• FS-1 and ZFS Appliances
• Application Engineered Storage (AES)
• Tiered Storage Infrastructure Optimized Solution
• Front Porch Digital
• Oracle Learning Exchange (OLX)
• New HOPE Education HW Pricing
Program Agenda

1. Why Oracle is increasing investment in archive technologies
2. Archive / tiered storage directions
3. New requirements
Archive Investment is Growing

Leads Future Storage Investment

Which applications are most important to you when considering future storage investment?

![Bar chart showing the importance of applications in future storage investment. Archiving is the most important followed by email, CRM, BU/DR, file shares, ERP, BI, and SCM.

Top Purchasing Drivers

- Compliance request or audit
- Part of a cost-cutting or storage reduction initiative
- Legal discovery request
- Part of an information security initiative
- Mandate from executive or steering committee
- Dissatisfaction or inadequate functionality of current archiving
- Internal investigation
- Don’t know/unsure
- Other

Source: IDC, 2013
Archive / Tiered Storage Directions
Announcing Oracle Hierarchical Storage Manager 6.0

• What is changing:
  • SAM-QFS 5.4 is now Oracle HSM 6.0
    • Functionality of Oracle HSM 6.0 is identical to SAM-QFS 5.4-02
    • Future patches to SAM-QFS 5.4-0x will be named Oracle HSM 6.0-0x

• Why it's changing:
  – Promote SAM-QFS’s position within the Oracle software portfolio
  – Reflect Oracle’s increased investment and commitment to the product
  – Differentiate from Oracle’s other archive software products
  – Get in front of new customers
Deeper Integration With Other Oracle Software

Oracle WebCenter Content Enhancements

• Ensured Archival
  – Verify data is archived in SAM before WCC considers file stored

• Unified Retention
  – Set policies in WCC and have them flow to SAM
  – Don’t have to set policies in 2 places

• Stage Awareness
  – Make WCC aware of whether data is on disk or tape

• Long Term Storage
  – Make solution compatible with OAIS model
Deeper Integration With 3rd Party Software
Solution for Video Surveillance

- Access video on tape without leaving Milestone client
- No training required for security operator
Requirement Trends
New Capabilities
Data Is Moving Faster
Tape I/O Horizontal Scalability

- Metadata controlled by MDS
- MDS and QFS clients read/write to disk
- IO for tape read/write comes from MDS and QFS clients
- No bottleneck – IO load spread evenly across all servers

Yellow = metadata / control path
Black = disk data path
Red = tape data path
Tape I/O Horizontal Scalability
Increase Data Ingest Rates By 10X

• Ingest >1 PB of data per day into the archive
• Use 10 servers to archive data instead of 1
• Faster migration of data to new tape drive technology
• Enable use of commodity servers
Data Integrity Validation

- T10000C / T10000D and LTO5/6 can verify the integrity of data:
  - When data is written
  - When data is read
  - At any other time automatically

- Option to self-heal if data errors are found
Automated Data Integrity Validation

Benefits

- Verify data is still accessible without sending it back to the host
- Audits are automated
  - Ex: check files every 6 months
- Self-healing
  - Can be configured to automatically re-archive damaged files
- Utilize DIV in entire environment
  - Support for LTO5 and LTO6
Deploying Private and Public Clouds

OpenStack Swift for Cloud Infrastructures
Integration With OpenStack Swift

• Use Oracle HSM as a OpenStack Swift cloud server

• Store and retrieve data using OpenStack Swift

• Benefits:
  – Cloud infrastructures
  – Provide a web interface to users with tape on the back end
Swift Integration With Oracle HSM

Web Interface with Tape on the Back End

GET / PUT / DELETE

Application

OpenStack Swift Interface

Archive Manager
QFS File System
Disk Cache
Oracle HSM – SWIFT Deployment Diagram (Logical)

External SWIFT Client → Firewall → Storage Node

Oracle HSM 6.0

Swift Proxy

REST

Storage Node
QFS Client

Up to 512 Nodes

Storage Network

Oracle HSM 6.0

REST

Storage Node
QFS Client

REST

Storage Node
QFS Client

REST

Storage Node
QFS Client

REST

Storage Node
QFS Client

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