Intelligent Abstraction - Intelligent Predictive Analytics - Intelligent Action

SDS: Myth or Reality?

Gary Quinn - President & CEO
WHAT IS “SOFTWARE DEFINED STORAGE” (SDS)
Gartner SDS Framework

Service Layer
Software Defined Controllers, Disaggregated from HW

Physical Infrastructure
Arrays, Hyper Converged Appliances

Layer of Abstraction

Infrastructure “Control Plane”

Northbound APIs

Infrastructure “Data Plane”

Southbound APIs
New IDC SDS Framework (Dec 2015)

Software Defined Storage

Discrete (Storage Only)

Converged (Compute + Storage)

Storage Workload

OS

Server based Storage

Non-Storage Workload

Virtual Machine

Container

Bare-Metal

Hyper-Visor / Micro-Visor

OS

Server based Storage
A true SDS platform controls the IO path and data services independently, disaggregated/discretely from the HW.

IDC and Gartner use different words, but have similar functional views.
## SDS Provides Deployment Flexibility

<table>
<thead>
<tr>
<th>Deployment Type</th>
<th>Hyper-Converged</th>
<th>Hyper-Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scaling approach</td>
<td>Scales compute and storage together</td>
<td>Scales compute and storage independently</td>
</tr>
<tr>
<td>Summary</td>
<td>Deploys storage controller and array on the same server, providing compute and storage in a single node</td>
<td>Decouples storage controller and array, forming an elastic storage cluster using white box servers.</td>
</tr>
<tr>
<td>Use Cases</td>
<td>Basic, modular building blocks for enterprise virtualized workloads, especially apps like Exchange, SQL Server, and even Oracle databases.</td>
<td>Much more suitable architecture for elastic workloads, especially Hadoop, Cassandra, and other NoSQL flavors. Better platform for enterprises building out their own clouds with technologies like OpenStack or Docker.</td>
</tr>
</tbody>
</table>
## IDC Storage SW Market Forecast

<table>
<thead>
<tr>
<th>SW Segment</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>CAGR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data protection</td>
<td>$6,283.3</td>
<td>$6,601.5</td>
<td>$6,935.8</td>
<td>$7,656.0</td>
<td>5.1%</td>
</tr>
<tr>
<td>Storage Mgmt.</td>
<td>$908.7</td>
<td>$1,078.0</td>
<td>$1,278.9</td>
<td>$1,800.0</td>
<td>18.6%</td>
</tr>
<tr>
<td>Replication</td>
<td>$2,796.0</td>
<td>$3,031.7</td>
<td>$3,287.3</td>
<td>$3,865.0</td>
<td>8.4%</td>
</tr>
<tr>
<td>SDS</td>
<td>$700.0</td>
<td>$1,134.1</td>
<td>$1,837.4</td>
<td>$4,823.0</td>
<td>62.0%</td>
</tr>
<tr>
<td>Archive</td>
<td>$1,544.7</td>
<td>$1,636.3</td>
<td>$1,716.0</td>
<td>$1,790.4</td>
<td>3.8%</td>
</tr>
<tr>
<td>Cloud Storage</td>
<td>$537.9</td>
<td>$598.7</td>
<td>$655.0</td>
<td>$708.7</td>
<td>7.1%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$12,770.60</td>
<td>$14,080.35</td>
<td>$15,710.45</td>
<td>$20,643.10</td>
<td>12.8%</td>
</tr>
</tbody>
</table>

Total Storage SW market expected to grow from $15.9B in CY16 to 23.25 B in CY19 (CAGR 3.9%). Table above is a subset and does NOT include Storage and Device Mgmt. And File System software segments as they are not relevant to FreeStor.
One Platform, One View, One Price

Intelligent Abstraction® Core
With Predictive Analytics

- Scale Up
- Scale Out
- Monitor, Manage, Analyze, Take Action
- Local, Remote, Hybrid Deployment
- Mix and match data services as needed
Rethinking How Data is Managed

FreeStor takes a new, comprehensive approach to real-world challenges in managing data

Intelligent Abstraction

Intelligent Predictive Analytics

Intelligent Action
Addressing Business Challenges

FreeStor delivers greater efficiencies, reduced downtime, lower costs, and improved simplicity

**Intelligent**
- 1 Platform, 1 View, 1 Price
- Lower Costs
- Increase Efficiency
- Eliminate silos
- Choose the Right Storage

**Predictive**
- Predictive Analytics
- Heterogeneous Metrics, Monitoring & Reporting
- Centralized Management

**Action**
- Proactive Detection
- Smart Rules
- Multi-Tenant
- Take Action on Real-Time Data
How Do You Make it Happen?

Take a Software-Defined Storage Approach
THANK YOU