Nimble Storage CS-Series Arrays: Building Blocks of the Adaptive Flash Platform

Nimble Storage CS-Series arrays are the building blocks of Adaptive Flash, a storage platform that dynamically and intelligently allocates storage resources to satisfy the changing needs of business-critical applications. Adaptive Flash is based on CASL™, Nimble’s patented Cache Accelerated Sequential Layout architecture, and InfoSight™, its data sciences-based approach to the storage lifecycle. CASL allows performance and capacity to be scaled seamlessly and independently. InfoSight leverages the power of deep-data analytics to deploy storage resources as needed by business-critical applications.

Nimble Storage CS-Series Arrays

Any Nimble Storage array can be scaled to enterprise levels of performance and capacity.

- The CS210, CS215, and CS235 provide value and capacity for small to medium-sized IT organizations or remote offices, for workloads such as Microsoft Exchange and VDI.
- The CS300 is ideal for midsize IT organizations or distributed sites of larger organizations. It offers the best capacity per $ for workloads like Microsoft applications, VDI, or virtual server consolidation. The CS300 delivers 1.6x more IOPS than the CS235.
- The CS500 offers advanced performance for larger-scale deployments or IO-intensive workloads, like larger-scale VDI, and Oracle or SQL Server databases, and provides the best performance and IOPS per $. The CS500 achieves 5x the performance of the CS235.
- The CS700 is designed for consolidating multiple large-scale critical applications with aggressive performance demands. It delivers approximately 7x the IOPS of the CS235.

All Nimble Storage arrays support the iSCSI storage protocol. Fibre Channel protocol support is available with the CS235, CS300, CS500, and CS700.

Scale-to-Fit with Scale-Out Architecture

CASL’s scale-to-fit capability allows performance and capacity to be scaled seamlessly and independently to meet the growing demands of today’s enterprise applications. Capacity can be scaled to hundreds of terabytes by simply adding disk shelves while performance can be enhanced by adding CPU cores for greater overall throughput or additional solid state drives (SSDs) for enhanced read performance. Performance and capacity can even be seamlessly scaled beyond a single array to a cluster of up to any four Nimble Storage arrays.

Integrated Data Protection

Data protection is built into every Nimble Storage array, eliminating the inefficiency associated with managing primary and backup storage tiers. Nimble arrays use advanced data protection features including frequent point-in-time snapshots and WAN-efficient replication.

InfoSight and Proactive Wellness

InfoSight is a key component of the Adaptive Flash platform, offering expert guidance on scaling. InfoSight monitors all Nimble arrays, collectively and individually, from the cloud, using the data it collects to pinpoint problems — and offer remedies — before they can bring systems down.

In addition to InfoSight, Nimble offers these key support benefits: access to 24x7 technical support; 4-hour, or next business day, parts delivery; always-on monitoring and response; and frequent software updates.

“Our customers see large data sets, small data sets and diverse workloads. Nimble’s CS700 and all-flash expansion shelf combine to offer customers a means of covering lots of ground in terms of both performance and capacity, within an attractively small datacenter footprint.”

Jeff Thomas
Director of IT operations
MarkLogic

Our Customers Require Up To 10x Less Rackspace

Actual Results for Nimble Customers

Our Customers Get Blazing Performance

UP TO 500K IOPS

Actual Results for 4-Node CS700 Cluster

Our Customers Enjoy Virtually Zero Downtime

Measured Across Entire Nimble Installed Base (July 2012 - June 2014)
<table>
<thead>
<tr>
<th>Product Family</th>
<th>Base Performance Family</th>
<th>High Performance Family</th>
<th>Extreme Performance Family</th>
<th>Ultimate Family</th>
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<tbody>
<tr>
<td>Value Array Family</td>
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**Product Specifications**

**Supported Protocols and Network Connectivity**

- Fibre Channel
- iSCSI
- Ethernet
- Dual-port 10GbE SFP+ (optional)
- Dual-port 10GbaseT (optional)
- Dual-port 1GbE (optional)
- On-board 1GbE (optional)
- Dual-port 1GbE (on board) per array controller

**Expansion Shelves**

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<thead>
<tr>
<th>Expansion Shelf</th>
<th>Capacity (GB)</th>
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<tbody>
<tr>
<td>ES1-AFS</td>
<td>64,000</td>
</tr>
<tr>
<td>ES1-H25</td>
<td>25,000</td>
</tr>
<tr>
<td>ES1-H45</td>
<td>55,000</td>
</tr>
<tr>
<td>ES1-H65</td>
<td>72,000</td>
</tr>
<tr>
<td>ES1-H85</td>
<td>112,000</td>
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**Physical and Environmental Specifications**

- **Power Requirement (Watts)**
- **Max Supported Flash with All-Flash Shelf (GB)**
- **Base/Max Flash Capacity per Array (GB)**
- **Max Number of Disk Expansion Shelves**
- **Effective Capacity, Maximum (TB)**
- **Effective Capacity, Base (TB)**
- **Min. Usable Capacity (TB)**
- **Raw Disk Capacity, Base (TB)**

**Non-Operating Humidity**

1. 5% - 95%

**Operating Humidity**

2. 90% (at 40°C)

**Non-Operating Temperature**

3. 72°F to 104°F (22°C to 40°C)

**Operating Temperature**

4. 41°F to 104°F (5°C to 40°C)

**Weight (All-Flash Shelf)**

5. 55 lbs. / 25 kg

**Weight**

6. 500 lbs. / 227 kg

**Notes**

- Max flash capacity shown is for SSD capacity included with each ES1 expansion shelf.
- Maximum capacity includes up to 6 ES1-HxxT expansion shelves.
- Maximum capacity is the capacity of the base array and maximum number of expansion shelves.
- Maximum performance configuration consists of 4x CS700 arrays, each with 1x ES1-AFS all-flash expansion shelf and 6x ES1-H85 capacity expansion shelves.
- Maximum capacity for CS235 includes three ES1-H90T expansion shelves (requires NimbleOS 2.3).
- Compression rates vary across applications. 2x compression factor reflects the upper range of effective capacity (based on actual compression rates seen by customers.)
- Min. usable capacity denotes the base capacity available to users once parity, spares and system overhead are deducted from overall raw capacity. Compression increases overall effective capacity.
- Raw and effective capacities are calculated using Base 10 (i.e., 1 TB = 1,000,000,000,000 bytes)
- 1,784-3,568 1,784
- 1-6
- 34-68
- 1,200
- 8-16
- 8-90%