Frequently Asked Questions
Oracle Hierarchical Storage Manager and StorageTek QFS

Overview

As data volumes and storage infrastructure expand to handle the explosion in file-based information, companies are struggling with the resulting management complexity. Designed to address the challenges of rapid data growth, Oracle Hierarchical Storage Manager (Oracle HSM) streamlines data management processes to help organizations save time and money. Policy-based storage tiering, comprehensive data protection, and data archiving combine with automatic data management based on the business value of information to help reduce storage cost and complexity.

Integrated Storage Tiering

Physical disk and tape media have finite useful life spans that are typically much shorter than the overall lifetime of the data contained on them. Maintaining access to this vital data is key. Oracle HSM provides application-transparent migration between media during hardware replacement cycles to dramatically simplify the process of moving to newer media technologies.

Customer Benefits

Oracle HSM software provides an abstraction layer between applications and underlying storage tiers. Applications remain unaware of the physical location of data. As information is written by applications, it is automatically and transparently placed on the most cost-effective storage based on specified retention and retrieval policies to align storage and archiving

costs with business priorities and ease the management burden.

Simplify Storage Management

Putting the right information on the right storage can save money over time. Oracle HSM software actively manages data between storage tiers to let companies exploit the substantial acquisition and operational cost differences between high-end disk drives, SATA drives, and tape devices.

Improve Access to Business Information

Oracle HSM software provides ready access to data throughout its lifecycle. Managed files appear to exist in the topmost directory of the storage hierarchy, no matter where they actually reside on physical storage. When a file is accessed, Oracle HSM retrieves data from the storage tier with the fastest response time. In addition, previously hard-to-access data can be moved into tiered storage controlled by Oracle HSM, keeping costs manageable while providing quick data access.

With Oracle HSM software, data is archived using an open format to ease future access and avoid vendor lock-in. Oracle HSM creates storage "containers" that map fully to the industry standard UNIX tar format for file encapsulation.

Improve Archive Performance

Getting access to archived data quickly is often paramount. Oracle HSM allows metadata to be stored in a sideband MySQL database for each file system. With this capability, storing metadata can occur 11 times faster once 6 million files are archived. The result is faster retrieval and restoration of file data.

Share and Scale Data

Data management infrastructure can be optimized by combining Oracle HSM with Oracle's StorageTek QFS shared file system. Together, these technologies provide a complete data management solution with integrated file services, high-performance capabilities, file sharing, and robust

scalability. StorageTek QFS client servers can be scaled horizontally to achieve extremely high data ingest rates.

Product Features

LTFS Support

LTFS-formatted tapes can be imported into an Oracle HSM archive. Oracle HSM reads the index partition on the LTFS tape and uses that data to create the StorageTek QFS file system metadata. This can be done without copying the information on the data partition of that tape, enabling extremely fast imports. Data also can be exported onto LTFS-formatted tapes to be shipped to remote locations.

Automatic Data Integrity Validation

The Data Integrity Validation feature of Oracle's StorageTek T10000C and T10000D tape drives can verify automatically that all data in the archive is accessible. Data integrity audits can be scheduled based on policies defined by the administrator. Oracle HSM can be configured to automatically self-heal in the event any data is corrupted. Both Oracle's StorageTek T10000 enterprise tape drives as well as LTO tape drives are supported, enabling customers to protect their entire environment.

Cloud Archiving with OpenStack Swift

An OpenStack Swift interface on Oracle HSM enables the StorageTek QFS file system to function as an object store. Objects can be archived through OpenStack Swift using simple GET / PUT / DELETE commands, while the archive minimizes TCO by tiering the objects to flash, disk, or tape. This method of archiving data enables web APIs to be used for writing data to tape and is ideal for cloud infrastructures.

Extended Attribute Metadata

The extended attribute metadata feature in Oracle HSM stores extended attributes on the metadata tier rather than the disk cache. Small extended attributes are placed into an extension inode linked by the extended attribute base inode and stored in the metadata partition. Users have faster access to the extended attributes when they are stored on the metadata tier.

Expanded LUN Size

The maximum LUN size within Oracle HSM has increased from 16 TB to 128 TB – 8x larger than before. Oracle HSM still supports 252 LUNs. The larger LUN size enables users to increase their disk cache from 4 PB to 32 PB and put together more sensible disk groups inside the LUNs. By having larger

LUNs, users can incorporate more spindles and improve performance. The expanded LUN size shows Oracle's commitment to increasing Oracle HSM scalability and support for hardware advancements.

Frequently Asked Questions

For additional resources on Oracle HSM software, please search for Oracle HSM on Oracle.com.

Q: How do I size the hardware requirements for Oracle HSM servers and storage tiers?

A: Each Oracle HSM archive has unique requirements for capacity and performance. Oracle representatives are available in most regions, and they can help determine the optimal Oracle HSM-based architecture to match the requirements. Oracle HSM is a powerful software solution that requires careful planning and implementation for optimal results.

Part Number Overview

Oracle HSM is priced based on processor cores, rather than on capacity of data managed by Oracle HSM. Prior to 2010 Oracle HSM was licensed based on storage capacity instead of server cores. The price is based on a single part number and a list price, which are placed into the core factor table (CFT) pricing formula for the final per core price. The new part number direction provides a lower TCO for most customers. Once on the new model, you do not have to pay additional licensing charges unless you upgrade your metadata servers in the future. Increasing Oracle HSM-managed capacity does not require additional license charges. In addition, lifetime support service charges may be less under the new model.

Oracle HSM Part Number Structure

Product License	Part Number	Description
Oracle HSM	NUTIS-111-2011	Oracle Hierarchical Storage Manager—Processor Perpetual
StorageTek QFS Server	L88867	StorageTek QFS—Processor Perpetual
StorageTek QFS Client (optional)	L88861	StorageTek QFS Client—Server Perpetual

Part Numbering General Questions

Q: What is different about the new Oracle HSM part number structure?

A: The old part number structure was based on stored capacity, whereas the new part numbers are based on processor cores. With per-core pricing, the pricing is not tied to data growth. Order using a single Oracle HSM part number (NUTIS-111-2011), with price calculated by the new pricing model.

Q: Where can the core factor table and CFT values be found?

A: http://www.oracle.com/us/corporate/contracts/processor-core-factor-table-070634.pdf

Q: What other part numbers are required for Oracle HSM installations?

A: You may need to include licensing for the StorageTek QFS software. Two part numbers may be required:

- 1 x L88867-License for StorageTek QFS server (needed if StorageTek QFS clients are used)
- N x L88861-License for StorageTek QFS client (if used)

The StorageTek QFS server license is needed for shared QFS configurations. Shared QFS configurations are ones that use StorageTek QFS clients. The number of StorageTek QFS server licenses needed is determined by the number of cores and core factor table, in the same way that the number of Oracle HSM licenses needed are calculated.

QFS clients are licensed per host, and one StorageTek QFS Client license is needed per QFS client.

All metadata servers with Oracle HSM or StorageTek QFS software installed must be licensed. Both high-availability (HA) Oracle HSM configurations using Oracle Solaris Cluster and manual failover configurations require the second metadata server to be licensed.

Q: I currently have an Oracle HSM installation. How do I migrate to the new part number structure?

A: If you have a valid Oracle HSM capacity-based license and are within the capacity limits of that license, you do nothing. If you have a current support contract, you have access to new releases and you continue to pay that service contract and pay nothing else. For other migrations, contact an Oracle representative if you:

- Exceed the capacity license: You must migrate your existing license to the new license.
- Let the support contract lapse: You must migrate your Oracle HSM and StorageTek QFS licenses to the new license model and resolve the support contract with Oracle Advanced Customer Support Services.
- Move Oracle HSM to a new server: You may have to migrate the license. Under the new pricing, if a customer changes servers, the second server may have a different list price for Oracle HSM. In this case, the customer has to pay the difference. If the customer is still within the capacity of the older capacity-based license, the customer may be able to just move Oracle HSM and stay on the existing license. Contact your Oracle representative to help determine the conditions of migration.

Q: Where can I go for migration and pricing assistance?

A: For help with migration issues, contact your Oracle representative.
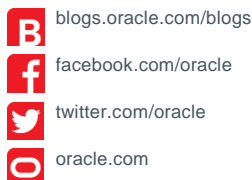

ORACLE®

Oracle Corporation, World Headquarters
500 Oracle Parkway
Redwood Shores, CA 94065, USA

Worldwide Inquiries
Phone: +1.650.506.7000
Fax: +1.650.506.7200

Integrated Cloud Applications & Platform Services