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Oracle Exadata
Extreme performance.
Lowest cost.

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Consolidate Oracle Applications on Oracle Exadata

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Consolidate Oracle Applications on Oracle Exadata

Agenda

- Why Consolidate on Exadata?
- Steps to Successful Consolidation
- Findings from Our Internal Case Study
- Key Takeaways

Why Consolidate on Exadata?



Why Consolidate on Exadata?

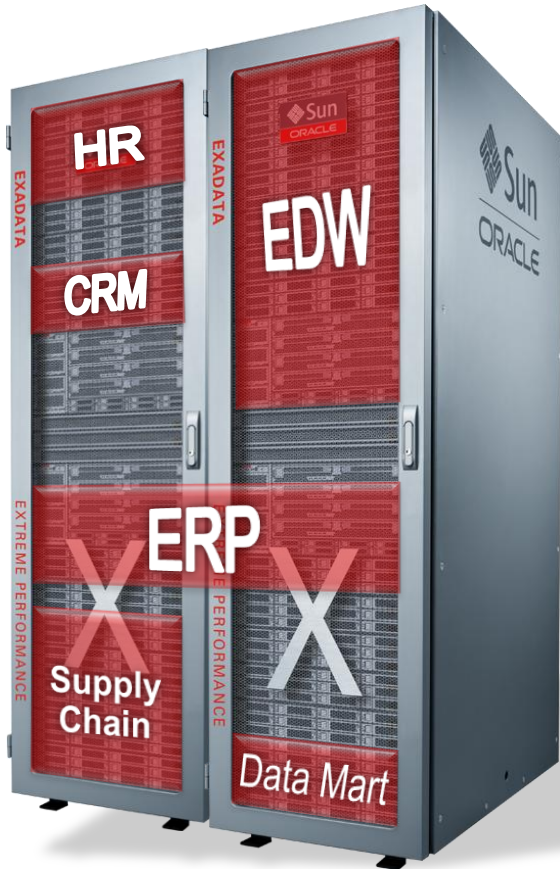
A major leap in performance, capacity and value

- ✓ Scalable architecture – grows with your business
- ✓ Eliminate systems integration trial-and-error
- ✓ Run existing applications unchanged
- ✓ Apply existing personnel and skills
- ✓ Apply existing Oracle licenses
- ✓ Perform read I/Os 10x faster from Smart Flash Cache

*“Exadata is the fastest growing product in
Oracle’s history”
Larry Ellison, Oracle CEO*

Why Consolidate on Exadata?

Create a “Database-as-a-Service” platform



- **Large Memory and Storage**
 - Many databases can be consolidated
- **Extreme Performance**
 - OLTP, DW, data mining, batch, reporting, loading, backups, files in the database
 - Encryption, compression
- **Workload Management**
 - CPU and I/O resource management
 - Instance caging

Shrink data center costs, increase system utilization and promote application integration

Why Consolidate on Exadata?

Exadata for Oracle Apps Customers



Why Consolidate on Exadata?

Application Certification on Exadata

- Oracle E-Business Suite 11.5.10.2, 12.0.4 and 12.1
- Oracle Siebel 7.8.2.14, 8.0.0.9 and 8.1
- Oracle PeopleSoft with PeopleTools 8.49

- SAP

Steps to Successful Consolidation



Steps to Successful Consolidation

1. Gather Detailed Information
2. Identify Scope
3. Size Accurately
4. Migrate Carefully
5. Monitor and Perform Regular Maintenance

Steps to Successful Consolidation

1. Gather Detailed Information

- Workload Types, Resource Consumption, and Behavior
- Performance Goals
- Governance and Organizational Boundaries
- Security and Separation Requirements
- Availability and Backup Requirements
- Development Lifecycles
- Maintenance Lifecycles and Planned Maintenance Schedules
- Expected Growth and Headroom



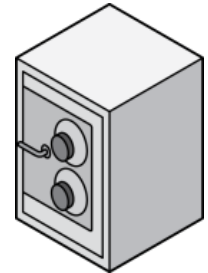
Steps to Successful Consolidation

2. Identify Scope



- Decide what is to be consolidated
 - If governance is a problem, maybe consolidation is bad idea
 - If consolidating mission critical applications, avoid cluttering with less important databases
 - If the applications have security or separation requirements, then identify how best to do this on Exadata
 - If you don't know exactly, then increase headroom appropriately
- Decide how many machines you will need
 - Separate production and test
 - Separate test and development
 - Provide for disaster recovery

Separation and Security on Exadata



- We have published best practices on how to:
 - Separate grid/storage administration from database administration
 - Separate administration and oracle homes for each database
 - Separate storage for each database
 - Limit database access to specific DBAs
- All Oracle database security features are supported on Exadata

Steps to Successful Consolidation

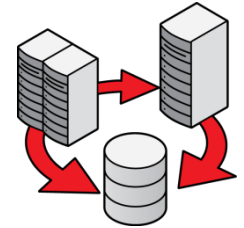
3. Size Accurately



- You need accurate information for each application database:
 - Resource utilization – CPU, memory, storage, IOPS, and IO throughput – peak usage + expected growth
 - If peaks coincide, can the schedule be changed?
 - Be careful about generalizing – applications and databases vary considerably
- Take into account the placement of database instances
- Ensure there are sufficient resources to handle an outage of each node
 - planned or unplanned

Steps to Successful Consolidation

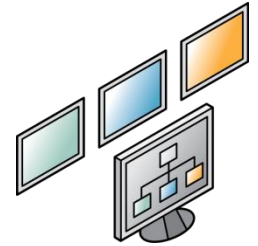
4. Migrate Carefully



- Develop and test the migration process for each application database
- Design a detailed deployment plan, including system and database parameters, and storage layout
- Test and tune the workloads on Exadata
- Implement resource management to protect critical service levels
- See options and best practices at [Exadata Best Practices](#)

Steps to Successful Consolidation

5. Monitor and Perform Regular Maintenance



- Monitor as applications are migrated, especially at peak times
 - Monitor SLAs and resource utilization
 - Adjust parameters and resource plans accordingly
- Keep up-to-date on the latest releases and patches
 - Establish a regular maintenance cycle and organize testing of all applications in this cycle

Findings of Internal Case Study



Findings of Internal Case Study

Project Scope

- Three applications consolidated on Exadata
 - PeopleSoft – Payroll
 - 500,000 employees paid – bi-monthly
 - E-Business Suite – Order Management, Financials
 - 500 Concurrent “Back Office” Users
 - Batch Order to Cash
 - Siebel Sales and Service
 - 30,000 Concurrent Users

Findings of Internal Case Study

Separation of Software, Storage and Admin Roles

- Established discrete operational roles
 - Separate Database Administration (DBA) for each database
 - Grid and Storage Administration
 - System Administration
- Installed separate Oracle homes for each database
- Established separate storage (diskgroups) for each database
- Established access controls to storage (database scoped security)

Findings of Internal Case Study

Exadata Smart Flash Cache

Application	Exadata Flash Cache Hit Rate
Siebel	55%
E-Business Suite	69%
PeopleSoft	81%

Calculated as ratio between two instance activity statistics:

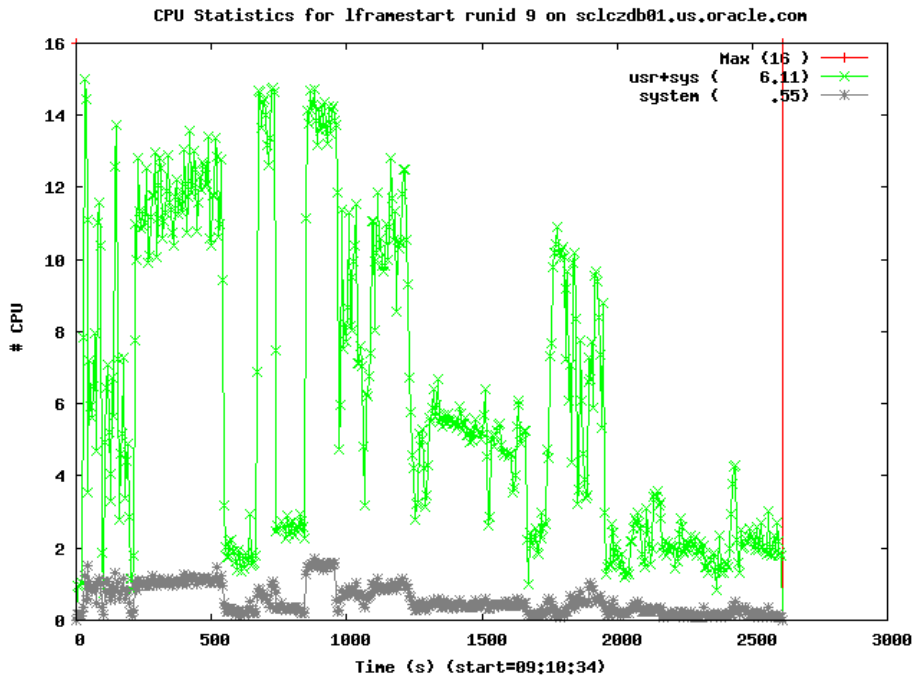
“cell flash cache read hits” / “physical read total IO requests”

Findings of Internal Case Study

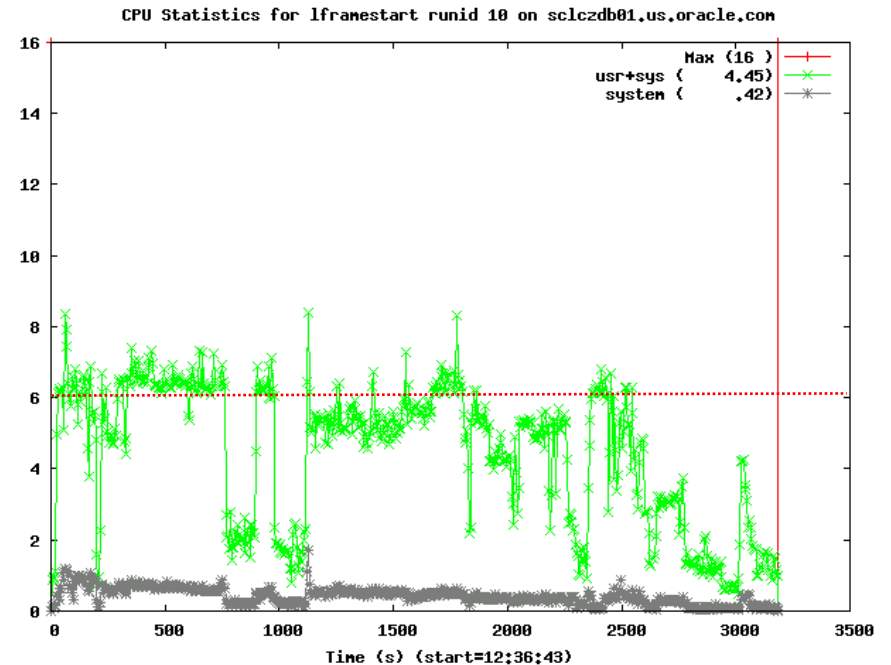
Instance Caging Successfully Limits CPU Utilization

- Example: E-Business Suite batch Order to Cash

No Instance Caging



Limited to 6 CPUs

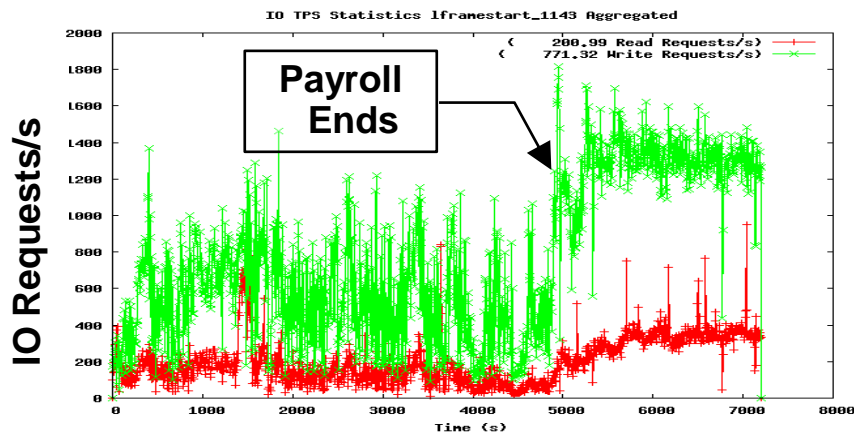


Findings of Internal Case Study

IORM Successfully Limits IO Utilization

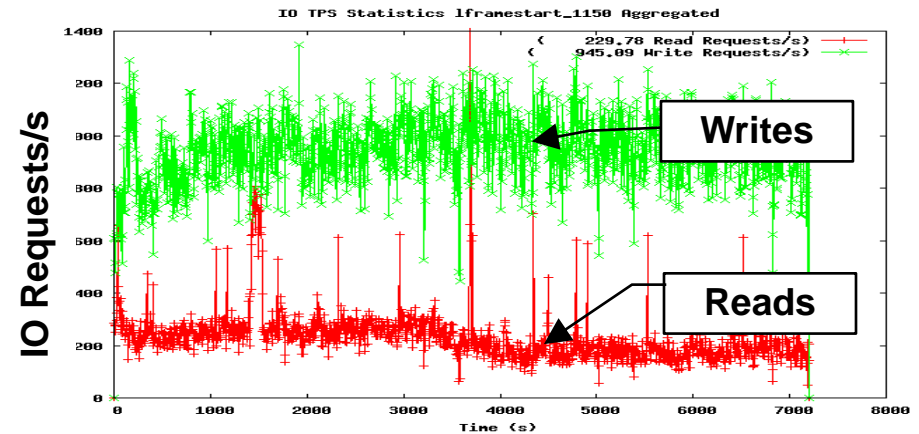
- Example: PeopleSoft Payroll with Siebel Online
 - PeopleSoft and Siebel contend for I/O, impacting Siebel online performance
 - IORM successfully managed PeopleSoft I/O stabilizing Siebel performance

Siebel IO Profile – no IORM



Payroll Running

Siebel IO Profile – IORM Enabled



Payroll Running

Key Takeaways



Key Takeaways

- Exadata is an excellent consolidation platform
- Follow five steps to consolidate successfully:
 - Gather Detailed Information
 - Identify Scope
 - Size Accurately
 - Migrate Carefully
 - Monitor and Perform Regular Maintenance
- Case study proved:
 - Software, storage and administrative roles can be segregated
 - Applications take advantage of Exadata Smart Flash Cache automatically
 - Workloads can be managed with Instance Caging and IORM
- Best practices are available at [Exadata Best Practices](#)

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