Oracle vs. SQL Server

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Agenda

- Discussions on the various advantages and disadvantages of one platform vs. the other
- For each topic, based on the pros and cons of each platform, a quick vote on which you think is the best
- Open discussion on opinions and experiences along the way

Obtaining the Software

ORACLE DATABASE

- Publically available download from otn.oracle.com
  - No such thing as evaluation editions – licensed via the honor system
- Minipacks via MOS (requires license)
- Patches via MOS (requires license)

Microsoft SQL Server

- 120 or 180 day evaluation available from www.microsoft.com/sqlserver
  - Non evaluation editions require CD-KEY
  - After evaluation period, DB engine stops working but other software (i.e. client tools continue to work)
- Service packs available for free download from Microsoft.com
- Hotfixes available for free download from Microsoft.com

Installation

ORACLE DATABASE

- "Oracle Universal Installer"
  - X-Windows emulator required to install on UNIX from Windows
  - Silent installs via "Response Files"
- Text based patching via Opatch
- Oracle "Home Cloning" supported
- Database binaries support multiple instances
- Runs on a wide variety of platforms

Microsoft SQL Server

- Windows GUI
  - Works on any version of Windows without requiring additional software
- Each instance requires it's own set of binaries
- Silent or "unattended" installs
  - Can be packaged
- Can install on Windows Server Core
  - As of SQL Server 2012

Upgrades

ORACLE DATABASE

- Critical Patch Updates (CPUs)
- Patch Set Updates (PSUs)
  - CPU plus security and other fixes
- PSUs/CPUs released quarterly
- Install via OPatch & manual execution of database scripts
- Database Upgrade Assistant (DBUA) available for automation

Microsoft SQL Server

- Service Packs
- Cumulative Updates
- Hotfixes
- Installer handles both software updates & database scripts
- SQL Server Upgrade Advisor

Architecture

ORACLE DATABASE

- Only one “database”
  - One or more “instances” depending on whether RAC is used
- Many “schemas” within the instance
- Tables “heap” stored by default
- One redo stream at the “database level”
- Multiple redo logs and manual multiplexing
- Many customizable parameters and options (including memory config)
- Automatic Storage Management (ASM)

Microsoft SQL Server

- Start and Stop the “Instance”
- Many “user databases” within the instance
- “Schemas” within each user database
- Tables “Index Organized” by default
- Redo streams unique to each user database
- Only allocates memory as needed
  - Memory allocation can decrease
- One transaction log with one or more files

Administration

ORACLE DATABASE

- Oracle Enterprise Manager (Database Control, Grid Control, Cloud Control)
- Command Line (SQL Plus)
- SQL Developer
  - Java GUI
  - Free download
- Job scheduling via Oracle Scheduler or OEM

Microsoft SQL Server

- SQL Server Management Studio
  - Backwards compatible to SQL Server 2000
  - Ability to execute commands against multiple databases at once
  - Colorful syntax highlighted GUI
- Job Scheduling via the SQL Server Agent

High Availability

ORACLE DATABASE

- Server Clustering
- Real Application Clusters (RAC)

Microsoft SQL Server

- Windows Clusters

Disaster Recovery

ORACLE DATABASE

- Data Guard
- Standby Databases
- Maximum Availability Architecture

Microsoft SQL Server

- Log Shipping
- Database Mirroring
- AlwaysOn
  - New 2012 feature
- Contained Databases
  - New 2012 feature

Security & Authentication

ORACLE DATABASE

- Users authenticated via database credentials
- Users authenticated via OS roles
- Password protected roles
- Detailed object level auditing
- DBA activities audited to OS logs
- Active Directory integration available with Oracle Advanced Security Option (ASO)
  - And additional Oracle software

Microsoft SQL Server

- Logins authenticated at the instance level
  - Active Directory integration
  - Windows Authentication and SQL Server authentication supported
- Users authenticated at the database level
  - New in 2012!
- Detailed object level auditing
  - Enhancements in 2008R2 and 2012!
- Easy to prevent access from OS administrators
- A schema is a separate database object

Data Protection

ORACLE DATABASE

- Data Encryption
  - Some options require the Advanced Security Option (ASO)
- Encrypted RMAN backups and Exports
  - Requires ASO
- Database Vault
  - Protect data from DBAs
- Oracle Firewall

Microsoft SQL Server

- Data Encryption
- Backup Encryption

Backup and Recovery

ORACLE DATABASE

- RMAN (Recovery Manager)
  - Database backups (online & offline)
  - Full/tablespace/file level backups
  - Incremental & differential backups
  - Simple database duplication
  - Write directly to tape device or cloud (Amazon EC2)
  - Reports on files or tablespaces needing backups
- Export / Import data and DDL
  - Data Pump & Conventional

Microsoft SQL Server

- BACKUP Command
  - At the individual database level
  - Full, differential, and incremental backups
- Data Loading/Unloading via SQL Server Integration Services (SSIS)

Performance Monitoring & Tuning

- Oracle Enterprise Manager (Database Control, Grid Control, Cloud Control)
- Built in DB Utilities
  - AWR / ADDM / ASH
  - Automatic SQL Tuning
- Command Line Add-Ons
  - SQLTXPLAIN
  - Statspack
  - OS Watcher

- SQL Server Profiler
- Database Engine Tuning Advisor (DTA)
- Performance Monitor Counters
  - OS Level
- Processor Affinity

Maintenance

ORACLE DATABASE

- Automatic Jobs to:
  - Update statistics
  - Identify SQL issues
  - List segments requiring reorganization

Microsoft SQL Server

- Tables Usually Stored Index-Organized
  - Requires regular rebalancing (i.e. weekly rebuilds)
  - Requires regular Database Consistency Checks (DBCC) to fix page linkages
- Statistics Updated Automatically

Programmability

ORACLE DATABASE

- PL/SQL
- Procedures, Functions, Packages
- Sequences
- Externally compiled code
- Protected “wraped” code

Microsoft SQL Server

- TransactSQL (T-SQL)
- Stored Procedures
- Identity Columns
- Sequences (new in 2012)
- Protected “encrypted” code

Support & Trouble Shooting

- My Oracle Support (MOS)
  - Requires Customer Support Identifier (CSI) to join
  - Open “Support Requests” at no additional charge
  - Provides technical notes, bug descriptions, scripts, patches, and downloads
  - Oracle Configuration Manager can load diagnostic data directly to Oracle Support

- ~~Google~~ Bing
- Support Calls
  - Charged for each support case
- Books Online (BOL)

Licensing and Costs

- Both support
  - Computing power-based license model (in which the license price is determined by the number of processors or cores in the database server)
  - User-based license model (in which license price is determined by the number of users who will access the database server).

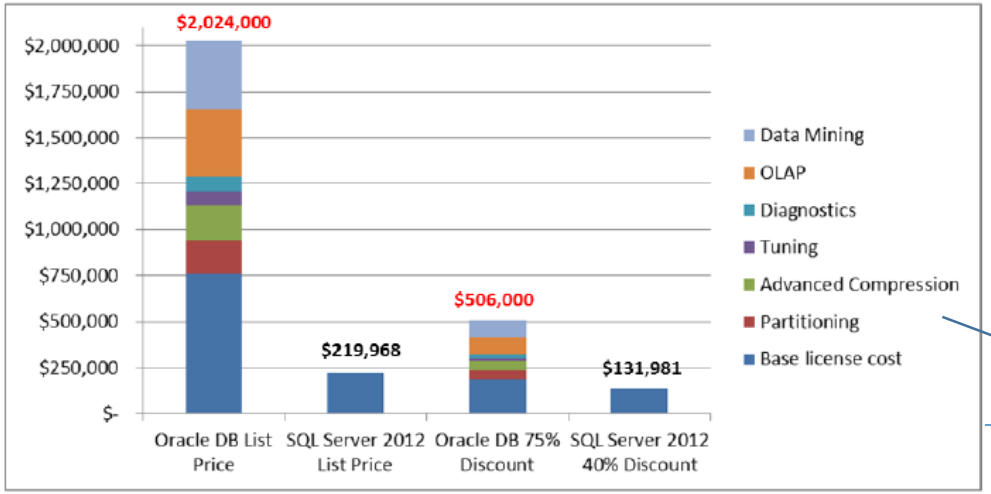
Licensing and Costs

ORACLE DATABASE

- Processor-based licensing gets a core-factor applied depending on the CPU type

Microsoft SQL Server

- Processor-based licensing is making a shift from a metric to a core-based licensing metric for 2012
- SQL Server 2012 core licenses are priced at one-fourth (1/4th) of the SQL Server 2008 R2 Enterprise Edition (EE)/Standard Edition (SE) processor license price



Illustrative license price comparison including Oracle options (data-warehouse scenario, 4 x 8-core x86 processors)

Enterprise Edition
What's Included Out-of-the-Box

ORACLE DATABASE

Microsoft SQL Server

Features	SQL Server	Oracle DB
High Availability & Disaster Recovery	✓	
Advanced Security	✓	
Data Warehousing	✓	
Advanced Compression	✓	
Manageability	✓	
Non-relational	✓	
Advanced Business Intelligence	✓	
Master Data Management	✓	
Data Quality	✓	
Complex Event Processing	✓	

http://download.microsoft.com/download/6/A/7/6A70A35D-6AB7-4C63-A492-BA416ED4B48B/SQL_Server_2012_Gives_You_More_Advanced_Features_Out_of_the_Box_Apr2012.pdf

And the Overall Winner Is….

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Questions or Comments:

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