

ExaFlash[®] One

Highlights

- 100% flash memory array, up to 768 TB raw
- FC/iSCSI/SRP/NVMeoF/NFS/SMB/object protocols
- Ethernet, Fibre Channel and InfiniBand connectivity
- High availability with no single-point-of-failure
- Powerful data protection and management software
- Patented architecture optimized for performance
- Delivered as an subscription with FlashForward



Advantages

- Open: All-inclusive with no vendor lock-in
- Versatile: Unrivaled multiprotocol and QoS features
- Fast: Up to 2 million IOPs and 12 GBps
- Reliable: Designed for 99.999% availability
- Efficient: As low as 0.1 W per raw TB
- Scalable: Up to 16 PB raw flash per 42U rack
- Dense: 2U form factor, less than 20" deep
- Affordable: Starts at just \$10,000



Enterprise Flash Storage For Everyone

Virtualization, containers, databases, analytics, cloud computing, digital media, and technical applications demand high-performance, ultra-efficient storage. ExaFlash One all-flash arrays feature an open architecture, flexible network connectivity, complete high availability, and exceptional performance to take on diverse and IO-intensive workloads. ExaFlash arrays support virtually any block (SAN), file (NAS), and object protocol simultaneously, offering unmatched versatility. You can optimize the ExaFlash array for enterprise-class features, maximum throughput, and minimum latency, with QoS controls unrivaled in the market.

ExaFlash One features dual active-active controllers and scales up to 768 TB raw (up to 5 PB effective) using qualified industry-standard SSDs. Multiple data types can reside in the same logical pool, maximizing utilization and simplifying capacity planning. Inline data services including thin provisioning, deduplication, compression, checksums, and encryption can be individually enabled or disabled to optimize performance precisely for your workloads. Non-disruptive updates, snapshots, clones, and RAID, as well as cloud integration for offsite replication, ensure your data is fully protected. ExaFlash One is backed by FlashForward, an all-inclusive subscription that includes first-class support, free hardware upgrades, and much more.

What Makes ExaFlash Different?

100% Open

An open architecture, without vendor lock-in, puts you back in control of your storage.

100% Flash

Purpose-built for flash memory, maximizing its superior efficiency, reliability, and performance.

Versatility

One logical pool for block, file, and object storage with precise QoS control over inline data services.

Optimization

Tunable for your workloads with enterprise-class, throughput-optimized, and latency-focused modes.

Scalability

Expands non-disruptively from terabytes to exabytes with one central point of administration.

Reliability

Fully-redundant and easy-to-service design built for 99.999% uptime, backed by award-winning support.

Performance

Smart offload engines and a patented architecture maximize throughput and IO performance.

Freedom

Add your own qualified SSDs, giving you peace of mind and guaranteeing you fair capacity pricing.

Transparency

Simple pricing based on a flat annual subscription, regardless of array capacity, connectivity, or age.

Simplicity

Deploy and provision storage in under an hour, with technical support just a few clicks away.

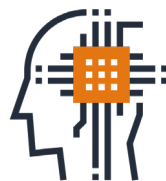
What Applications Can ExaFlash Help?



**Virtualization /
Containers**



**Databases
and OLTP**



**AI / Machine
Learning**



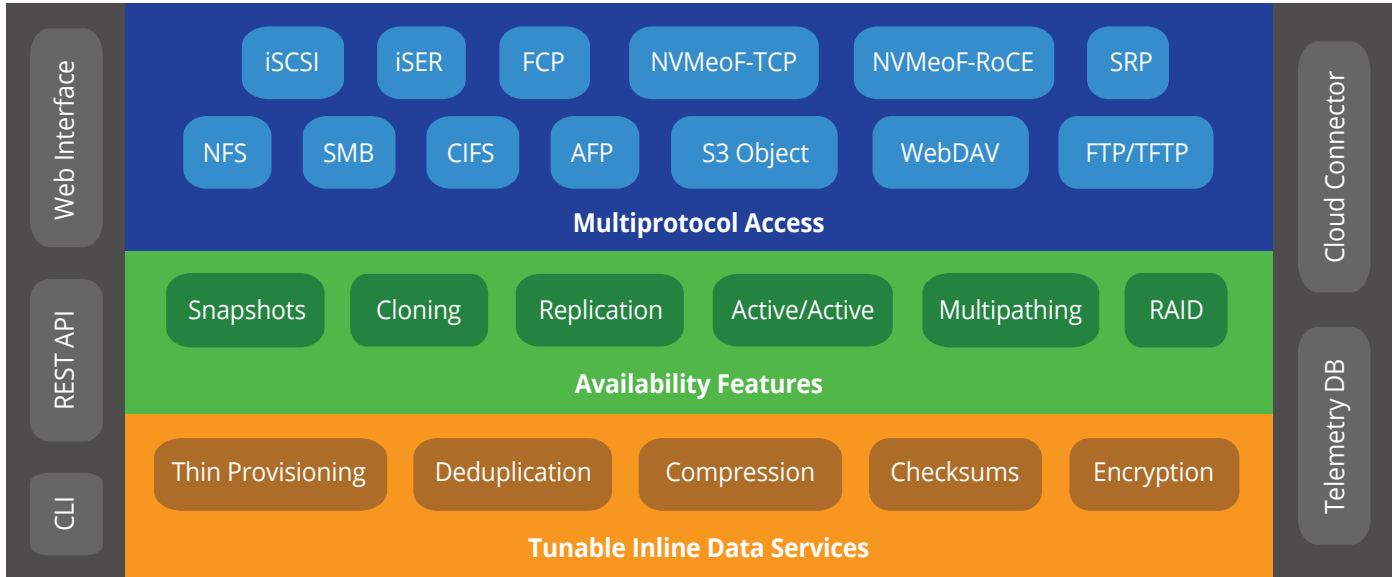
**Digital
Content**



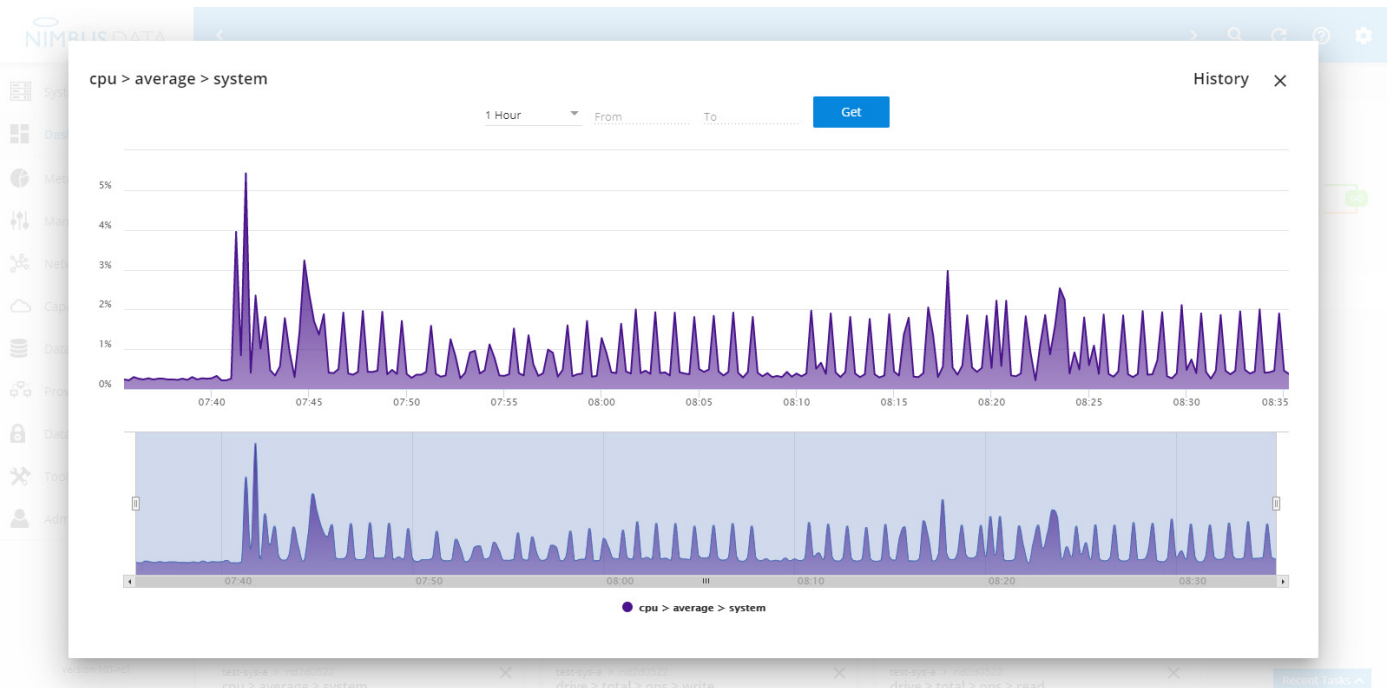
**Big Data
and HPC**

Comprehensive Data Management Capabilities

ExaFlash arrays run a powerful storage operating system optimized for flash and developed by Nimbus Data.



Our Vantage web interface provides complete management of one array or an unlimited number of arrays (when deployed as a separate VM) in one pane of glass. Vantage can collect telemetry from the entire federation of arrays, providing centralized reporting to facilitate capacity planning, performance analysis, and administrative tasks. Our Shell command line interface uses a plain-English syntax that's incredibly easy to use. Our Lingo REST API simplifies automation and integration of ExaFlash arrays into existing enterprise management platforms.



Optimize Storage for Your Workload

ExaFlash arrays put you in control. Thin provisioning, deduplication, compression, checksums, and encryption can be enabled or disabled individually, giving you powerful QoS capabilities. Workloads that benefit, like virtualization and databases, can leverage these features. Workloads that do not benefit, like digital media or encrypted content, can avoid them. This approach ensures that performance and utilization are always optimized, without resorting to the costly alternative of purchasing (and administering) multiple storage arrays. ExaFlash arrays even allow individual SSDs to be accessed directly as bare-metal devices (like a JBOF) using block storage protocols.



Intelligent Mode

- › Complete data management
- › RAID, dedupe, compression, checksums, encryption, snapshots, clones, replication
- › Ideal for typical enterprise workloads that require comprehensive storage management features



Ludicrous Mode

- › RAID protection only
- › Optimized to attain maximum throughput and I/Ops performance
- › Ideal for extreme performance workloads like technical computing, AI, HPC, analytics, digital media



Bare-metal Mode

- › Direct access to each SSD
- › [NVMeoF](#), iSCSI, FC, and SRP access directly to each SSD for lowest possible latency
- › For JBOF and RDMA-based flash fabrics, or for environments with host-based storage management

Multiprotocol Versatility with One Platform

ExaFlash arrays support virtually any storage protocol and network type. Block (SAN) protocols, file (NAS) protocols, and object (Amazon S3 compliant) protocols can coexist simultaneously on one ExaFlash array. All data types can even share the same logical pool of capacity, without any artificial silos. This not only eliminates the need for different storage arrays, but it also simplifies capacity planning and improves storage utilization. ExaFlash arrays are available with high-speed Fibre Channel, Ethernet, and InfiniBand connectivity, including RDMA support.

Block

iSCSI, iSER, FCP,
[NVMeoF](#), SRP

File

SMB, NFS, CIFS,
FTP, AFP, WebDAV

Object

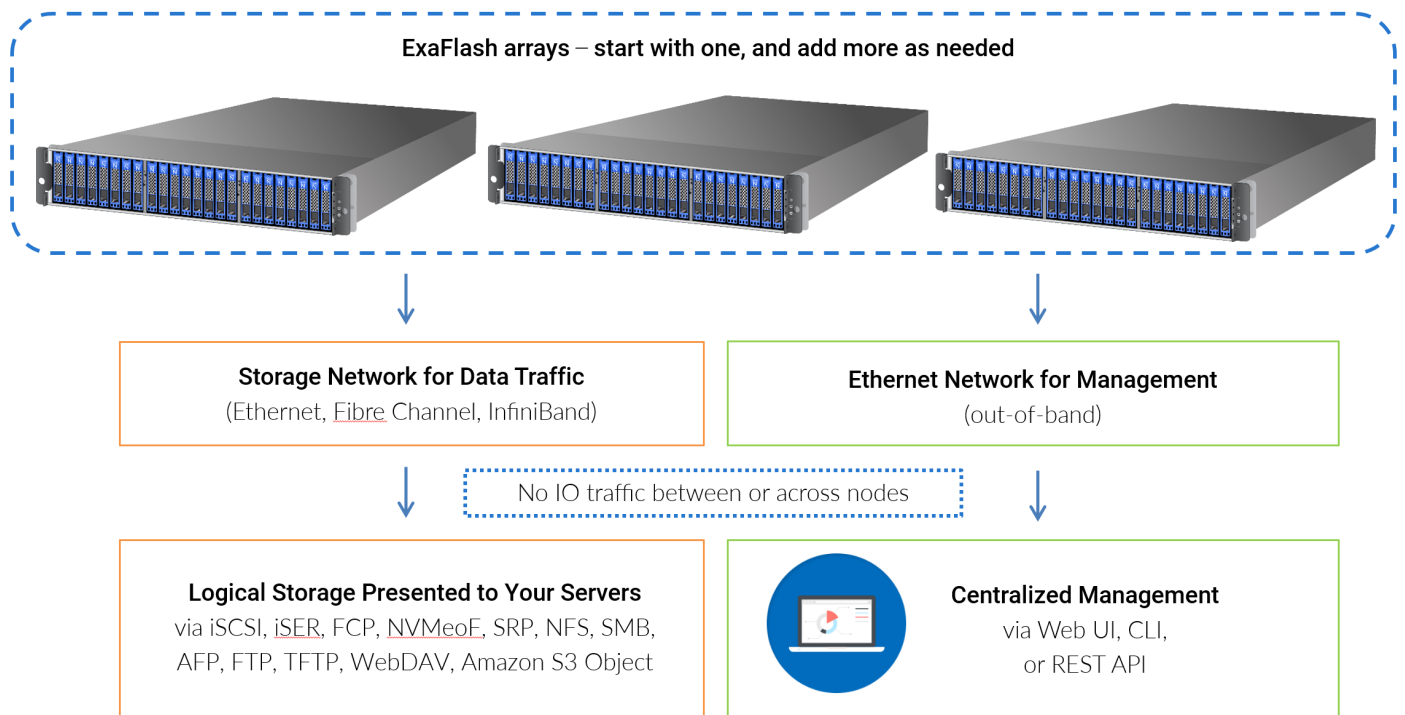
Amazon S3
compatible

Any Network

Ethernet | [Fibre Channel](#) | InfiniBand | RDMA

Scale Capacity and Performance in Lock-step

Since each ExaFlash array is fully-redundant, you can start with one and simply add more arrays as needed, on-demand and without disruption. With each new ExaFlash array, performance and capacity increase in unison. The federated architecture does not depend on cluster-wide metadata, battery backups, nor a backend network fabric. This approach offers superior resiliency, centralized control, much lower cost, and more predictable performance.



Enterprise-class Resiliency

ExaFlash arrays are rock-solid, fault-tolerant, and built for 99.999% availability. ExaFlash offers dual controllers, non-disruptive updates, online capacity expansion, redundant power/cooling modules, and hot-plug components. This no-single-point-of-failure design is also completely tool-less – anybody can service ExaFlash with ease. For data protection, ExaFlash includes space-efficient snapshots, full copy clones, asynchronous replication (to another ExaFlash array or to the cloud), online data scrubbing, and flash-optimized RAID protection.

Open Architecture Frees You from Vendor Lock-in

Historically, enterprise storage vendors have kept their arrays closed and captive, requiring all SSDs (the most expensive part) to be purchased from them at dramatically inflated prices. Some vendors even use proprietary flash modules that mechanically lock out any SSDs but their own. ExaFlash arrays break up this unfair and risky monopoly by supporting qualified SSDs from major vendors. This open approach not only gives you freedom and peace of mind. It guarantees you fair and competitive pricing for your storage for years to come.

FlashForward - Changing the Game for Enterprise Storage

More than ever, all-flash storage is a critical asset and strategic advantage, enabling organizations to achieve objectives simply not possible with hybrid or HDD storage. But enterprise-grade all-flash storage remains proprietary, complex, and expensive. Existing solutions on the market suffer from high upfront costs, vendor lock-in, capacity-based taxes, and unpredictable long-term costs. Nimbus Data believes this status quo must change.

FlashForward is a revolutionary new way forward for enterprise storage that puts your interests back at the forefront. ExaFlash One embraces FlashForward – no upfront capital expense for the system, no capacity-based licensing or support taxes, and an open architecture that supports qualified industry-standard SSDs. ExaFlash One is delivered as a flat \$10,000 annual subscription with all-inclusive software and no long-term contract. Add your own qualified SSDs, or use the Build Your Own feature on our website to configure a turn-key array in minutes.

What Does FlashForward Deliver?

Affordability

Eliminates the upfront capital cost of the array enclosure and dual-redundant controllers.

Freedom

Add your own qualified industry-standard SSDs to ensure fair capacity pricing and avoid lock-in.

Simplicity

A flat annual subscription cost regardless of the array's capacity, connectivity, or age.

No Taxes

All-inclusive software, free software updates, and no capacity-based license fees.

No Tiers

First-class support for everyone, including 24 x 7 x 365 support and rapid parts replacement.

Ageless

Free non-disruptive controller upgrades every 3 years and up to a 7-year SSD wear warranty.

No Worries

60-day "love-it or return-it" guarantee, without any exceptions or surprises.



No Lock-in

No long-term contract required - 1 year minimum, extendable up to 7 years as you desire.



Transparency

Get a detailed formal quote in a matter of minutes with just a few clicks on our website.

How Does ExaFlash Stack Up?

	 NIMBUS DATA	 PURE STORAGE
Block storage (SAN) support	✓	Requires FlashArray
File storage (NAS) support	✓	Requires embedded Windows
Object storage support	✓	Requires FlashBlade
Global data reduction across all data types	✓	✗
Fibre Channel support	✓	✓
Ethernet support	✓	✓
InfiniBand support	✓	✗
QoS control of each inline data service	✓	✗
Ludicrous mode (RAID-only)	✓	✗
Bare-metal mode (JBOF/direct SSD access)	✓	✗
Supports qualified industry-standard SSDs	✓	✗
Common software across all array models	✓	✗

How Does FlashForward Stack Up?

	 NIMBUS DATA	 PURE STORAGE
No upfront cost for the enclosure + dual controllers	✓	✗
Add your own SSDs from qualified major vendors	✓	✗
Flat subscription cost regardless of array capacity	✓	✗
All-inclusive software and free software updates	✓	✓
Free non-disruptive controller upgrades after 3 years	✓	Requires Evergreen Gold
Money-back guarantee duration	60 days	30 days
24 x 7 x 365 technical support and next-day parts	✓	✓
No support tiers / first class support for all	✓	✗
Generate instant detailed price quotes online	✓	✗

ExaFlash One - Specifications

Performance	Throughput Latency I/Ops	Up to 12 GBps (1 MB block size) As low as 50 µsec (4 KB block size) Up to 2 million (4 KB block size)
Controllers	QSFP+ model SFP+ model	4 QSFP+ ports per controller (up to 8 QSFP+ ports per system) 56 / 40 Gb InfiniBand (FDR / QDR) and 40 / 10 / 1 Gb Ethernet 4 SFP+ ports per controller (up to 8 SFP+ total ports per system) 16 / 8 / 4 Gb Fibre Channel and 10 / 1 Gb Ethernet
Storage	Raw Capacity Potential Capacity Flash Type SSDs	Up to 768 TB Up to 5 PB (after deduplication and compression) TLC with end-to-end data protection Up to 24 (available in 4, 8, 16, and 32 TB capacities)
System	Management Software Purpose-built Architecture Redundant Hot-swap Components Common Management Ports	Vantage web interface, Shell command line, and Lingo REST API Patented internal fabric with 144 Gbps total bandwidth Controllers, SSDs, power/cooling modules, and transceivers 2 x Ethernet (primary mgmt, BMC mgmt), 1 x console port
Platform Support	Operating System Support* Virtualization Support*	Windows 2012/2016/2019/10, Linux, MacOS VMware vSphere, Citrix XenServer, RHEV, Microsoft Hyper-V, KVM
Dimensions	Height Width Depth Weight (maximum)	2U (3.5 in or 89 mm) 17.6 in or 447 mm 19.5 in or 495 mm 75.0 lbs or 34 kg
Power	Voltage Frequency Power Consumption (typical)	100 - 240 VAC 48 - 62 Hz 350 W (600 W max)
Environmental	Ambient Temperature Relative Humidity Altitude	Operating: 10 to 50 °C, Non-operating: 0 to 70 °C Operating: 10% to 80%, Non-operating: 5% to 95% (non-condensing) Operating: -50 to 3000 m, Non-operating: -100 to 12,192 m
Shock & Vibration	Operational Shock Operational Vibration Non-operational Shock Non-operational Vibration	5G for 11ms, 1/2 sine wave pulse 0.15G at 5-500 Hz 10G for 11ms, 1/2 sine wave pulse 0.5G for 5-500 Hz
Agency Approvals	CE Mark, EN55022/EN61000 Class A, FCC Class A, Canadian IECS-003, VCCI Class A, ISO 9002 manufacturing	
Warranty & Support	Up to 7 years of FlashForward, including all software, updates, 24 x 7 x 365 support, and much more.	

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