Software-defined Storage – the future is now
Redefining the economics of storage with SUSE Enterprise Storage
SDS is More Than Just Vendor Hype

By 2020, between 70% and 80% of unstructured data will be held on lower-cost storage managed by SDS.

Source: Gartner innovation insight: Separating Hype from Hop for Software-Defined Storage
Enterprise Data Capacity Utilization

Tier 0
- Ultra High Performance

Tier 1
- High-value, OLTP, Revenue Generating

Tier 2
- Backup/Recovery, Reference Data, Bulk Data [user directories etc]

Tier 3
- Object, Archive, Compliance Archive, Long-term Retention

Source: Horison Information Strategies - Fred Moore
Why Deploy Software-defined Storage

- **Improving agility**
  - Faster time to value
  - Ability to manage across locations and classes of storage

- **Increase flexibility**
  - Multiple SDS alternatives to choose from
  - Select hardware platforms and hypervisors of choice

- **Decouple SW from HW**
  - Adopt industry standard HW platforms
  - Increases innovation in each layer

- **Reducing capex/opex**
  - Lower acquisition costs without sacrificing SLOs
  - Lower ongoing HW maintenance and SW support costs
Software-defined Storage

The general availability of open source based, software-defined storage from Linux vendors like SUSE, marks the beginning of a new era of much more agile, scalable and cost-effective storage.

Software-defined storage will displace traditional enterprise storage as the dominant storage architecture and therefore will create a strategic imperative for storage IT professionals.
Enterprise Storage Tomorrow

• Differentiated “Tiered” Information
  ‒ Timely identification, classification and efficient placement of data

• Software-based Storage (OPEX)
  ‒ Open, extensible, unified and simple

• Industry-standard Hardware Building Blocks (CAPEX)
  ‒ Commodity off-the-shelf servers and disk drives
Analysis of a Typical Midrange Disk Array

$332,569
5-Year Savings

HDD Configuration:
- 150 600GB 10K SAS
- 232 2TB 7.2K NL-SAS

SDS Software:
- Storage Operating System
- Data Services Software:
  - Snapshots
  - Clones
  - Synchronous/Asynchronous Replication
  - Thin Provisioning
  - Data Reduction
- Management

Capex/Opex Savings:
- -56.3% Software
- -56.9% HDDs
- -53.1% Controller + P&P
- -54.1% Net Price per GB
Analysis of a Large Midrange Disk Array

$866,810
5-Year Savings

HDD Configuration:
- 169 450GB 15K SAS
- 120 600GB 10K SAS
- 120 1TB 7.2K NL-SAS
- 48 2TB 7.2K NL-SAS
- 96 4TB 7.2K NL-SAS

SDS Software:
- Storage Operating System
- Data Services Software:
  - Snapshots
  - Clones
  - Synchronous/Asynchronous Replication
  - Thin Provisioning
  - Data Reduction
- Management

Capex/Opex Savings:
- -68.3% Software
- -63.3% HDDs
- -59.8% Controller + P&P
- -63.5% Net Price per GB
Why SUSE and Software-defined Storage

Open source cloud operating systems and software-defined storage platforms are based on the Linux operating system.

SUSE is a Linux OS pioneer and successful software vendor with thousands of installations. Customers should expect to receive nothing less than expert support from SUSE for their software-based storage.
SUSE Enterprise Storage
Powered by CEPH

- Most popular OpenStack distributed storage solution
- Extensively scalable from gigabytes to petabytes
- Storage appliance to cost-effective cloud solution
- Industry-leading storage functionality
- Built on clustered servers
  - Self healing
  - Self managing
Enterprise Class Capabilities

- Unlimited scalability
- Self repairing
- Cache tiering for performance
- Thin provisioning for optimized utilization
- Copy-on-write clones for application rollback
- Heterogeneous Operating System access
- Erasure coding for space-efficient resilience
- Unified object, block and file [future] access
- No disruptive scalability of capacity online
- Rolling non-disruptive upgrades
- Data-at-rest Encryption
SUSE Storage Product Positioning

- High-end Disk Array
- Mid-range Array
- Fully Featured NAS Device
- Mid-range NAS
- Entry-level Disk Array
- JBOD Storage

SUSE Enterprise Storage
SUSE Enterprise Storage
Business Benefits

SAVINGS: Total cost of ownership
  - Reduced CAPEX expenditures
  - Reduced OPEX expenditures
  - Ease of management

FLEXIBILITY: Adaptability to evolving business needs
  - Reduced dependency upon proprietary “Locked In” storage

CONFIDENCE: Reliability and availability
  - Leverage SUSE world-class support and services
What Gartner is telling customers

Recommendations

✓ Conquer conventional wisdom; open your mind to the emerging new storage solutions
✓ Dedicate special time to research SDS vendors
✓ Invite two or three SDS vendors in for a briefing
✓ Execute a POC to validate fit into your storage infrastructure strategy
✓ Evaluate the SDS vendor’s ability to provide responsive service and support
Key Issues to Consider Beyond TCO

- SDS Provider Financial Stability
- SDS Product Maturity and Quality
- Ecosystem Integration Testing
- SDS Infrastructure Integration
- Disaggregated Service and Support
SDS is not a "nice to have"

You are wasting corporate assets if you do not deploy software-defined storage infrastructures
SUSE: A Long History in Data

- SUSE Enterprise Storage customers will have confidence that the enterprise storage solutions they deploy are tightly integrated with SUSE Linux Enterprise Server.
- SUSE Linux Enterprise Server has a long history of delivering leading data storage functionality to enterprise customers.
- SUSE Linux Enterprise Server was first to provide a journaling file system followed by XFS.
- SUSE Linux Enterprise Server provided first-to-market support for EXT3 and ReiserFS.
- SUSE Linux Enterprise Server was the first to support a clustered file system with OCSF2.
- SUSE Linux Enterprise Server was the first with support for the scalable, copy-on-write and the B-tree filesystem BtrFS.
- SUSE has more than two decades experience delivering the data integrity enterprise customers demand.