NetApp AFF C-Series

Enterprise-grade capacity flash

NetApp

Agenda

- Business and IT challenges
  - Challenges to meet the requirements of digital transformation
  - Modernize IT with cloud-connected flash

- NetApp® AFF C-Series systems
  - AFF C-Series overview
  - Customer benefits

- Flash promotion programs

- Leadership and advantages

Two shifts taking place in the market

**Budgets
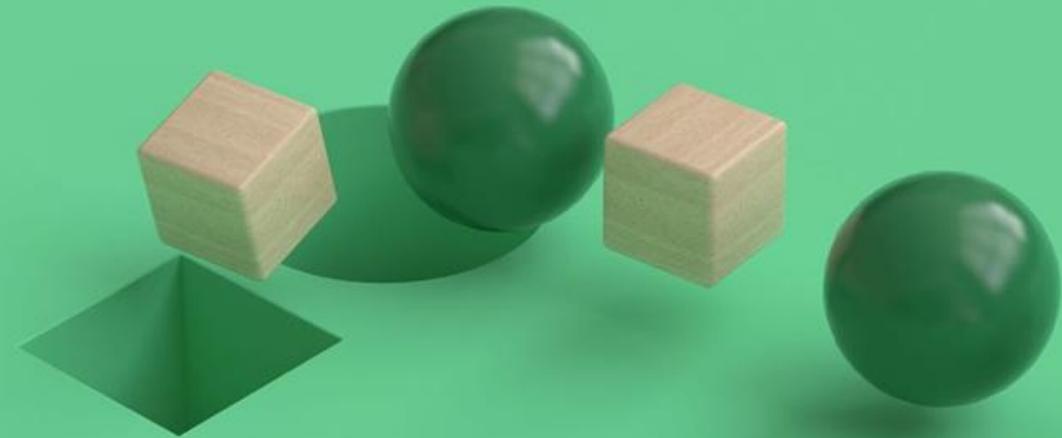are tightening**

Shift to best-in-class, low-cost solutions

**Sustainability has become
a strategic imperative**

Environmental, social, and governance (ESG); shareholder demand;
rising energy costs

NetApp AFF C-Series systems

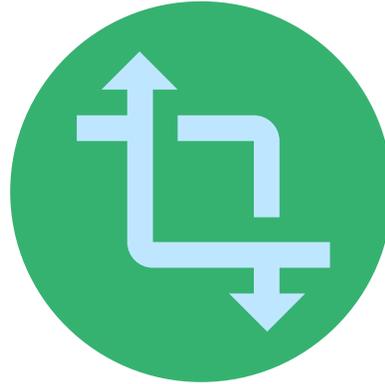A new level of high-capacity flash performance at a lower cost

Leading the way to a cloud-connected, all-flash data center

Budget-friendly high-capacity all-flash storage for workloads where maximum performance isn't a requirement

Increase efficiency and sustainability

Scale capacity and performance painlessly

Keep data available, protected, and secure

NetApp AFF C-Series

Introducing our newest family of all-flash, high-capacity flash storage systems

Sustainable

- Outstanding price/performance
- Leading raw-to-effective data efficiency
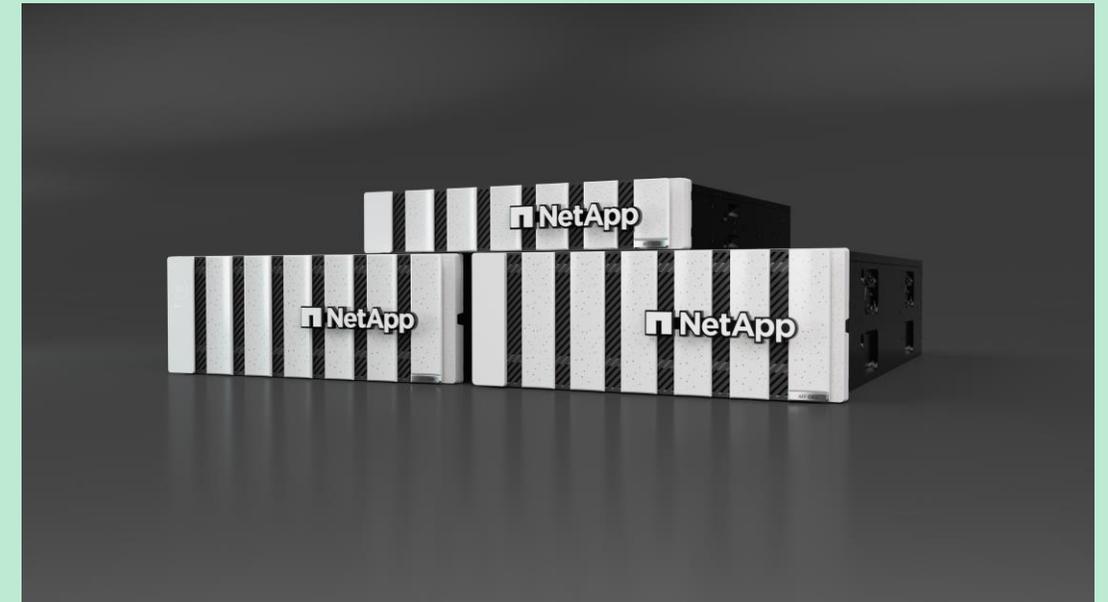- Tier to hybrid flash or cloud
- Better energy efficiency

Secure

- Ransomware protection
- Business continuity, disaster recovery
- Application-integrated backup and recovery

Scalable

- Entry capacity aligned with needs
- Clustered scalability
- Connect to performance flash or hybrid flash

Cloud-connected

- Disaster recovery to cloud
- Back up to cloud
- Tier to cloud

NetApp® AFF C-Series
HIGH-CAPACITY ALL-FLASH STORAGE SYSTEMS

The product images shown may represent the range of products or be for illustration purposes only. They may not be an exact representation of the product.

Customers want to transform from hybrid to all flash

But price is often a limiting factor

Hybrid flash

Performance flash

FAS

?

AFF A-Series

5–10ms latency, $
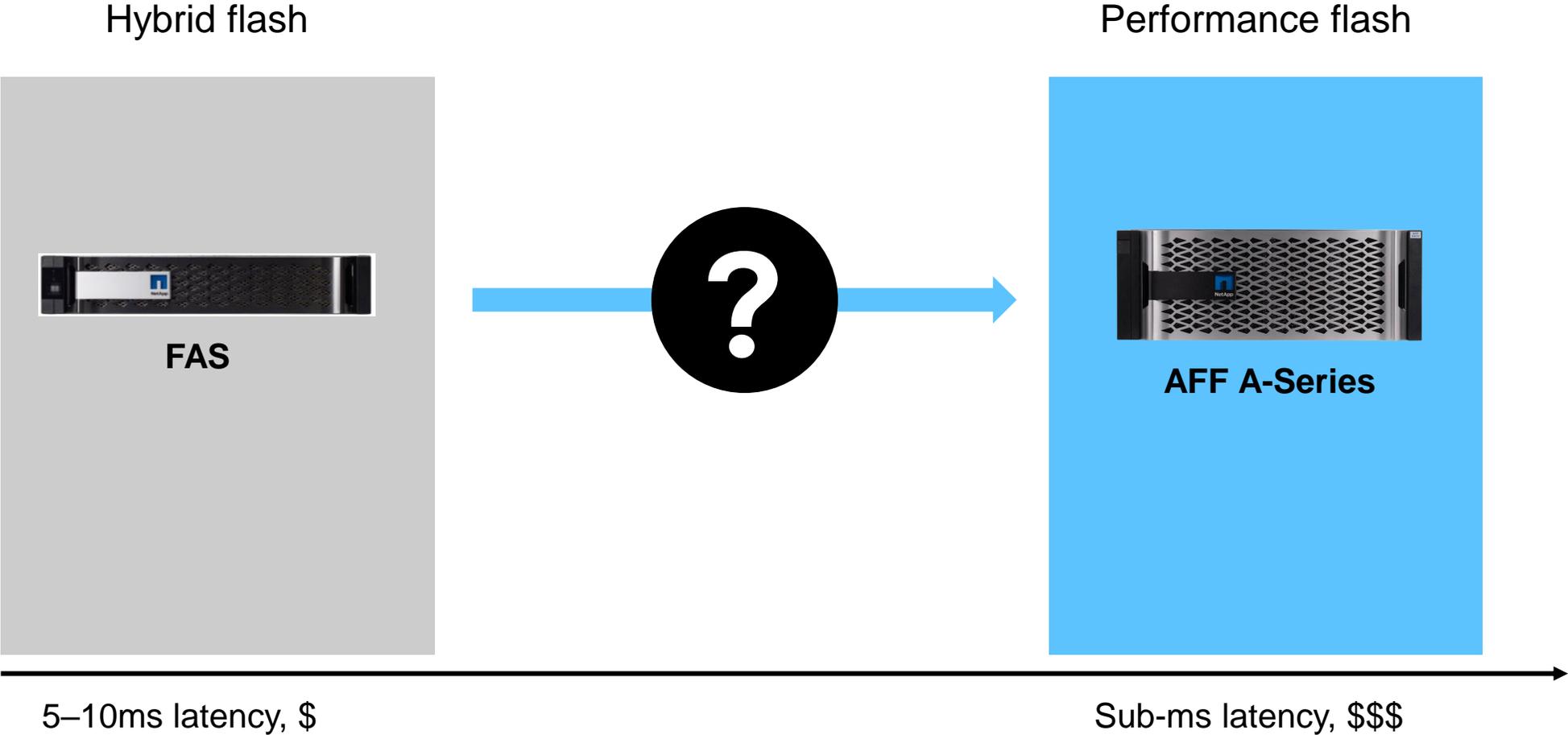
Sub-ms latency, $$$

Opportunity: Accelerate all-flash transformation with capacity flash

Without compromising on budget and sustainability goals

Hybrid flash	Capacity flash	Performance flash
FAS		**AFF A-Series**
5–10ms latency, $'s	2–4ms latency, $$'s	Sub-ms latency, $$$'s
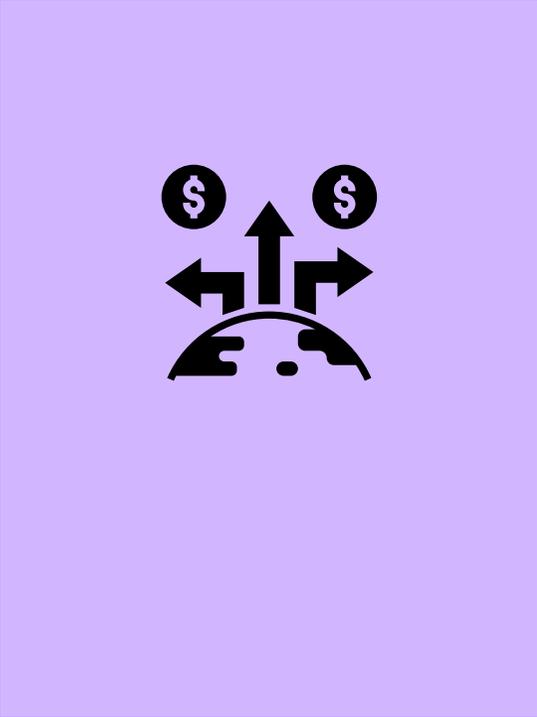
Meet NetApp AFF C-Series

A new family of capacity flash storage

AFF C250

AFF C400

AFF C800

HA system	• 122TB–734TB raw • Up to 2.9PB effective • 2U base	• 122TB–1.46PB raw • Up to 5.9PB effective • 4U base + 2U drive shelf	• 182TB–2.2PB raw • Up to 8.8PB effective • 4U base
Cluster	• 122TBs – 8.8PBs Raw • Up to 34.8PBs Effective	• 122TB–17.6PB raw • Up to 70.8PB effective	• 182TB–26.4PB raw • Up to 106PB effective

Effective capacity calculation includes a 5:1 storage efficiency possibility.

AFF C-Series is born feature-rich

ONTAP One bundle provides industry-leading, comprehensive data services

| Protocols	Efficiency	Anti-ransomware	Data protection	Tenancy and scale

• NAS / File
    • NFS
    • SMB
 • SAN / Block
    • FC
    • iSCSI
    • NVMe/FC
    • NVMe/TCP
 • Object (S3)
	• Leading raw-to-usable
	 • Deduplication, compression, compaction
	 • Thin provisioning
	 • Data tiering to hybrid, object, or cloud
		• Near-real-time detection
		 • Tamper-proof Snapshot recovery
		 • Multi-admin verification
		 • Blocking of known malicious files
			• App-integrated backup
			 • Business continuity
			 • Sync/async disaster recovery
			 • NetApp® Snapshot™ copies
			 • Clones
				• Multitenancy
				 • QoS
				 • Clusterwide scaling

NetApp ONTAP®
Data management software
Delivering automation, efficiency, data protection, and security capabilities
across the NetApp portfolio for file, block, and object

Target use cases

Hybrid-to-capacity flash refresh
(suited for 10K HDD transition and End-of-support system refresh)
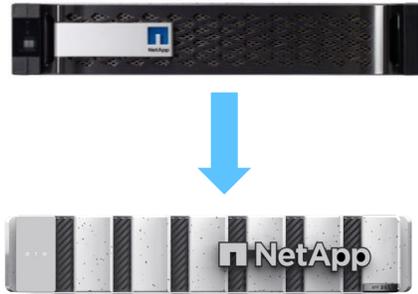
Tier 1 workloads
(where 2–4ms latency is more than enough)

- Media/rendering
- AI/ML and analytics
- Data lakes
- File storage
- Home directories
- User data
- Non–mission-critical databases
- VMware

Tier 2 workloads
(where capacity is the primary driver)

- DevTest sandbox copies for databases or VMs (NAS or SAN)
- Fast recovery for backups
- Target system for backup consolidation (NetApp® Snapshot™ copies and NetApp SnapMirror®)
- Target system for data tiering

Compared to hybrid flash arrays

- Best TCO
- Better speed
- Better density
- Better efficiency

- Best TCO

- Best TCO
- Better speed
- Better density
- Better efficiency

AFF C-Series is efficient

Superior overall cost-effectiveness compared to similar systems

Reduce TCO	**Increase data efficiency**	**Improve sustainability**

• Reduce up to 95% of rack space with high-density capacity flash	• 80% raw-to-usable
	
	• 4:1 data reduction for SAN workloads
	   • 1.5:1 for NAS
	   • 3:1 for VMware, Hyper-V, and KVM workloads on NAS
	
	• Policy-based tiering of cold data to hybrid flash, object, or cloud storage
		• Save power and cooling costs up to 85% over hybrid flash

Bezel mock-up; not final; initial shipments may use older bezel.

Reduce TCO with AFF C-Series
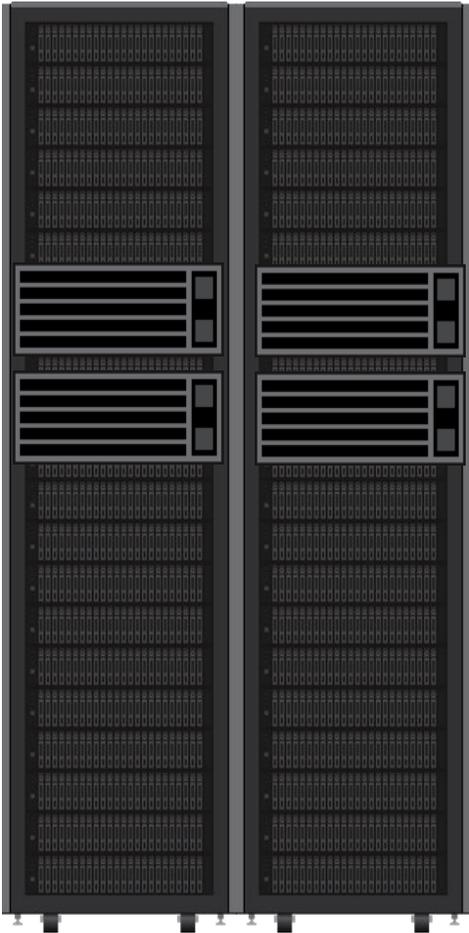
Hybrid Flash Array

↑ **1.5PB** effective in 2U

AFF C-Series System

↓ **85%** less power/cooling

↓ **95%** smaller footprint

■ NetApp

AFF C-Series is secure

NetApp ONTAP software includes over 30 advanced data security features

Protect	Detect	Recover
• Multifactor authentication and role-based access control • Application-consistent data protection • Multi-admin verification before execution of sensitive commands • Data encryption in transit and at rest	• Autonomous ransomware protection with preemptive detection against attacks • Enhanced file system auditing	• Data availability maintained with zero data loss and zero downtime • NetApp® SnapLock® technology for write once, read many (WORM) data • Tamper-proof NetApp Snapshots™ copies

Bezel mock-up; not final; initial shipments may use older bezel.

AFF C-Series is scalable

Experience the ultimate flexibility of scale and management that is a NetApp speacialty

- Eliminate storage silos and scale capacity nondisruptively.

- Combine performance flash, capacity flash, and hybrid storage—across SAN, NAS, and object storage—in a single cluster.

Cluster up to 24 nodes

AFF A-Series   **AFF C-Series**   **AFF C-Series**   **FAS systems**

Bezel mock-up; not final; initial shipments may use older bezel.

AFF C-Series is cloud-connected

- Disaster recovery to cloud

- Back up to cloud

- Tier to cloud

- Caching to cloud

- Manage hybrid multicloud storage

aws
FSxN

Microsoft Azure
ANF

Storage

Google Cloud
CVS

CVO

NetApp® cloud storage services

AFF C-Series

Bezel mock-up; not final; initial shipments may use older bezel.

NetApp Advance

NetApp Advance

An innovative portfolio of programs and guarantees to give you the confidence that the storage they purchase today will evolve with them into the future
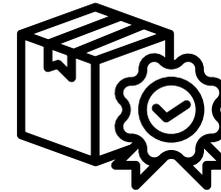
NEW

NEW

Storage Lifecycle Program
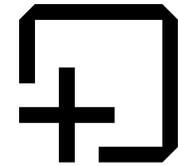- Eliminate painful and costly refresh.

Cloud Advantage
- Scale out to the cloud to meet changing business needs.
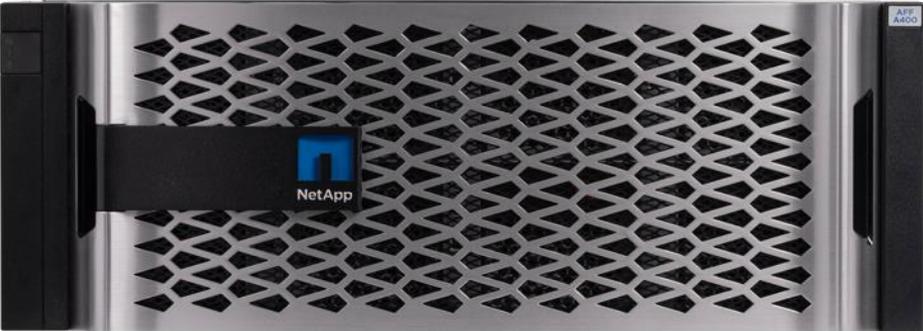
Storage Efficiency Guarantee
- 4:1 efficiency for SAN workloads, guaranteed—or we'll make it right.

Continued expansion
- In the future, NetApp® Advance will grow with additional programs and guarantees to generate greater customer value.

Pair the industry's leading storage with the new Storage Lifecycle Program

NetApp® AFF and FAS systems

+

NetApp **Storage Lifecycle Program**

- Free controller every 3 years
- Cloud Advantage
- Capacity refresh
- Support-managed software updates
- Premier-level support services

Make the smart choice today, and future-proof their investment for tomorrow

Cloud Advantage

Harness the cloud to meet changing business needs over time

- Enable future growth to the cloud to meet business demands.

- Flexibility to purchase the on-premises storage you need today and shift your investment toward the cloud in the future.

- Built into the Storage Lifecycle Program, Cloud Advantage enables you to swap your on-premises controller refresh for offerings that may include cloud services or NetApp Keystone® storage as a service.

Cloud Advantage

Storage Efficiency Guarantee

The simplest and most effective guarantee in the industry. Period.

- A risk-free approach to more storage, more value, and more efficiency

- Our guarantee: If we don't meet your workload efficiency goals, we'll make it right at no cost to you

- A way to get high efficiency plus high performance—with no trade-offs

- Applies to NetApp® AFF systems, including the new C-Series
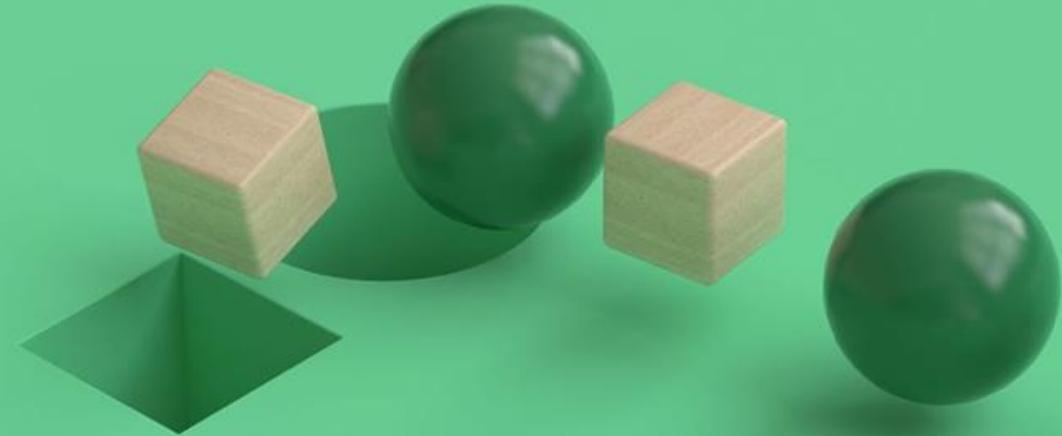
Our guarantee is simple…
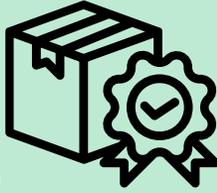
Storage
Efficiency Guarantee
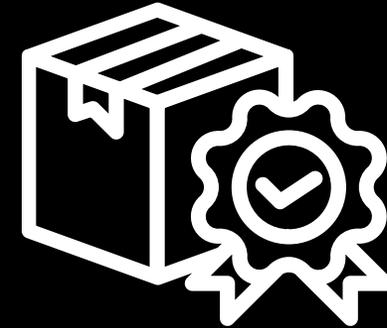
On all NetApp ONTAP®
all-flash systems

- **4:1 for SAN workloads**

- **1.5:1 for NAS workloads**

- **3:1 for VMware, Hyper-V, and KVM workloads on NAS**

Leadership and honors

NetApp ONTAP on-premises storage portfolio

An elegant portfolio for all performance and price points

NetApp® BlueXP™
Unified control plane

NetApp ONTAP®
Data management software
Delivering automation, efficiency, data protection, and security capabilities across the NetApp portfolio for file, block, and object

AFF A-Series

Highest performance with submillisecond latencies for the workloads your business depends on

TLC FLASH MEMORY

AFF C-Series

High-capacity with flash performance characteristics; aimed for workloads with performance needs while meeting budget needs

QLC FLASH MEMORY

FAS

Balanced performance and budget for smaller-capacity workloads

7.2K NL-SAS DISK DRIVES
10K SAS DISK DRIVES

Integrated solution with server, storage, and networking components; delivered by NetApp and Cisco channel partners

FlexPod® XCS

NetApp Advance

Best-in-class storage and data solutions

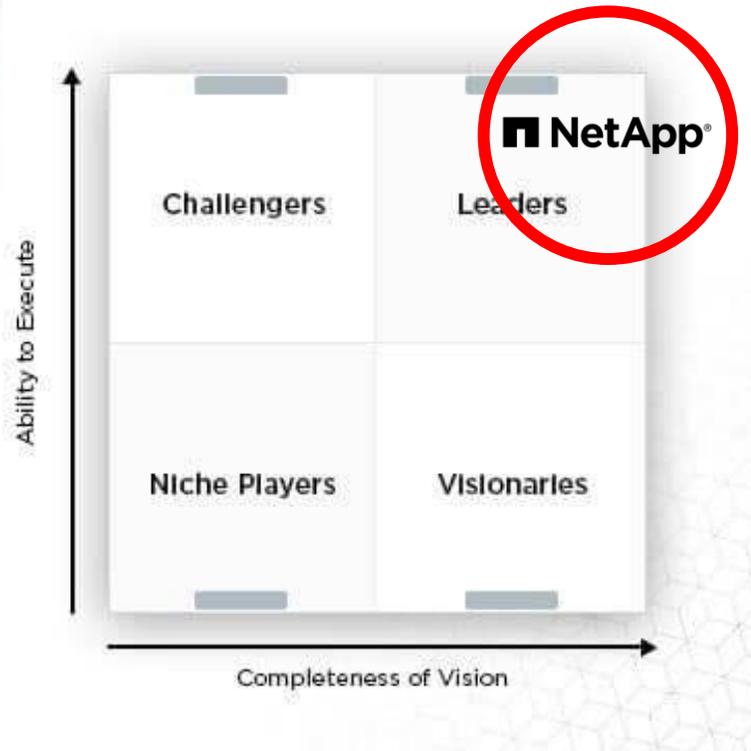Spanning on-premises and multicloud environments; solving board-level priorities for every enterprise

NetApp® BlueXP™			Spot by NetApp
On-premises data storage	**Cloud data storage**	**Data services**	**Cloud operations**
Solving the biggest challenges for data storage and management	Extending world-class solutions to all public clouds	Expand to solve multicloud data challenges beyond storage	Optimize your cloud app infrastructure
• NetApp ONTAP® (AFF, FAS) • NetApp E-Series, EF-Series • NetApp StorageGRID®	• Cloud Volumes ONTAP • Azure NetApp Files, FSx for ONTAP, NetApp Cloud Volumes Service	• Protection • Privacy • Governance	• Spot by NetApp® • CloudCheckr • Instaclustr™

Infrastructure observability and optimization

Optimize the delivery and operation of hybrid cloud infrastructure through advanced observability and optimization services.

NetApp Cloud Insights

The leader in all flash

Ongoing proof points from Gartner

A Gartner Magic Quadrant Leader

7

Years in a row*

The leader in all flash

Brand-new proof points from GigaOm Research

Figure 1. GigaOm Radar for Primary Storage for Midsize Businesses

Figure 1. GigaOm Radar for Primary Storage for Large Enterprises

"With ONTAP, NetApp distinguishes itself by offering a common operating system across its entire on-premises appliance range and in all major cloud providers, offering enterprise-class capabilities to mid-sized organization."

GigaOm Radar for Primary Storage for Midsize Businesses, January 19, 2023

"NetApp delivers outstanding capabilities for large enterprises both on-premises and in the cloud (as a first-party offering) with solutions architected around its ONTAP OS. The recently launched BlueXP service delivers thorough yet seamless data mobility and data management capabilities, providing a best-in-class and unmatched experience."

GigaOm Radar for Primary Storage for Large Enterprises, January 19, 2023

Thank you

NetApp