



Zukunftssichere Storage-Strategie

Jens Gerlach
BUSINESS DEVELOPMENT MANAGER STORAGE DACH
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THE INDUSTRY IS RETHINKING STORAGE



38% of IT decision makers report inadequate storage capabilities as one of their top three weekly pain points



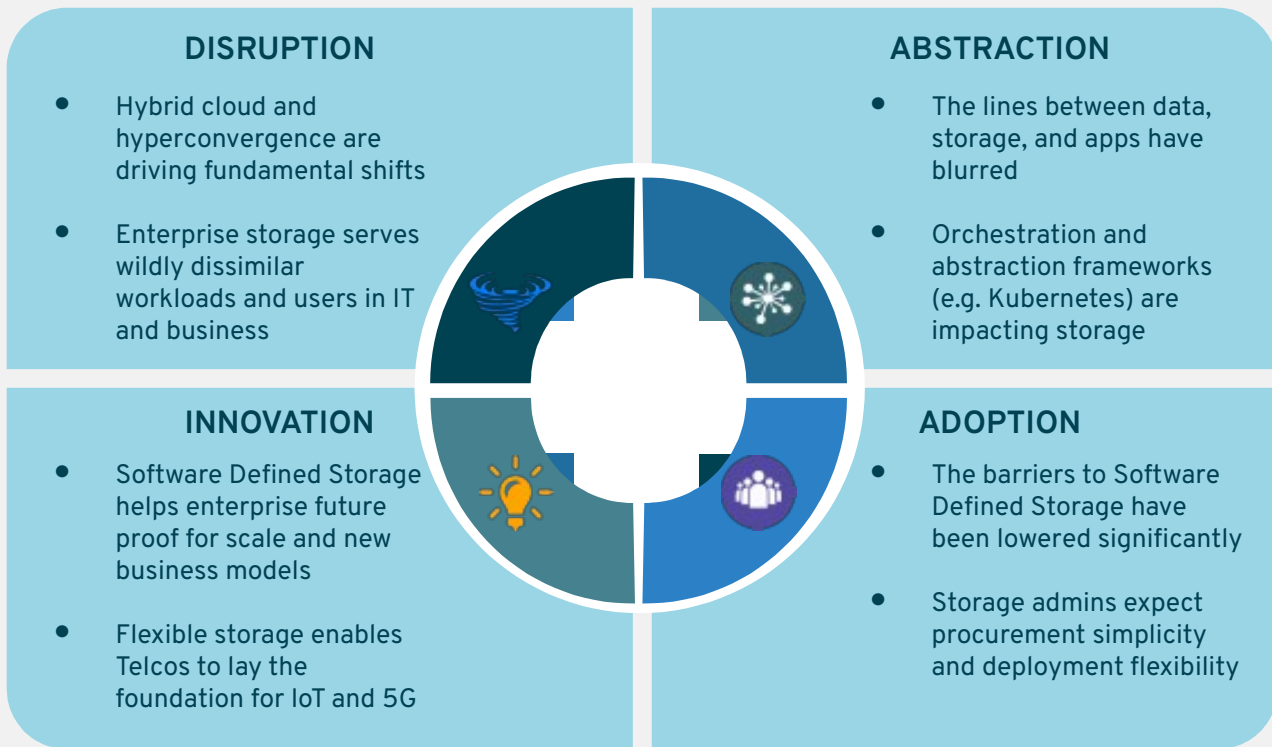
70% of IT decision makers admit that their organization's current storage can't cope with emerging workloads



98% of IT decision makers believe a more agile storage solution could benefit their organization

Vanson Bourne Ltd: Storage limitations, frustrations, and coping with future needs, Red Hat Storage research results, June 2016

MARKET TRENDS



SEISMIC SHIFTS AHEAD FOR ENTERPRISE STORAGE

BUSINESS DRIVERS

TRADITIONAL STORAGE HAS FAILED TO MEET THE DEMANDS OF THE MODERN ENTERPRISE

IT'S IMPOSSIBLE TO RUN TOMORROW'S WORKLOADS ON YESTERDAY'S INFRASTRUCTURE

CIOs ARE COMPLETELY RETHINKING THEIR STORAGE STRATEGY TO STAY COMPETITIVE

TECHNOLOGY DRIVERS

Hybrid Cloud

Forrester cites 2 out of 3 decision makers rank hybrid cloud as a critical priority

Containers

Gartner predicts by 2022, more than 20% of enterprise primary storage capacity will be deployed to support container workloads

Hyperconvergence

IDC pegs HCI as the fastest growing of all the multi-billion-dollar storage segments

Sources:

<https://www.intel.com/content/dam/www/public/us/en/documents/white-papers/forrester-hybrid-cloud-white-paper.pdf>

<https://www.gartner.com/smarterwithgartner/6-best-practices-for-creating-a-container-platform-strategy/>

<http://www.hyperconverged.org/blog/2018/01/26/hyperconvergence-trends-in-2018/>

DISRUPTION IN THE STORAGE INDUSTRY

PUBLIC CLOUD STORAGE	←	TRADITIONAL APPLIANCES	→	SOFTWARE-DEFINED STORAGE
better		COST EFFICIENCY		better
faster		PROVISIONING		faster
way more		VENDOR LOCK-IN		way less
way less		SKILL REQUIRED		way more
less		CONTROL		more
limited		DEPLOYMENT OPTIONS		broad

A DECISION ON FREEDOM and FUTURE

Only
Open-Source Software-Defined Storage
can last “forever”.

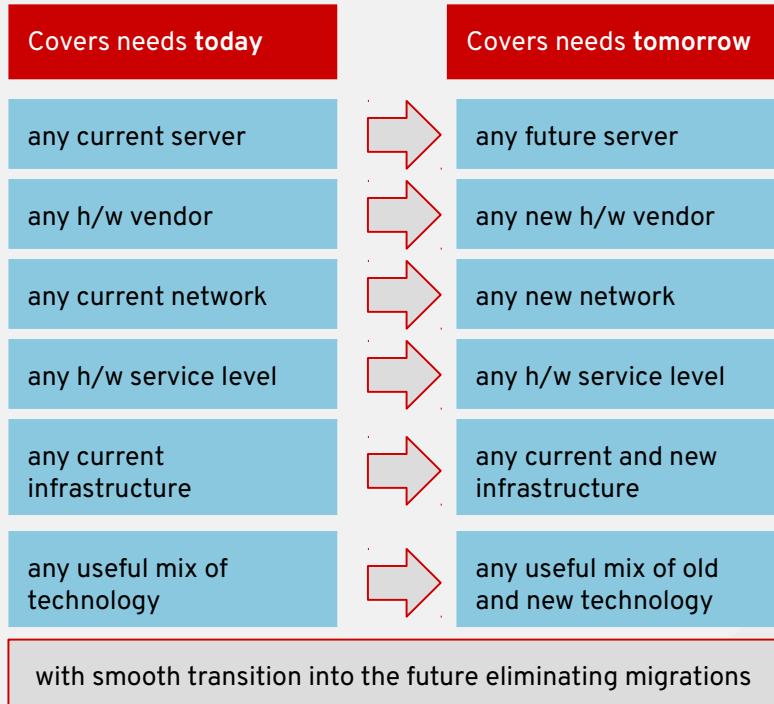
Storage is the heart of business.

Storage is too central to look at migrations.

Storage needs independency from single sources.

Storage needs to be long term.

Storage needs to adopt new technologies easily.



IN Detail: What can we do for you?

Areas of engagement (examples)

Object

- Native access (S3/SWIFT)
- Easy to manage
- Scales high

OpenStack

Data Lake

Data @ net

Backup

Archive

File

- File services (FUSE, NFS, CIFS)
- File system haptic
- POSIX semantics

OpenShift

Distributed file

VMs (RHV)

Backup

Fin app: Murex

Block

- SCSI like access
- Native block haptic
- Low latency

OpenStack

OpenShift*

VMs**

Bare metal**

Backup

Flavour of storage

Reasons to choose

Usage examples

STORAGE & THE OPEN HYBRID CLOUD

RED HAT[®] STORAGE

PHYSICAL

RED HAT[®]
CEPH STORAGE
RED HAT[®]
GLUSTER STORAGE

RED HAT[®]
ENTERPRISE LINUX[™]

VIRTUAL

RED HAT[®]
CEPH STORAGE
RED HAT[®]
GLUSTER STORAGE

RED HAT[®]
VIRTUALIZATION

RED HAT[®]
ENTERPRISE LINUX[™]

PRIVATE CLOUD

RED HAT[®]
CEPH STORAGE
RED HAT[®]
GLUSTER STORAGE

RED HAT[®]
OPENSTACK
PLATFORM

RED HAT[®]
ENTERPRISE LINUX[™]

CONTAINERS

RED HAT[®]
CEPH STORAGE
RED HAT[®]
GLUSTER STORAGE

 RED HAT[®]
OPENSIFT
Container Platform

RED HAT[®]
ENTERPRISE LINUX[™]

PUBLIC CLOUD

RED HAT[®]
CEPH STORAGE
RED HAT[®]
GLUSTER STORAGE



RED HAT[®]
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TARGET WORKLOADS

CONTAINER STORAGE

Scalable, flexible persistent storage for, and in, containers

PRIVATE CLOUD INFRASTRUCTURE

Elastic storage for OpenStack virtual machines and tenant applications

ELASTIC DATA LAKES

Massively scalable storage enabled for big data analytics frameworks

HYPERCONVERGENCE

Compute and storage tightly integrated for ROBO, edge, and IoT

MEDIA REPOSITORY

Cost effective, scale out storage for rich media and content delivery

BACKUP/RECOVERY

Reliable backup and smaller recovery windows from data loss

RED HAT GLUSTER STORAGE

RED HAT GLUSTER STORAGE

Nimble file system storage
for modern workloads

USE CASES

OpenShift Container Storage

Hyperconvergence

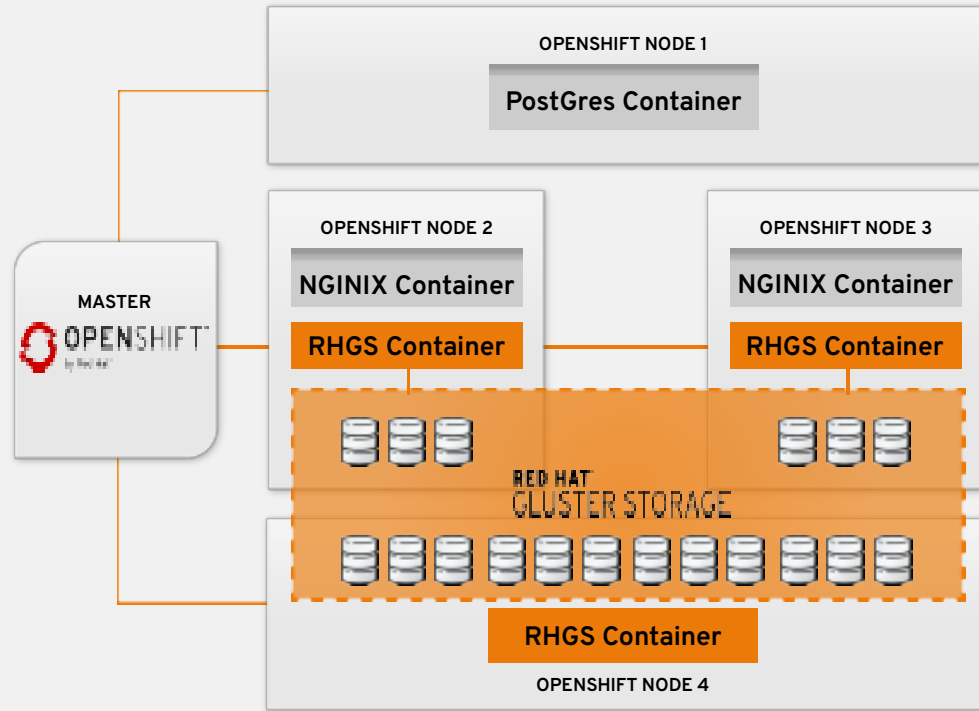
Media Repositories

Backup Archive

NEAR TERM GOALS

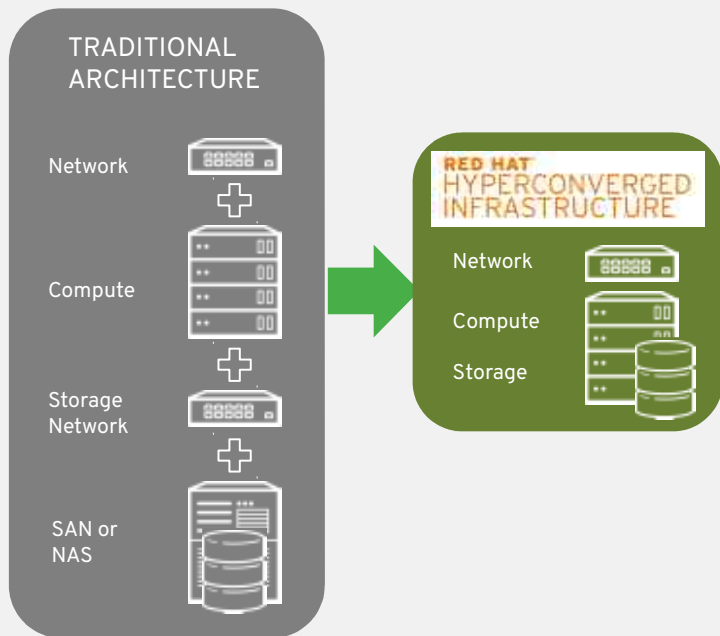
- Tight integration with Red Hat OpenShift Container Platform to provide persistent storage for stateful enterprise applications across the hybrid cloud
- Hyperconvergence with Red Hat Virtualization for ROBO and other small-scale HCI use-cases
- Support for migration of enterprises with traditional NAS to open and modern SDS-based scale-out NAS

STORAGE FOR (AND IN) CONTAINERS



- ◇ Lower TCO
- ◇ Unified Orchestration
- ◇ Ease of Use
- ◇ Greater control

HYPERCONVERGED INFRASTRUCTURE



- **Eliminate** storage as a discrete tier
- **Easily virtualize** business applications, maximizing resource utilization
- **Single budget** for compute & storage
- **Single team** managing infrastructure
- **Simplified** planning & procurement
- **Streamlined** deployment & management
- **Single support** stack for compute & storage

RED HAT CEPH STORAGE

RED HAT CEPH STORAGE

Flexible, unified storage for petabyte-scale workloads

USE CASES

Cloud Infrastructure

Data Lakes

Media Repository

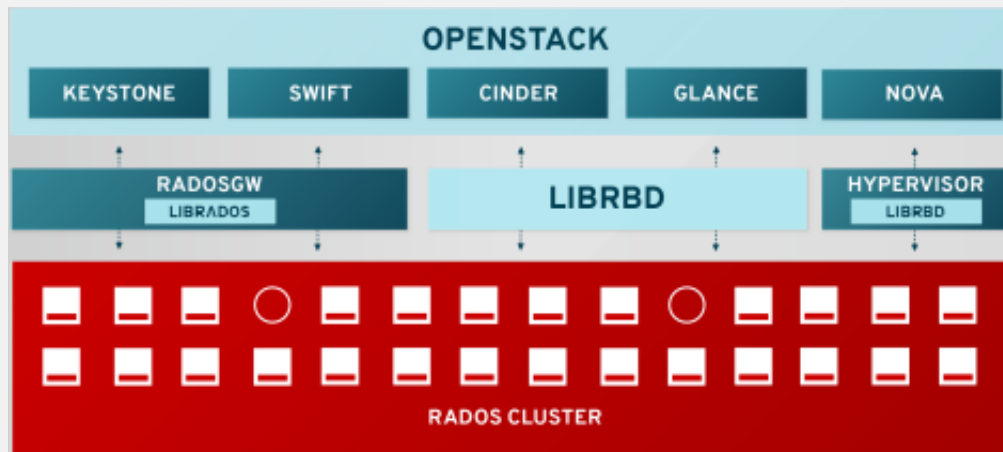
Back-up and Recovery

NEAR TERM GOALS

- Extended object storage that supports targeted use cases and offers a traditional, file-based interface
- Hyperconvergence and containerization for NFV
- Unified storage with production support of CephFS (used via OpenStack Manila)
- Next generation performance with flash-native BlueStore backend

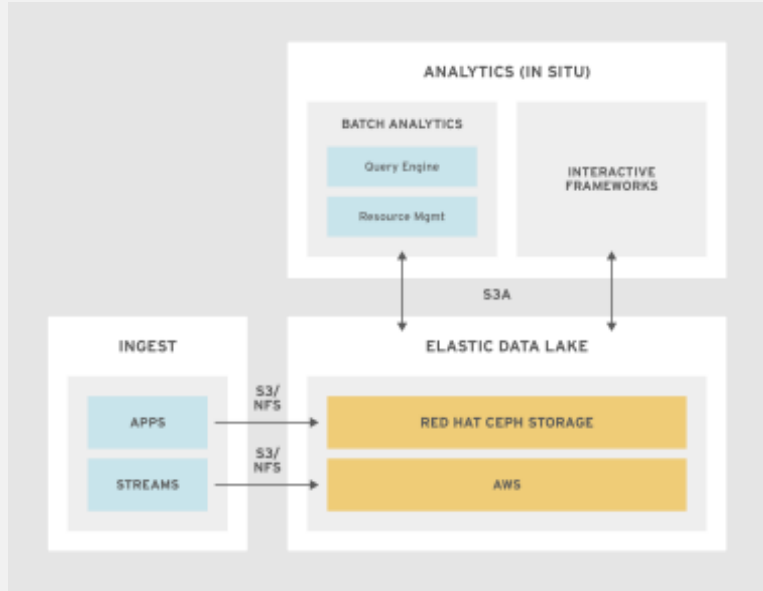
STORAGE FOR OPENSTACK

- ◊ Allows for instantaneous parallel creation of VMs at massive scale
- ◊ Integrates easily and tightly with OpenStack Cinder, Glance, Nova, Keystone, and Manila
- ◊ Offers instant backup capabilities
- ◊ Provides persistent object, file, and database storage for applications



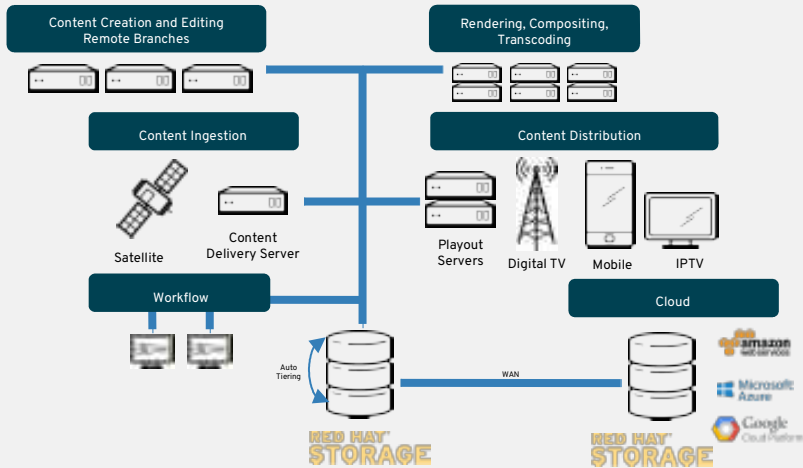
STORAGE FOR ELASTIC DATA LAKES

Disaggregating compute resources from an object storage solution enables the most flexibility



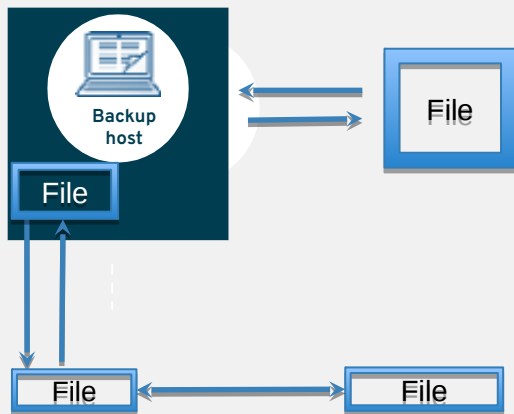
- **INGEST** from multiple sources using S3 API
- **ANALYTICS** operate directly on common data lake without duplicating datasets onto multiple special-purpose clusters
- **CLUSTERS** provisioned dynamically optimized for batch, interactive, or query engines
- **EXPLORATORY** analysis support by ephemeral clusters

COST-EFFECTIVE LARGE SCALE MEDIA STORAGE



- Optimized for petbyte scale storage as well as extremely large file counts
- Supports S3, Swift, NFS and CIFS protocols
- POSIX compliant
- Optimized & Highly Tunable
- Quick and Easy Install and Deployment

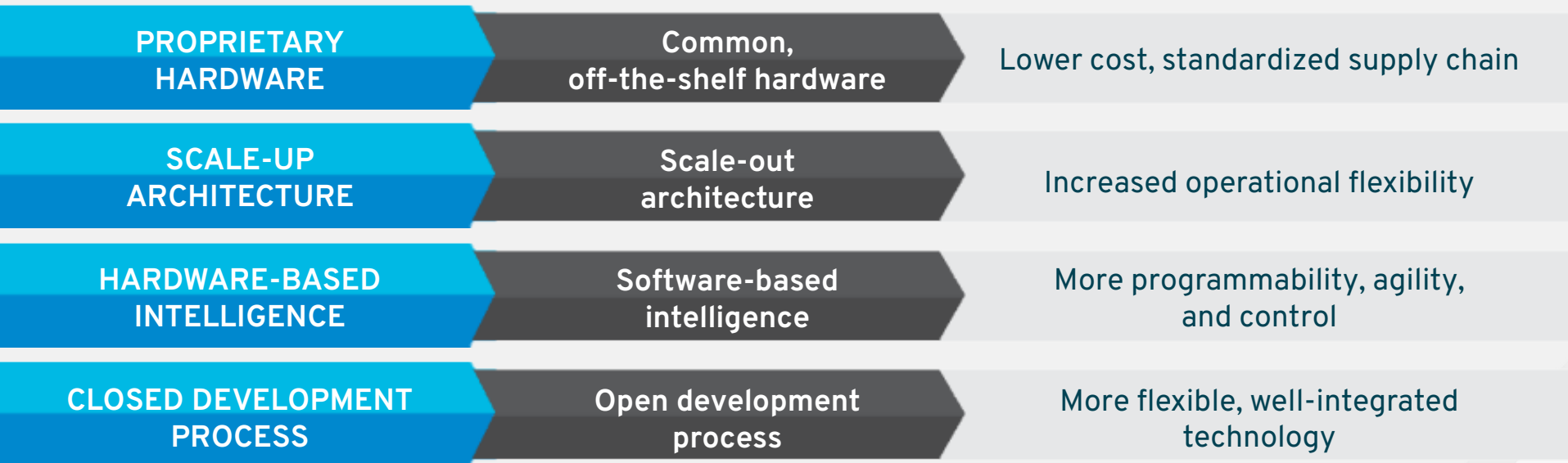
RELIABLE BACKUPS AND RAPID RECOVERY



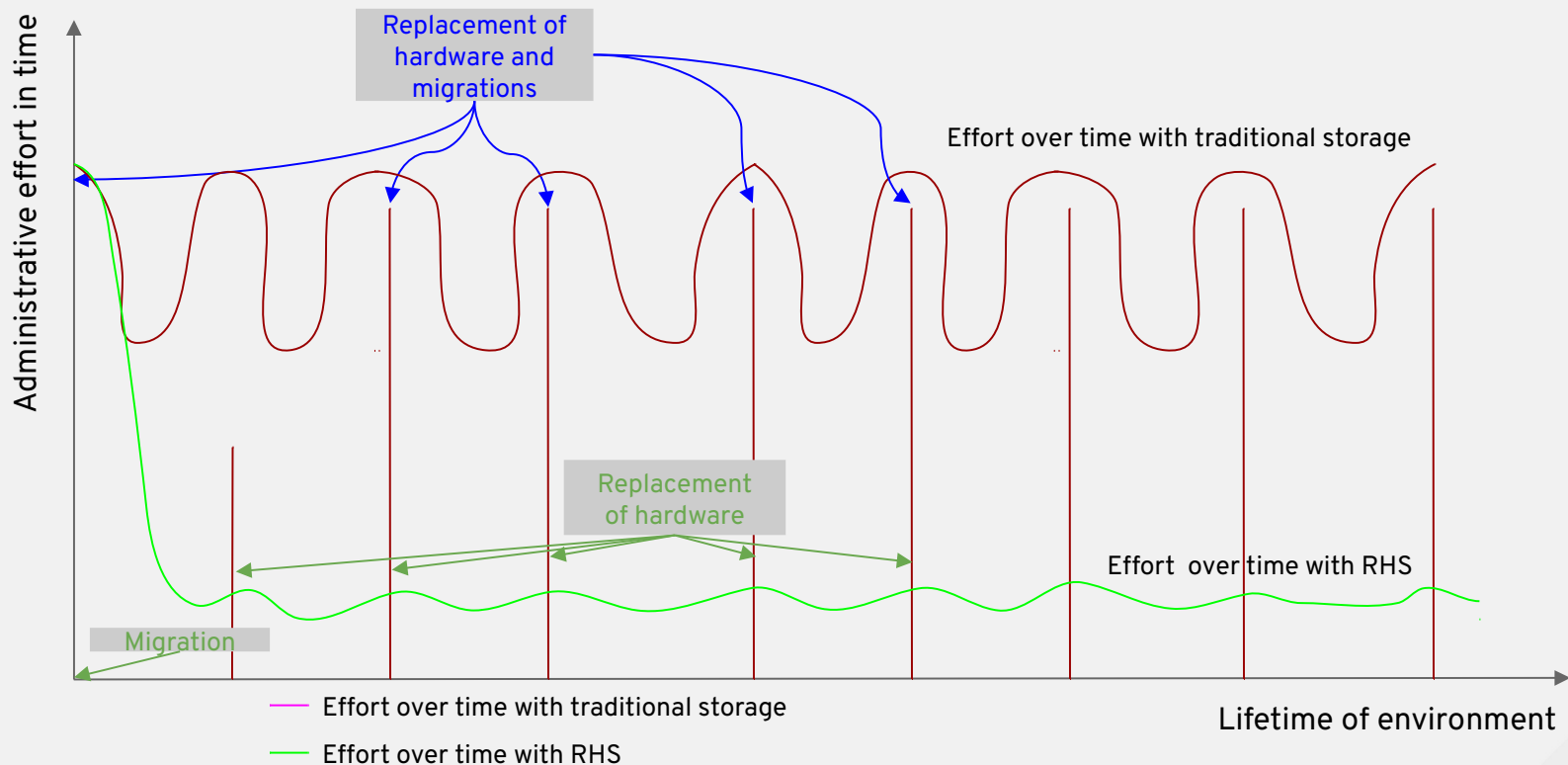
- Scalable storage platform which can replace tape libraries or expensive and proprietary
- Easy drop-in replacement for backup target storage, avoiding expensive fork lift upgrades
- Grows steadily with growing backup data
- On-premise cloud-like resource sharing and cost model
- Higher RTO, RPO & SLA efficiencies.

Benefits of Red Hat Storage

Storage - choices of tools for the future



Efforts with traditional vs. Red Hat Storage



Benefits with Red Hat Storage

**Agile, flexible
systems**

**Full
automation
with modern
platforms**

**Stable
long term
environment**

**Technology
refresh built-
in**

**Software
based
intelligence**

**Lower cost,
standardized
supply chain**

**Community
driven
development**

**H/W vendor
independent
lifecycle**

**Fewer
specialized
systems**

**Lower
dependency
on external
specialists**

**Better focus
on needed
services**

**Better
compliance,
lower costs**

In summary

- Hardware landscape is changing
 - Future is flash
 - Hard disks aren't dead yet
 - Always consider cost per appropriate metric (capacity vs performance)
 - Our SDS technologies are well-positioned
- Container platforms are taking over
 - Provide storage for containers
 - Use containers to manage storage system
 - Automation and ease of use
 - Investing in key technologies like Kata containers
- Multi-cloud and hybrid cloud
 - Moving data is hard
 - Managing distributed data is hard too
 - Investing in storage layer capabilities
 - Automating orchestration is key
 - Roadmap driven by data services
- Emerging workloads
 - AI/ML
 - Autonomous driving
 - Storage at the edge
 - SDS capabilities will be critical



THANK YOU



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