Main Objectives

- Business Objective
- Why Oracle Exadata?
- Architecture Diagram
- Network Configuration
- OEM Packs for Exadata using OEM 12c
- Oracle Platinum Support
- Future Roadmap
- Q&A
- Create a future platform for Oracle databases.
- Consolidate multiple Oracle database environments.
- Enable Database Services to provide expected performance, capacity, scalability, and management of the Oracle database environment as per client requirements.
- Establish Database as a Service Model for Private Cloud.
- Implement a High Availability and Disaster Recovery solution within and between both data centers.
- Provide for security and performance isolation of Oracle databases within the Exadata environment.
Why Oracle Exadata?

- Challenges in patching, maintenance and management of database server reduced significantly
- Exadata increased QOS compared to shared network and SAN Storage
  - Benefits of converged infrastructure
- Challenges in capacity increase, expandability, scalability, and performance is reduced drastically
- Exadata helped resolve some of the challenges faced with performance and security isolation
- Exadata provided environment consolidation for heterogeneous workload (OLTP/OLAP)
- Exadata provided required segregation of environment
- Exadata provided performance benefits
- Exadata consolidated license footprint
Oracle Exadata X4-2
- 2 database servers each with:
  - 12 cores (activated)
  - 256GB memory
  - 4 x 600 GB 10K RPM Disks
  - 3 Exadata Storage Servers
  - 6 PCI flash cards with 4.8 TB (raw) Exadata Smart Flash Cache
  - 18 x 4 TB 7,200 RPM Disks (30 TB usable)

Oracle Gateway Server Appliance
(for Oracle monitoring and management of Exadata)

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Oracle Gateway Server Appliance
(CHOP DMZ)

Oracle Enterprise Manager
- OMS Web Tier (existing)
- HA/DR: Load Balanced

Oracle Enterprise Manager
- Database Tier (new)
- HA/DR: Oracle Data Guard

Oracle Fast Start Failover
- Observer
- HA/DR: CHOP DMZ Data Guard

Exadata Support Services Tier (new)
- HA/DR: None

Exadata Database Tier (new)
- HA/DR: Oracle Data Guard
Network Configuration

Exadata Network Connectivity (per Data Center)

Oracle Advanced Support Gateway

Exadata Appliance/Rack

- Exadata DB Server 1
  - PDU A
  - PDU B

- Exadata DB Server 0

Management Switch

- Port 49
- Port 51

- Management

Bond Net1 and Net2 for synchronous DG
Net3 for asynchronous DG

- There are 3-1 Gb copper ports available. 2 shall be bonded for synchronous DG redo traffic. The extra port will be used for asynchronous DG redo

- 10 Gb Optical (user)
- 1 Gb Copper (DG Redo)
- 1 Gb Copper (ILOM/Server Management)
- 1 Gb Optical (Management Switch)

Not pictured are other Exadata components that do not connect externally

Page 3
EMCC Packs for Exadata

Oracle Exadata Management Packs on EMCC 12c
Oracle Platinum Support (OASG Monitoring and Patching)

- CHOP uses Oracle Platinum Support for OASG Monitoring and Patching.
- Worked with Oracle Platinum Services to build patching schedule that best suits our needs.
- Currently we do 2 Non-Rolling and 2 Rolling Patches in a year.
- Challenges:
  - Finding a common window for non-rolling patches.
  - Work with Platinum Support to coordinate and closely monitor the event.
  - Lessons learned during patching and work with Platinum Support to optimize the process.
Current Status

• Database Consolidation Status
  - 7 Application currently running on Exadata Consolidated Platform. (Oracle Identity Management, Blood Marrow Transplant, VRealize, LIMS, Veterinary EMR, CAR Databases).
  - Plan to migrate 5 additional application by 12/31/2015 (Lawson, Kronos, Archibus, Theradoc, Investigational Drug system)
  - Plan to migrate Clarity and BI Stack

• Database Sizes
  - Various sizes ranging from 1 TB to 250 Gb.

• Maintenance and Patching
  - We have successfully patched 2 times along with 1 upgrade from Linux 5.5 to 6.1
  - Able to perform patching on a scheduled basis every quarter.

• Performance Improvement is around 50% faster across the board.
• Business processes operational efficiency increased.
• TCO decreased significantly due to 0.5 core factor for Intel x86 as to RISC based AIX.
Future Road Map

• Provision Exadata to host Non-Production environment.
• Challenge
  – Not having equivalent testing environment is slowing down the production migration to Exadata.
  – Exadata running on x86 chip and our legacy AIX is on Power7 RISC chip set, caused additional challenges for database cloning in lower environments.
• Upgrade databases to 12c from 11.2.0.4.
• Implement Oracle Multitenant option for true DBaaS.
• Implement Fast Sync to speed up Data Guard synchronous replication across data centers
• Expanding Exadata storage or Capacity on Demand
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