Modernizing storage infrastructure with open scale-out storage

Discovery Zone session - C144011

Dr. Wolfgang Schulze
Director, Global Storage Consulting Practice

May 3, 2017
Discovery Session Agenda

- Exploring your storage landscape
- Do you have a need for storage modernization?
- Is scale-out storage right for you? Do you have what it takes?
- What does Red Hat have to offer to help you with that journey?
- Is there a roadmap for introducing software-defined scale-out storage?
- Who has successfully done it already?
- What are the next steps?
Exploring your storage landscape
Exploring your storage landscape

- What is your total expenditure for storage every year?
  - < $500k
  - $500k - $5m
  - $5m - $10m
  - >$10m

- How many distinct applications does your organization maintain?
  - < 50
  - 50-500
  - 500-2000
  - > 2000

- What is your enterprise wide installed storage capacity?
  - < 100TB
  - 100TB - 1PB
  - 1PB-10PB
  - > 10PB
Do you have a need for storage modernization?
Many enterprises are not happy with the status quo

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.
Business Drivers for storage modernization

Why are companies looking for a new way of doing storage?

● Data growth exceeds 40% year over year in many enterprises (Gartner)
● Storage is in the top-3 spending categories for most IT budgets
● Legacy storage vendors sell proprietary appliances
● Legacy storage platforms scale by buying a bigger appliance (“fork lift upgrades”)
● Users feel being held hostage by legacy storage vendors (ecosystem lock-in)
● Legacy storage platforms are not aligned with the cloud, modern application development
The many ways appliances lock you in

- Complexity hidden from end users, along with flexibility
- Vendor lock-in leads to pricing premium
- Price premium over constituent components is difficult to sustain
The data center is changing

<table>
<thead>
<tr>
<th>DEVELOPMENT MODEL</th>
<th>APPLICATION ARCHITECTURE</th>
<th>DEPLOYMENT AND PACKAGING</th>
<th>APPLICATION INFRASTRUCTURE</th>
<th>STORAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waterfall</td>
<td>Monolithic</td>
<td>Bare Metal</td>
<td>Data Center</td>
<td>Scale Up</td>
</tr>
<tr>
<td>Agile</td>
<td>N-Tier</td>
<td>Virtual Services</td>
<td>Hosted</td>
<td>Scale Out</td>
</tr>
<tr>
<td>DEVOPS</td>
<td>MICROSERVICES</td>
<td>CONTAINERS</td>
<td>HYBRID CLOUD</td>
<td>SOFTWARE-DEFINED STORAGE</td>
</tr>
</tbody>
</table>
Is scale-out storage the right fit for you?
Do you have what it takes?
How good is the fit for you?

- What is your year-over-year growth for storage capacity?
  - < 5%
  - 5-10%
  - 10-30%
  - >30%

- How familiar with Linux administration are your storage experts?
  - Not at all
  - Barely
  - Mixed bag
  - Totally!

- Are you currently in the process of adopting...
  - containers
  - DevOps
  - microservices
  - hybrid cloud
  - all of the above?
Find your workload!

- File
- Virtualization
- Analytics
- Containers
- Hadoop
- Web Apps
- DevOps
- OpenStack
- NoSQL
- Object Storage
- Content Delivery
- Archive
- Backup
- Medical Imaging
- CCTV
- Broadcast
- RDBMS
- HPC

CAPACITY

PERFORMANCE

TRADITIONAL

NEXT-GEN

GLUSTER STORAGE

CEPH STORAGE
What does Red Hat have to help you with the transition to open scale-out storage?
Red Hat offers

Stating the obvious...

- Tested and tried 100% Open Source software with long-term support life-cycles
- Reference Architectures for many commodity hardware vendors
- World class support
- Training
- Consulting
Every workload users deploy require an operating system and durable, flexible storage.
Mature hardware and software ecosystem

<table>
<thead>
<tr>
<th>SOFTWARE PARTNERS</th>
<th>CITRIX</th>
<th>PERMABIT</th>
<th>PERCONA</th>
<th>SME</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>OPEN SOURCE SOFTWARE</th>
<th>RED HAT CEPH STORAGE</th>
<th>RED HAT GLUSTER STORAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ceph management</td>
<td>Gluster management</td>
</tr>
<tr>
<td></td>
<td>Ceph data service</td>
<td>Gluster data service</td>
</tr>
</tbody>
</table>

- Standard interfaces and full APIs ease integration with applications and systems
- Self-managing and self-healing software provides durability and adapts to changes
- Industry-standard hardware provides choice and can be tailored for specific workloads

<table>
<thead>
<tr>
<th>STANDARD HARDWARE</th>
<th>Intel</th>
<th>SUPERMICRO</th>
<th>QCT</th>
<th>DELL EMC</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CISCO</td>
<td>SAMSUNG</td>
<td>SEAGATE</td>
<td>WD</td>
</tr>
</tbody>
</table>

#redhat #rhsummit
Recognized as storage visionary by Gartner

Red Hat Storage recognized as a Visionary by Gartner in their first Magic Quadrant for Distributed File Systems and Object Storage.

This graphic was published by Gartner, Inc. as part of a larger research document and should be evaluated in the context of the entire document. The Gartner document is available upon request at https://engage.redhat.com/gartnermagic-quadrant-storage-s-201610121525.

Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings or other designation. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose.
Is there a roadmap how for introducing scale-out open storage?
Enterprise adoption of software-defined storage

- Growing capacity needs
- Gradual replacement with software defined scale-out storage

Legend:
- Legacy Storage Technology
- SDS readiness
- SDSS readiness
- Today
Resist the temptation to skip the design phase, unless

- You use a reference architecture right out of the box
- You know someone who has done exactly the same thing before
Roadmap for adopting software-defined storage

- **Storage Discovery Session**
- **Proof of concept**
- **Identify use case for pilot adoption**
- **Design storage architecture**
- **Deploy**
- **Test and performance tuning**
- **Train storage architects**
- **Train storage operators**
- **Go Live**
Common mistakes you should try to avoid...

- Failure to train architects
  - May lead to wasted opportunity, poorly aligned solutions

- Failure to understand the use case and the production workload
  - May lead to performance problems and outages

- Failure to train operators
  - May lead to data loss

- Failure to exercise fail-over scenarios
  - May leave you poorly prepared when real disaster strikes

- Failure to monitor, iterate and improve
  - What worked initially may get worse as workload changes
Red Hat consulting can help

We have numerous ways to make adoption smoother

- 3-day Jumpstarts
- SmartStarts
- Storage Solution Architecture Design
- Performance Testing and Tuning
- Deployment and Operational Assistance
- Migration and Upgrade Assistance
- Storage Health Checks
Where to start?
Inform yourself and build trust

- Attend Red Hat Storage events (Community days, Red Hat Storage Days)
- Talk to other users about their experiences
- Attend storage related sessions right here at the Red Hat Summit
- Read case studies and whitepapers from people who already took the plunge
- Visit the Red Hat Storage savings calculator
- Try the products out in a free test drive

Do a Proof of Concept.    Build Confidence.    Invest into training your staff.
Attend storage sessions at the Red Hat Summit

L103175  Deploy Ceph Rados Gateway as a replacement for OpenStack Swift
L104665  The Ceph power show: Hands on with Ceph (Singh, Bader, Messer)
S102032  Choosing the right storage for your OpenStack cloud
S103002  OpenStack and Ceph at scale
S104248  Red Hat Storage Console 3: Unified Management of Ceph and Gluster storage (Applewhite)
S105141  Big data analytics with Silicon Valley Data Science and Red Hat (Compton & O’Sullivan)
S107224  Why storage matters for your digital transformation (Ross Turk)
Who has already done it?

Successful adopters of software defined storage from Red Hat

Check out case studies and materials from successful adopters, such as

- Casio (Gluster)
- Cisco (Ceph)
- CLIMB (Cloud Infrastructure for Microbial Bioinformatics), UK (Ceph)
- FICO (Ceph)
- Intuit (Gluster)
- Interactive Intelligence (Ceph)
- KazTransCom (Ceph)
- Monash University (Ceph)
- University of Reading (Gluster)
Visit our storage savings calculator
It will generate a customized estimate based on your inputs
TRY A TEST DRIVE

RED HAT®
CEPH STORAGE

Test-Drive:
bit.ly/cephtestdrive

RED HAT®
GLUSTER STORAGE

Test-Drive:
bit.ly/glustertestdrive
THANK YOU

plus.google.com/+RedHat
linkedin.com/company/red-hat
youtube.com/user/RedHatVideos
facebook.com/redhatinc
twitter.com/RedHatNews

#redhat #rhsummit
LEARN. NETWORK. EXPERIENCE OPEN SOURCE.
Extra material
RED HAT STORAGE OFFERS SUPERB VALUE

3-year TCO for 1PB of usable capacity, optimized for throughput

Pricing Sources: Gartner Competitive Profiles, as of 2/16/16 & Supermicro: Thinkmate, as of 1/13/16

THROUGHPUT OPTIMIZED CONFIGURATION

- HDD-only media
- Higher CPU-to-media ratio than archive configurations
- 2x replication with RHGS
- 8:3 Erasure Coding with storage appliance