performance, capacity, and cost efficiency. Plus, you have the flexibility to consolidate both NAS and SAN workloads onto any ONTAP environment while delivering consistent data services.

### **Power Your Enterprise Applications**

To support your critical applications, you need a storage environment that cost-effectively delivers high performance and availability that can scale with business growth and protect your valuable data. ONTAP 9 delivers on all these requirements with highly efficient flash performance for scalable, nondisruptive operations.

### **Optimized for flash**

ONTAP 9 delivers the horsepower that critical applications require without compromising on rich data services. AFF systems running ONTAP 9 are optimized specifically for flash, providing up to 60% more performance compared to the same workloads running on earlier version ONTAP releases, while still delivering consistent submillisecond latency.

ONTAP 9 also enables FAS hybrid storage systems to deliver flash-accelerated performance that is balanced with HDD economies. Hot data is automatically cached in flash to accelerate application performance.

### **Nondisruptive operations**

ONTAP allows you to perform critical tasks without interrupting your business. You can dynamically assign, promote, and retire storage resources without downtime over the lifecycle of an application. Data can be moved between controllers without application interruption. Plus, storage controllers and disk shelves can be replaced without disruption. With ONTAP, you also can mix models and generations of hardware to extend the life of existing investments.

### **Integrated data protection**

ONTAP provides integrated data protection (IDP) to safeguard your operations and keep them running smoothly. Technologies include near-instant backup and recovery with space-efficient Snapshot® and SnapVault® technology and synchronous and asynchronous replication with MetroCluster™ and SnapMirror®, which can meet your requirements for business continuity and disaster recovery.



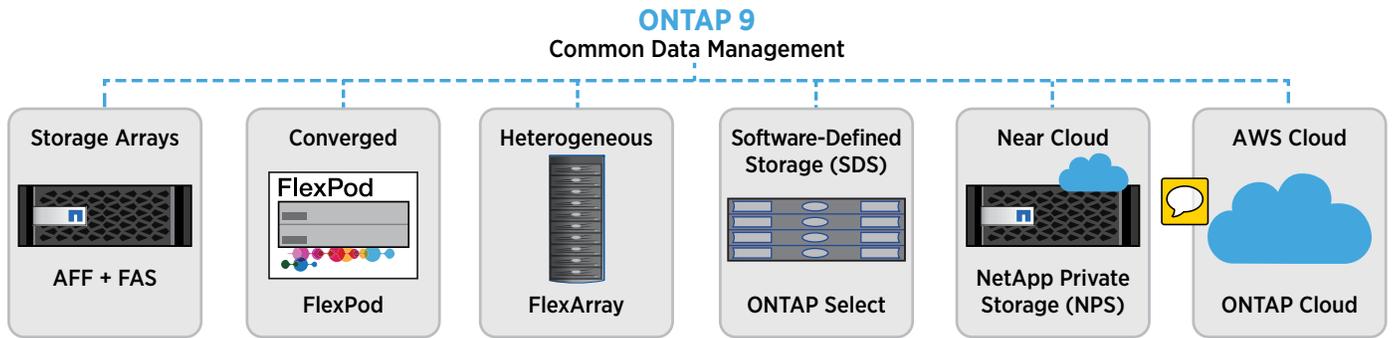


Figure 1) Standardize data management across architectures with a rich set of enterprise data services.

To meet your stringent compliance and data retention policies, NetApp SnapLock® software enables write once, read many (WORM) protected data for your ONTAP environment.

NetApp also provides superior integration with enterprise backup vendors and leading applications. Plus, our IDP solutions include integrated and unified disk-to-disk backup and disaster recovery in a single process for virtualization.

**Security**

With the NetApp volume encryption feature built into ONTAP, you can easily and efficiently protect your at-rest data by encrypting any volume and any AFF or FAS system. No special encrypting disks required.

**Superior storage efficiency**

With ONTAP, you can reduce costs with one of the most comprehensive storage efficiency offerings in the industry. You get space-efficient NetApp Snapshot copies, thin provisioning, replication, and cloning technologies. Plus, inline data compression, deduplication, and compaction work together to reduce your storage costs and maximize your effective capacity.

**Maximized shared storage investments**

ONTAP lets you save time and money by sharing the same consolidated infrastructure for workloads or tenants that have different performance, capacity, and security requirements without fear that the activity in one tenant partition will affect another. With multitenancy, a storage cluster can be subdivided into secure partitions governed by rights and permissions. And quality of service (QoS) workload management allows you to control the resources that each workload can consume, to better manage performance spikes and improve customer satisfaction.

**Stay ahead of business changes with seamless scalability**

Storage systems that run ONTAP can transparently scale SAN and NAS from a few terabytes up to 172PB. Scale up by adding SSD and HDD capacity. Or scale out by adding additional storage controllers to seamlessly expand your cluster up to 24 nodes as your business needs grow.

ONTAP also supports massive NAS containers that are easy to manage. With FlexGroup, a single namespace can grow to 20PB and 400 billion files while maintaining consistent high performance and resiliency. You can also rebalance capacity to improve service levels by redeploying workloads dynamically and avoiding hot spots.

**NetApp ONTAP Cloud**

**Enterprise Applications, Dev/Test and Disaster Recovery**

NetApp ONTAP Cloud for AWS provides seamless enterprise data management capabilities, including monitoring and provisioning across the hybrid enterprise. Use ONTAP Cloud to quickly deploy new applications or dev/test environments on AWS. Using the same software platform on AWS that you use on-premises saves you the expense and time of training IT staff for new storage management methods on the cloud.

**Benefits**

- Build, clone, and tear down dev/test environments quickly, with no capital investment.
- Benefit from cost-saving technologies such as compression, deduplication, and zero-capacity NetApp Snapshot® copies to maximize storage efficiency on AWS.
- Provide near-instantaneous point-in-time backups of your data with zero-impact NetApp Snapshot copies.
- Get the only cloud-connected solution with fluid hybrid data management.
- Provision NAS and SAN storage for your application environment with CIFS, NFS, and iSCSI support.

**About AWS**

For 10 years, Amazon Web Services has been the world's most comprehensive and broadly adopted cloud service. AWS offers more than 90 fully featured services for compute, storage, databases, analytics, mobile, Internet of Things (IoT) and enterprise applications from 42 Availability Zones (AZs) across 16 geographic regions in the U.S., Australia, Brazil, Canada, China, Germany, India, Ireland, Japan, Korea, Singapore, and the UK. AWS services are trusted by millions of active customers around the world monthly -- including the fastest growing startups, largest enterprises, and leading government agencies -- to power their infrastructure, make them more agile, and lower costs.

To learn more about AWS, visit <https://aws.amazon.com>.

**About NetApp**

Throughout the world, leading organizations count on NetApp for software, systems, and services to manage and store their data. We help enterprises and service providers envision, deploy, and evolve their IT environments. Customers also benefit from our open collaboration with other technology leaders to create the specific solutions they need.

Our team is passionate about customer success. Our company culture and work environment support that dedication. Together with our global network of partners, we are united in one goal: to help our customers achieve the outcomes that matter most to them.

To learn more about NetApp, visit <http://www.netapp.com>.



## Software/Features

**TABLE 1) ONTAP 9 OFFERS A ROBUST SET OF STANDARD AND OPTIONAL FEATURES.**

	Function	Benefits
Data compaction	Packs more data into each storage block for greater data reduction	Works with compression to reduce the amount of storage you need to purchase and operate
Data compression	Provides transparent inline and postprocess data compression for data reduction	Reduces the amount of storage you need to purchase and maintain
DataMotion™	Offers nondisruptive data mobility for volumes and LUNs	Granular data mobility allows you to move data nondisruptively while your applications keep running
Deduplication	Performs general-purpose deduplication for removal of redundant data	Reduces the amount of storage you need to purchase and maintain
Flash Pool™	Creates a mixed-media storage pool by using SSDs and HDDs	Increases the performance and efficiency of HDD pools with flash acceleration
FlexClone®	Instantaneously creates file, LUN, and volume clones without requiring additional storage	Saves you time in testing and development and increases your storage capacity
FlexGroup	Enables a single namespace to scale up to 20PB and 400 billion files	Supports compute-intensive workloads and data repositories that require a massive NAS container while maintaining consistent high performance and resiliency
FlexVol®	Creates flexibly sized volumes across a large pool of disks and one or more RAID groups	Enables storage systems to be used at maximum efficiency and reduces hardware investment
Headroom	Provides visibility of performance capacity available for deploying new workloads on storage nodes	Simplifies management and enables more effective provisioning of new workloads to the optimal node
Infinite Volumes	Creates a volume that can scale up to 20PB with one file system	Provides a large container for content repositories; a single cluster can contain multiple Infinite Volumes
MetroCluster	Combines array-based clustering with synchronous mirroring to deliver continuous availability and zero data loss; up to 300km distance between nodes	Maintains business continuity for critical enterprise applications and workloads in the event of a data center disaster
QoS	Creates a performance limit for a storage workload	Can prevent one workload or tenant from affecting the performance of another in multiworkload and multitenant environments
RAID DP® and RAID-TEC™	Provides a double-parity and triple-parity RAID 6 implementation that prevents data loss when two or three drives fail	Protects your data without the performance impact of other RAID 6 implementations; reduces risks during long rebuilds of large-capacity HDDs
SnapCenter® and SnapManager®	Provides host-based data management of NetApp storage for databases and business applications	Offers application-aware backup and disaster recovery; automates error-free data restores
SnapDrive®	Provides host-based data management of NetApp storage from Microsoft Windows, UNIX, and Linux servers	Lets you automate OS-consistent backup, restore, cloning, and other operations, taking full advantage of NetApp capabilities
SnapLock	Provides WORM file-level locking	Supports regulatory compliance and organizational data retention requirements
SnapMirror	Enables automatic, incremental asynchronous data replication between systems	Provides you with flexibility and efficiency when mirroring for data distribution and disaster recovery
SnapRestore®	Rapidly restores single files, directories, or entire LUNs and volumes from any Snapshot copy backup	Instantaneously recovers files, databases, and complete volumes from your backup
Snapshot	Makes incremental data-in-place, point-in-time copies of a LUN or volume with minimal performance impact	Enables you to create frequent space-efficient backups with no disruption to data traffic
SnapVault	Exports space-efficient Snapshot copies, preserving compression and deduplication savings, to another NetApp system, providing an incremental backup solution	Provides you with cost-effective, long-term backups of disk-based data
Volume encryption	Provides data-at-rest encryption built into ONTAP	Easily and efficiently protect your at-rest data by encrypting any volume and any AFF or FAS system. No special encrypting disks required.