



RED HAT GLUSTER STORAGE 3.2

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SR. SOLUTION ARCHITECT, RED HAT GLUSTER STORAGE

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Disruption In The Enterprise Storage Industry

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

Red Hat Gluster Storage

RED HAT GLUSTER STORAGE

TARGET USE CASES

- Container Storage
 - Persistent storage
 - Registry storage
- Enterprise File Sharing
 - Media streaming
 - Active Archives
- Enterprise Virtualization

Flexible file storage for petabyte-scale workloads

- Purpose-built as a scale-out file store with a straightforward architecture suitable for public, private, and hybrid cloud
- Simple to install and configure, with a minimal hardware footprint
- Offers mature NFS, SMB and object (Swift) interfaces



Media



Machine Data



GeoSpatial



Archive



Documents

Our Journey at Red Hat

2011-13



ENTERPRISE GRADE
STABILITY AND PERFORMANCE

NOW



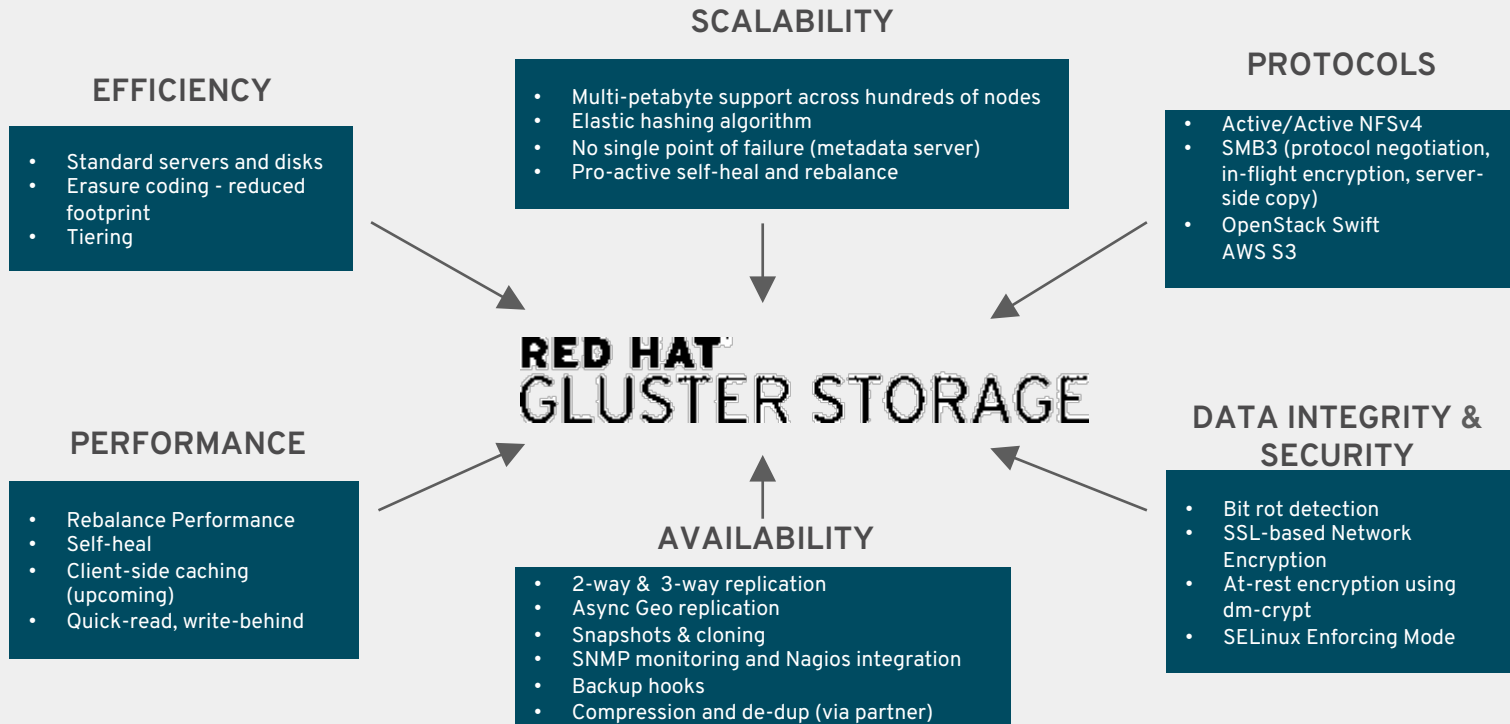
INTEGRATION
TO BUILD SOLUTIONS

2014-15



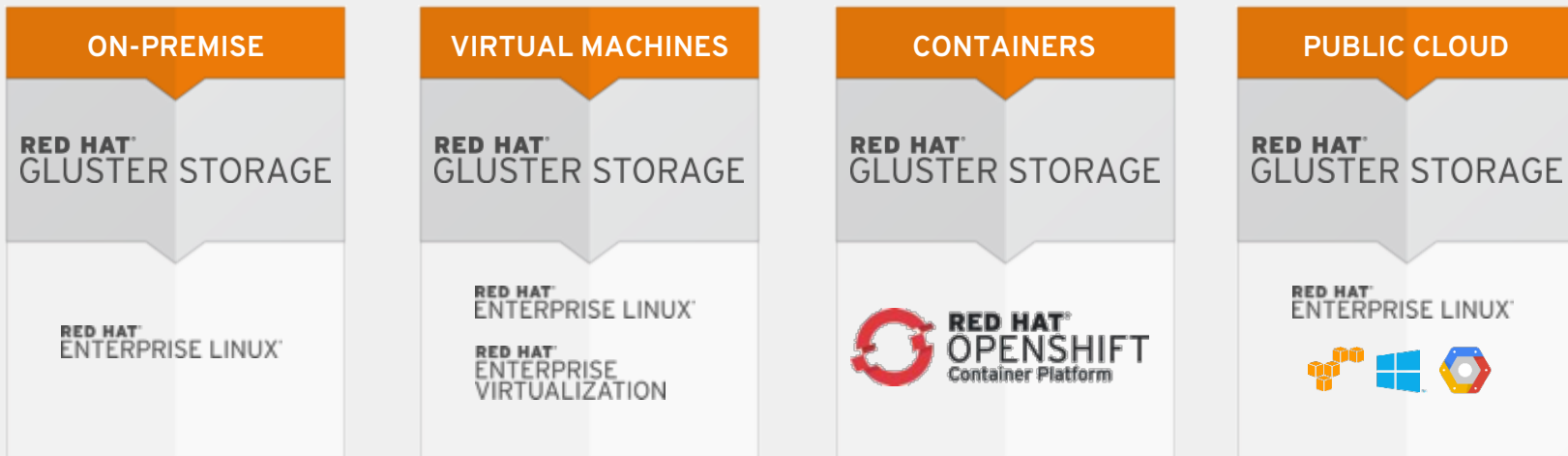
FEATURES, FEATURES, FEATURES

Features, Features, Features!



Runs Everywhere

- Consistent storage platform across on-premise, VMs, containers and all three public clouds
- Applications can be ported across deployments without expensive re-writes



Highlights of Red Hat Gluster Storage 3.2



Performance
Metadata Operations
at scale



Cost
Hardware Footprint



Integration
Container-Native Storage
with OpenShift

Red Hat Gluster Storage 3.2

Enterprise-grade software defined storage for modern workloads



Usability

- Highly interactive at scale when housing millions of small files
- Native eventing support that publish RHGS specific events



Performance

- Up to 8x improvements in metadata intensive operations
- Optimized for container registries with better small file perf
- New RHGS container, enabled for geo-replication & encryption



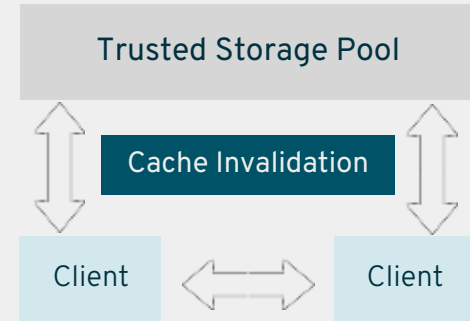
Efficiency

- Parallelized self healing of EC volumes, for archive use cases
- Faster self-heal for sharded volumes used for VM storage
- 3x larger number of volumes per cluster – OpenShift PV scale

Performance of metadata intensive operations

- **Client side metadata caching**
 - New upcall Infrastructure for cache invalidation
 - Small files, meta-data intensive
 - 8x improvements on directory listing with SMB
 - 3x improvements on small file reads with Tiered vols

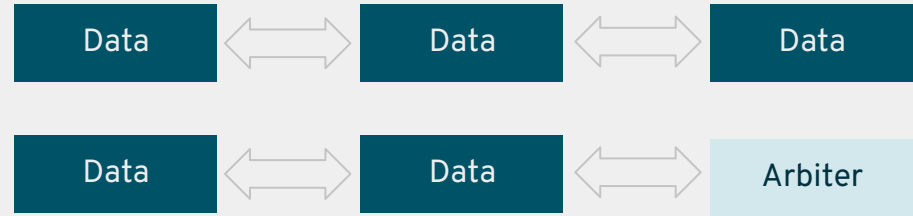
- **Client-io-threads**
 - Enhanced EC performance with concurrent threads
 - 2.5x improvement in performance
 - Workload sensitive, auto-tunable



Arbiter Volumes

Cost effective alternative to 3-way replication

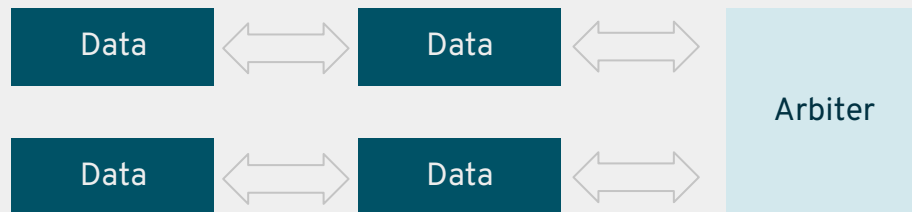
- **Reduction in Footprint & TCO**
 - Huge capacity savings
- **Cost-effective data integrity**
 - Integrity of 3-way w/o 3x capacity
- **Multiple deployment models**
 - Dedicated or Daisy chain
- **Use cases and environments**
 - Backup/archive use cases
 - HCI
 - Stretch clusters



Arbiter Volumes

Dedicated configuration

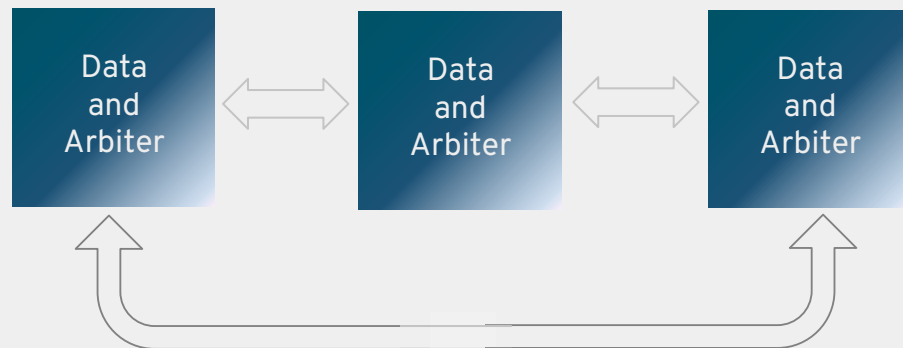
- **Hassle free configuration**
 - Separate arbiter and data nodes
- **Lightweight arbiter node**
 - Minimal hardware footprint
- **Use cases**
 - HCI and pure replicated volumes



Arbiter Volumes

Daisy chain configuration

- **Most economical configuration**
 - Arbiter and data bricks together
 - Lower cost
- **Hybrid arbiter node**
 - Co-hosted arbiter brick with storage
- **Use cases**
 - Distributed replicated volumes



Summarized

- **Improved Performance with Compound File Operations**
- **MetaData-cache Performance Enhancement**
- **Parallel I/O for Dispersed Volumes**
- **Enhancements made to Bitrot detection**
- **Obtaining Node Information using “get-state” command**
- **Arbitrated Replicated Volumes**
- **Multithreaded Self-heal for Erasure Coded Volume**
- **gdeploy Enhancements**
- **glusterd Enhancements**
- **Granular Entry Self-heal**
- **NFS-Ganesha Enhancements**
- **Geo-replication Enhancements**

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