Fujitsu World Tour 2016

Software Defined ...

Frits de Kok

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Human Centric Innovation in Action

Software Defined: the new Holy Grail?

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Surviving the Software Defined Storage Hype Jungle

Hype Cycle Software Defined

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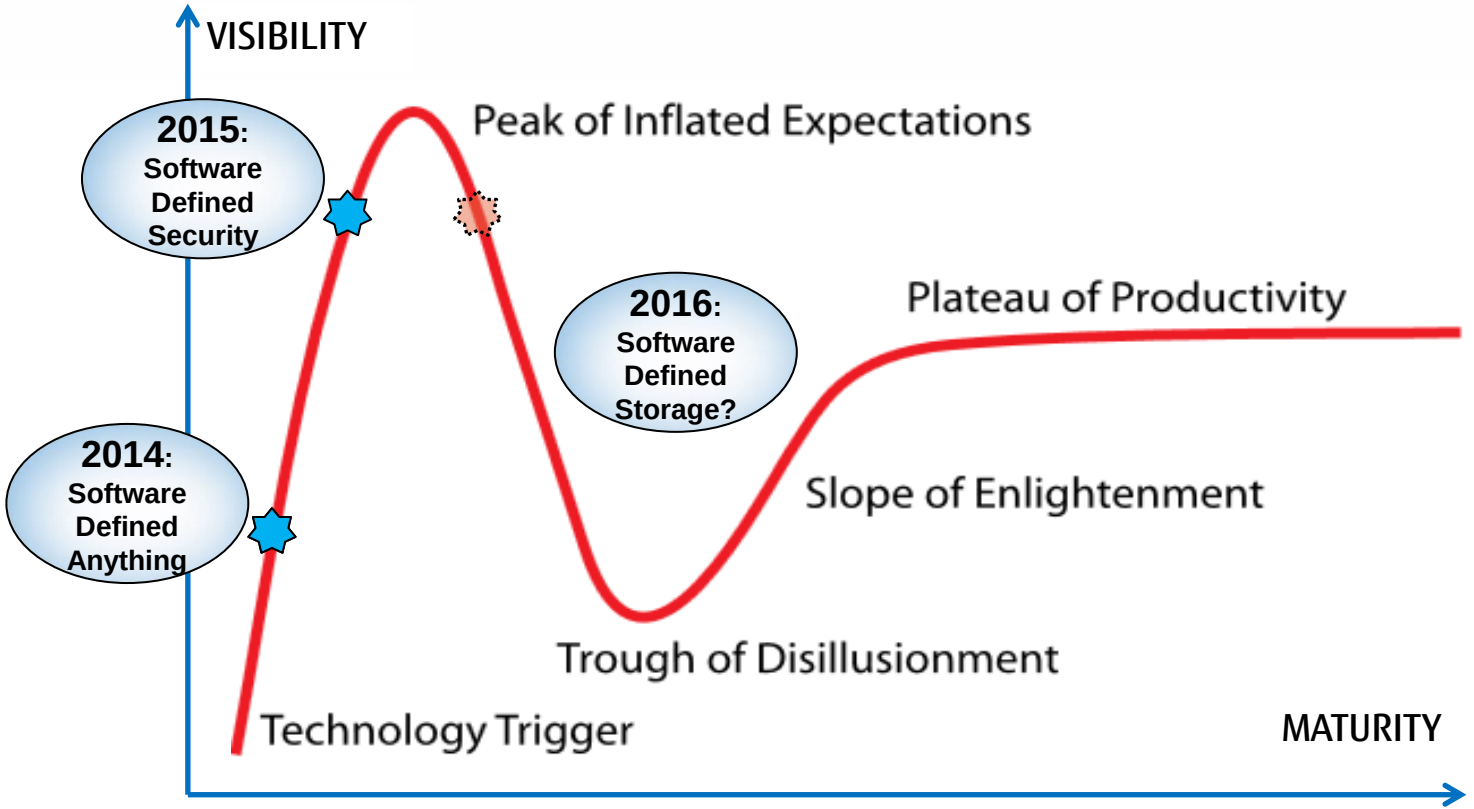

The Impact of Digitalization on DC Architectures

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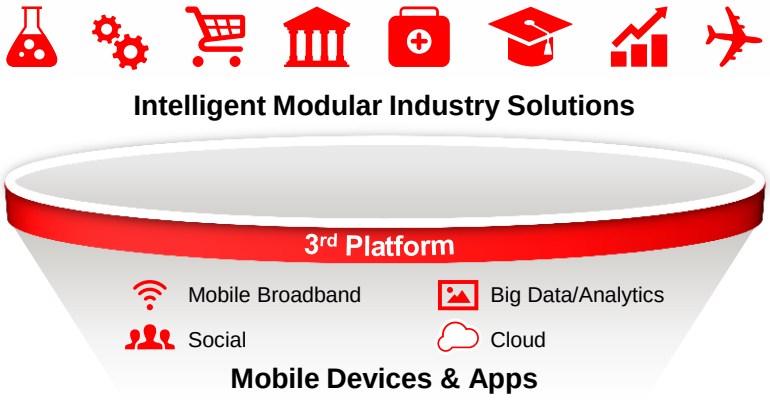
Intelligent Modular Industry Solutions

Level of Digitalization

	Users & Things	COMPUTE	STORAGE	NETWORK
3rd Platform Mobile Broadband, Big Data/Analytics, Social, Cloud **Mobile Devices & Apps**	Billions/ Trillions	Modular x86	HW independent Hyper-scale	"The new IP" = network for the 3rd Platform
2nd Platform LAN/Internet, Client/Server **PC**	Millions	x86 RISC	Integ. HW&SW vendor-specific scale-up & out	IP, LAN/WAN
1st Platform Mainframe, Terminal	Thousands	Mainframe Systems	Specialized Mainframe Connectivity	Systems Network Architecture (SNA)

Source: IDC

The way to a Fast, software-defined IT



- Characteristics of the 3rd platform
  - Unpredictable amounts of data
  - Unpredictable amounts of users / things
- Data Center infrastructure requirements
  - Creation of “Fast IT”: fast & flexible scalability in transporting, processing and storing data
  - Hardware-independent provisioning

Scalability

- Practically unlimited scalability in terms of performance & capacity
- No bottlenecks
- No hot spots

Reliability

- Full redundancy
- Self healing
- Geographical dispersion
- Fast rebuild

Manageability

- Central management of huge storage amounts
- Unified multi-protocol access (block, file, object)
- Seamless introduction of new storage

The Petabyte Divide needs new storage

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Traditional Storage Systems

Traditional RAID Storage Systems face their limits when crossing the Petabyte divide

- High RAID rebuild times, high risk
- Exponentially rising costs for HA
- Over or under provisioning due to unexpected data growth
- Extreme data migration durations
- Significant issues with (planned) downtime
- Costs per capacity
- Performance issues

Need for new architectures

New Storage Architectures

0.5 PB → 1 PB → 10 PB → 20 PB → 100 PB

The storage impact of a digitalized world

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More data

- Will be gathered and stored
- Will be analyzed
- Will be processed
- Will be transported
- Will be online

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More storage requirements

- Speed
- Faster, greater scalability
- Less costs per terabyte
- Extended storage life-cycles
- Aligning storage, server, network scalability

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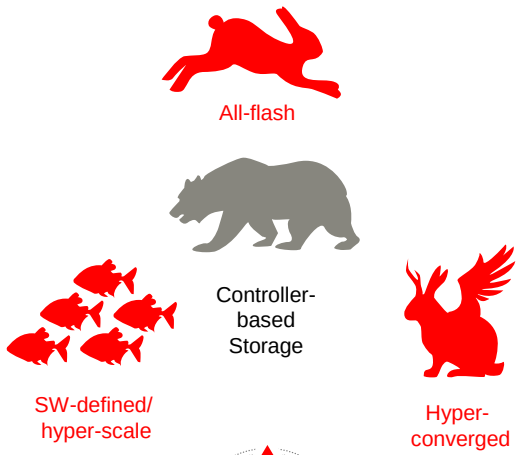
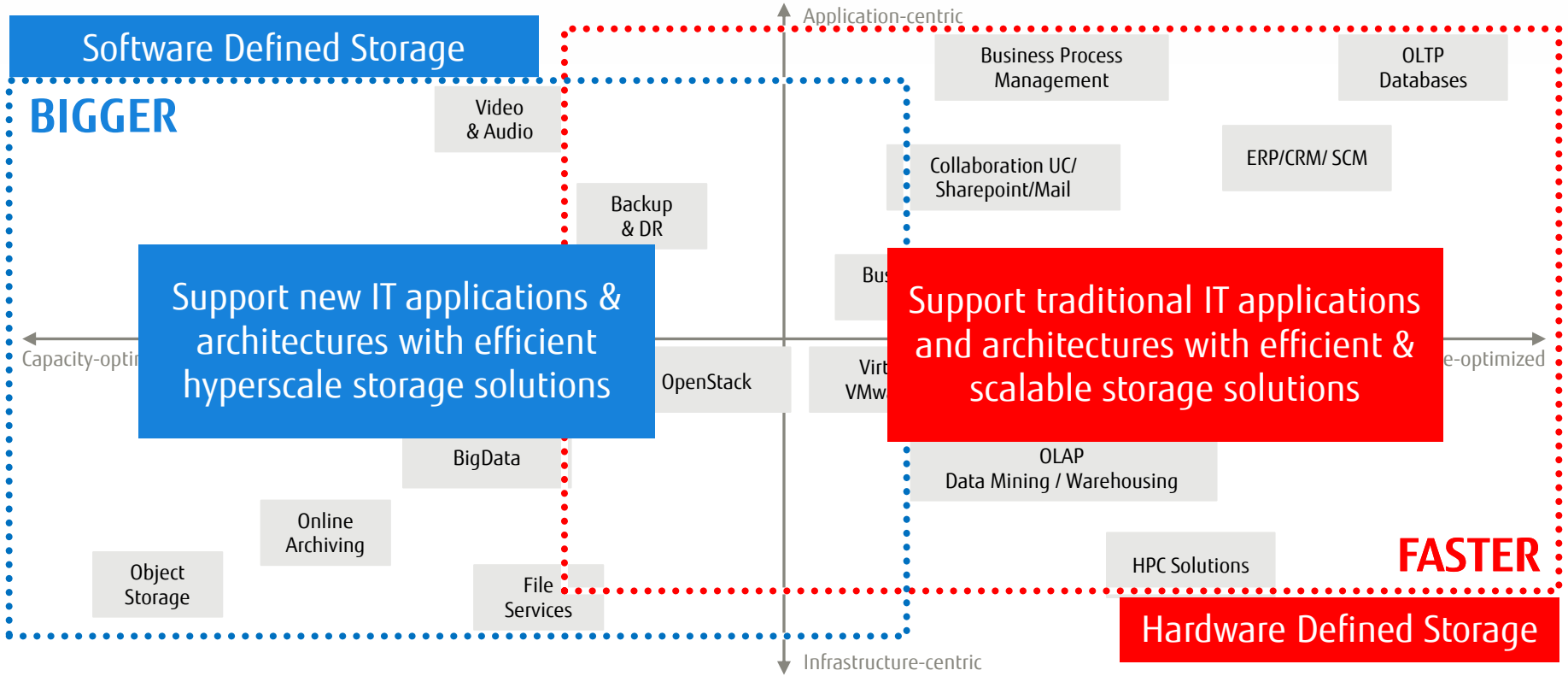
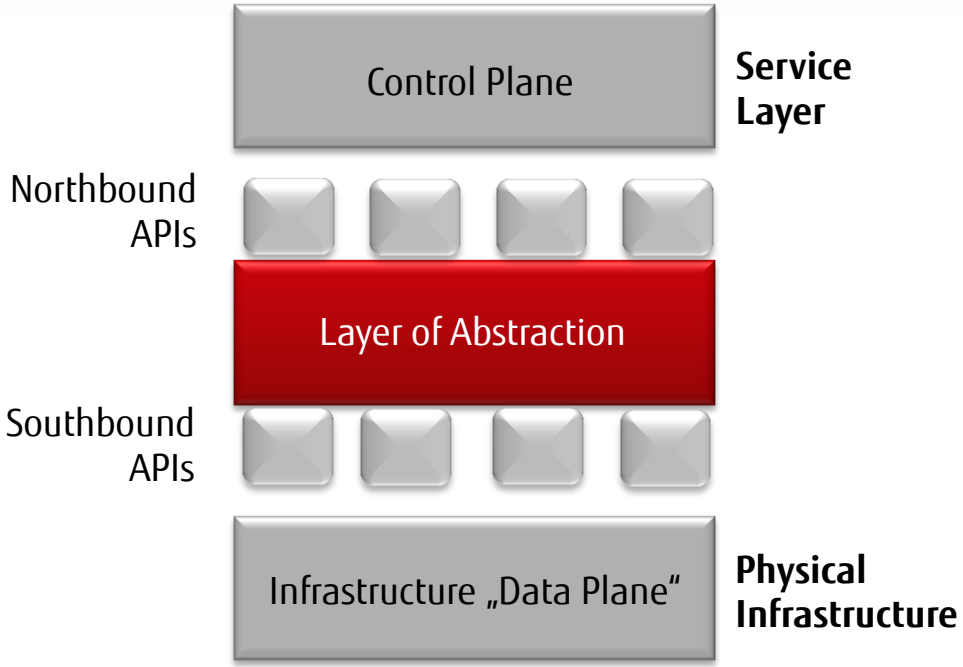
More storage species



Workloads defining the storage infrastructure



What is Software Defined Storage?



- Abstraction
- Instrumentation
- Programmability
- Automation
- Mobility
- Policy Management
- Orchestration

Hyperscale – Software Defined Storage

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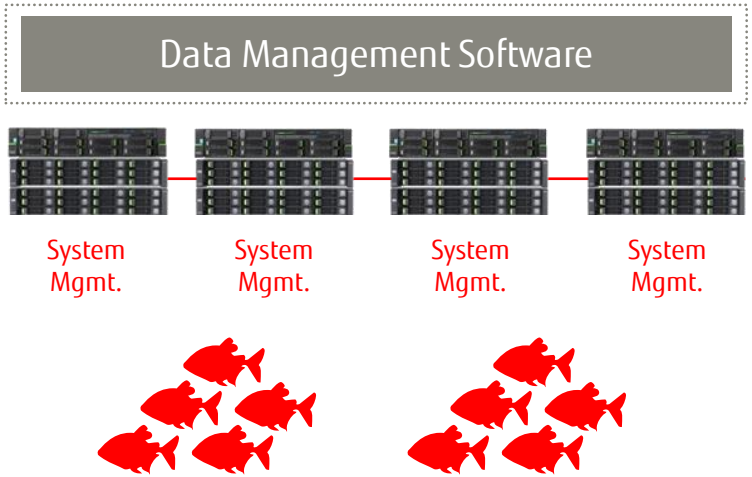
- Decoupling data management from hardware
- Networked architecture



Strengths

- High, fast and flexible scalability
- Extended lifecycle, fewer migrations
- Lower purchase costs

Challenges

- Build your own storage ! Higher implementation, maintenance, support efforts and risks
- Many hidden costs – TCO risks
- Lock-in on software level

Software Defined Storage depends on the right hardware

Complete SDS Solution – ETERNUS CD10000

- Software Defined, hyperscale storage system
- Scale-out architecture up to hundreds of storage nodes / 50PB and beyond
- Based on Red Hat Ceph Storage open-source technology
- Appliance approach combining HW & SW & services
- Unified management of HW &SW

End-to-end maintenance and support

ETERNUS CD10000

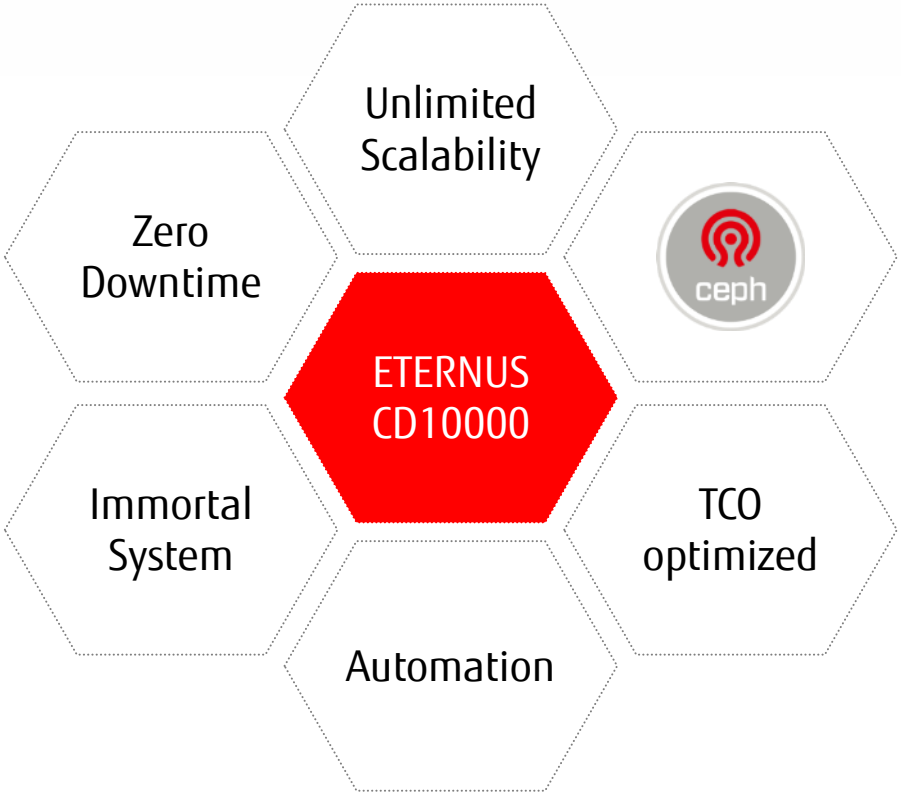
Object Access	Block Access	File Access (planned)

ETERNUS CD10000 Unified Management

Red Hat Ceph Storage Software

ETERNUS CD10000 storage nodes

What ETERNUS CD10000 delivers



Technological foundations of Ceph

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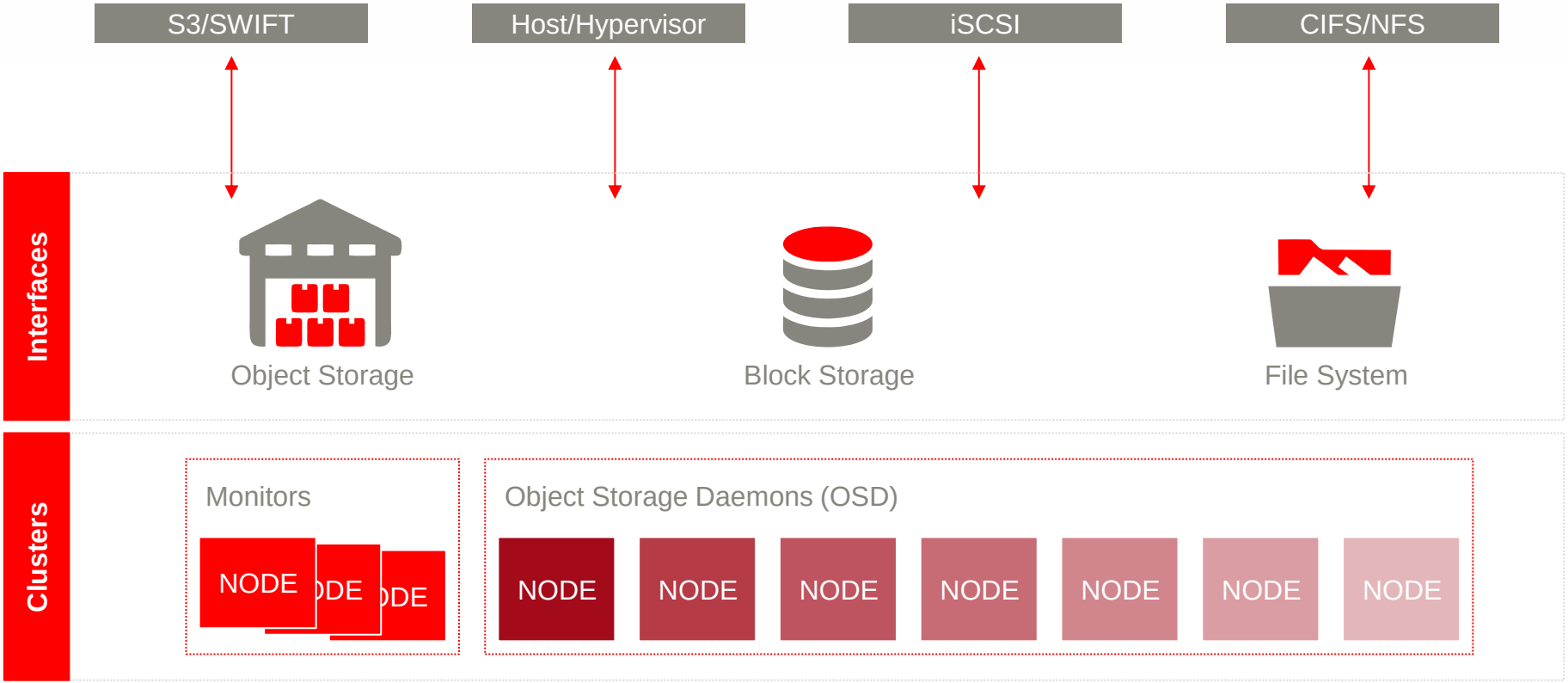
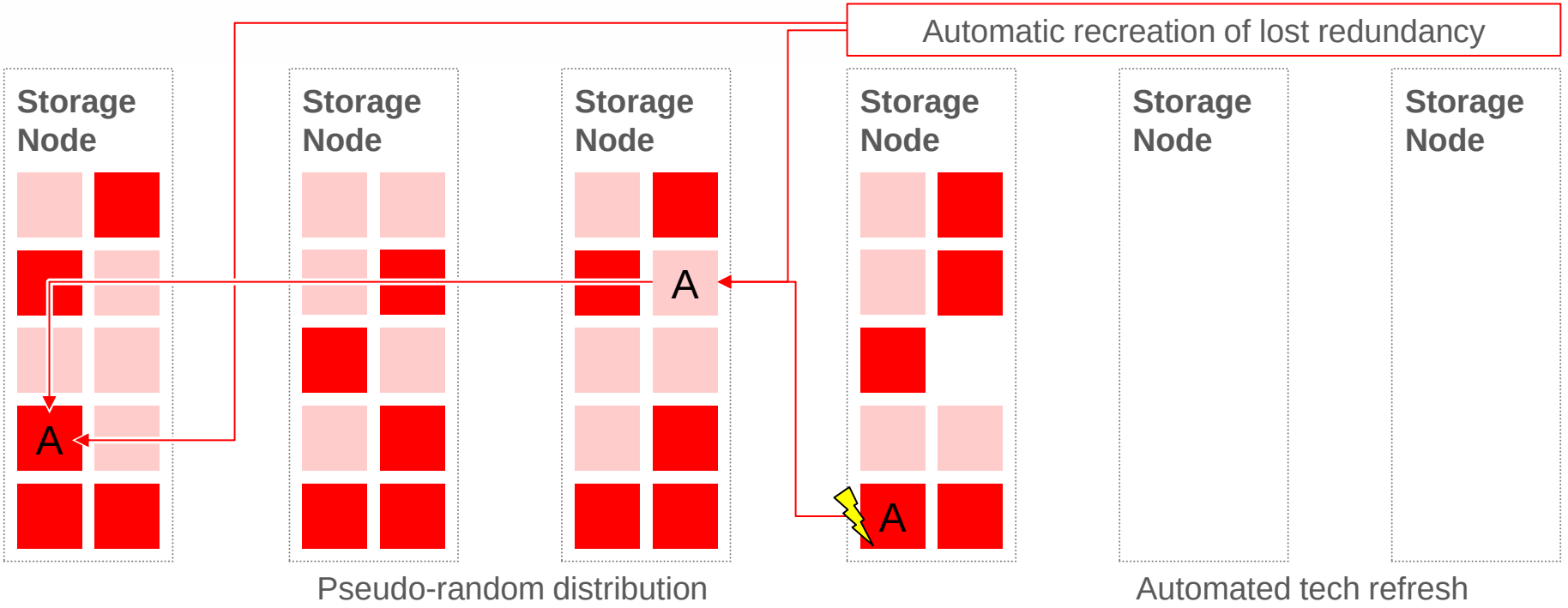
Built to address the following challenges

- Every component must scale
- No single point of failure
- Software-based
- Open source
- Run on readily-available, commodity hardware
- Everything must self-manage wherever possible

The architecture



Place, Replicate, Recover, Migrate



Transparent creation of data copies

Management enhancements from Fujitsu

- Central software deployment
- Central network management
- Central log file management
- Central cluster management
- SNMP integration of all nodes and network components
- GUI for easier deployment, configuration, administration and maintenance

Adding automation and management functions where Ceph has gaps

ETERNUS CD10000 versus self made open-source software defined storage

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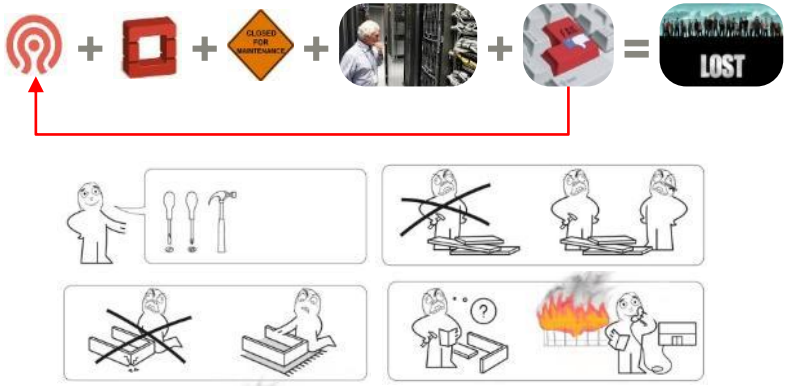
Build open source storage yourself



Out of the box ETERNUS CD100 00

incl. Support

incl. Maintenance

It is a storage system – not a stack of components.

Software Defined Storage: hope beyond the hype

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Key Take Aways

SDS provides flexible scalability, economical storage, extended lifecycles

Build your own storage will generate significant operational efforts

Open source based SDS reduces lock-in and increases viability

Ideal for cloud-like data services, unstructured data, unpredictable data growth

Look for pre-built solutions with full support over the entire lifecycle

Summary

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- New usage scenarios drive the emergence of Software Defined Storage
- SDS shows its strength in areas of large and fast scalability needs
- Understand the needs for your application environment
- Identify which SDS model is the best fit
- Do evaluations to justify the relevance in your scenario
- Keep an eye on software functions and pricing
- Fujitsu has experience and offerings in all categories

Let us support finding your right path through the jungle

Software Defined Storage by Fujitsu: Designed, built, tested, fully operational

Data is OUR Domain.

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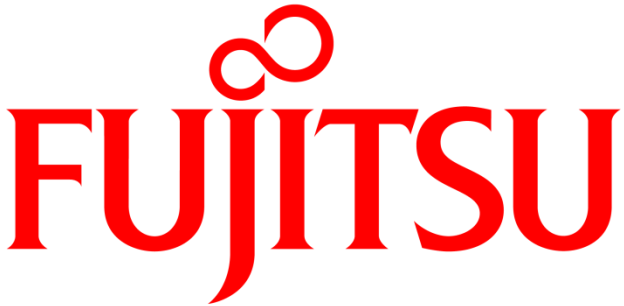

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