Embrace Hyper-scale Storage Architecture to Drastically Increase Reliability and Lower Costs

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Storage architecture options for today’s IT environment

- DAS
- SAN/NAS Array
- Hyperconverged SDS
- Hyperscale SDS

Timeline:
- 1970
- 1990
- 2010
- 2014
Hyperconverged or Hyperscale? One Size Fits None

Hyperconverged SDS

Linked scaling of storage relative to compute and networking

- Simple
- Best entry cost

- Environments that have limited storage needs/growth
- Small environments

Hyperscale SDS

Independent scaling of storage relative to compute and networking

- Flexible
- Best cost at scale

- Mixed application environments
- Data intensive environments
- Larger environments
Why consider Hyper-Scale Software Defined Storage? Done right, it should:

- Fundamentally reduces storage cost
- Fundamentally improves performance
- Fundamentally improves agility
- Does NOT require a “strategic investment”

Array Model

Scale Out Open Platform Model

Speed

Performance (Speed + Control)

Static Environments

Dynamic Environments
Hyperscale SDS Checklist:

✔ 100% **Software** that runs on open standard HW platforms

✔ Complete **Storage + Data Virtualization** (array replacement)

✔ **Scale Out** – System can grow seamlessly to any scale

✔ **Performant** – Array-like latency

✔ **Compatible** with today’s VMware and application environments
How Does Hyperscale SDS compare to traditional arrays?

<table>
<thead>
<tr>
<th>Array Model</th>
<th>SDS-HS Model</th>
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<tbody>
<tr>
<td>RAID 5/6</td>
<td>Data Protection Replication/Erasure Coding</td>
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<tr>
<td>Tightly coupled</td>
<td>Fault Architecture</td>
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<tr>
<td>Scale up</td>
<td>Scaling</td>
</tr>
<tr>
<td>Semi-Custom/Proprietary</td>
<td>Hardware</td>
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All Software-Defined Storage is Not Created Equal

System algorithms should distribute data evenly:
- Minimizes performance impact due to failures
- Immediate performance and capacity scaling

Storage Domains can be dynamically expanded and upgraded
- Automatic data migration allows new resources to be added on demand
- Capacity and performance allocated to any volume!
All Software-Defined Storage is Not Created Equal

Flexibility of access protocols, performance and protection

- **File:** NFS
- **Object:** S3, HDFS
- **Block:** iSCSI

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<th>File</th>
<th>Object</th>
<th>Block</th>
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<tbody>
<tr>
<td>SSD</td>
<td>SSD</td>
<td>DISK</td>
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- **All-Flash**
- **Hybrid**
- **Archive**

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<tbody>
<tr>
<td>Continuous Data Protection</td>
<td>Automatic Snapshot</td>
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<tr>
<td>Volume Cloning</td>
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Modern analytics, and efficiency

- **Data Analytics & Anomaly detection**
- **Multi-tenancy**
- **Cloud Integration**

- **In-line data deduplication**
SDS Deployment Flexibility

Deployment Options

SOFTWARE
- Open HW Model
- Your choice of HW and configuration

APPLIANCE
- Complete Solution
- Flash, hybrid and archive configurations available

VM
- Storage Recapture
- Runs as VMs within your existing environment

CLOUD
- Public/Private Cloud
- AWS, Azure, OpenStack
Consolidate traditional SAN/NAS workloads to dramatically lower costs

Deliver scale-out performance with dynamic tiering and QoS control

Automate and simplify management for greater business agility

Distributed architecture, compatible with modern cloud applications
## FormationOne Capabilities

| Dynamic                  | • Dynamically add performance and/or capacity  
|                          | • Scale out from Terabytes to Exabytes  
|                          | • Dynamic provisioning and policies |
| Multi-tenant Services    | • Ability to segment volumes by tenant |
|                          | • Policy-based security |
| Subscription Software    | • OPEX not CAPX  
|                          | • Pay for just what you need |
| Cloud-based analytics –TABS* | • Gain insight about your data use  
|                          | • Best practices & recommendations  
|                          | • Fault monitoring & Security |
| Open Hardware Model      | • Use your preferred HW supplier and configurations  
|                          | • Your choice of upgrade cycle  
|                          | • Optional “Appliances” |

* Telemetry and Alerting Bundled Services
Where to Start with Formation

Implement in projects:

- ARRAY REPLACEMENT, CAPACITY GROWTH
- PROJECT LEVEL TCO, ROI JUSTIFICATION

Start on the ground floor:

- BACKUP/ACTIVE ARCHIVE STORAGE
- TIER 2 BUSINESS APPLICATIONS
- IT APPLICATIONS (AUDIT/SECURITY)
- TEST & DEVELOPMENT
Ready to Learn More?

• Review the technical resources on wwwFORMATIONds.com/demo
• Meet with a Formation Technical Specialist
• Schedule a 1-1 Demonstration, donate a goat!

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