Real World Cross Platform Migration
Using Oracle 12c RMAN

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Databases Migration Project

**Source Environment**
- Colorado Data Center
- 10+ Oracle Databases
- 11gR1 and 11gR2
- HP-UX RISC Platform
- Stand-alone (non-RAC)
- Database Sizes range from 12 TB to 30 TB

**Destination Environment**
- Atlanta Data Center
- Oracle Enterprise Linux 6.x Platform
- Oracle 12.1.0.2
- Oracle RAC

**Challenges & Solution**

**Challenges**
- Migration across data centers (~800 miles)
- Migration across platforms
- Migration across versions

**Solution**
- Use Staging Servers at Destination
- Use Active Data Guard between Data Centers
- Use Cross-Platform migration (MOS 1389592.1)
Cross Platform Migration
Topology through Big Picture
Step 1: Synchronize Data Between Data Centers

Staging using Active Data Guard

• Build Staging Server at the Destination Data center (Atlanta)
  – Same OS HP-UX but Different Processor Architecture
• Staging Host: IA-64 based with HP-UX
• Create Physical Standby on Staging Host
  – Performed RMAN Hot backup from source database
  – Shipped the storage media to the destination
  – Restore Media on the staging host
• Keep Synchronizing Physical Standby using Active Data Guard
Step 2: Cross-Platform Transport

Data Migration Between Staging & Destination Server

• Destination Servers: Linux / X86 Blade

• One time Level 0 Backup
  – Take Initial Level 0 backup from Staging Server (which is a Standby Server)
  – Use NFS mount point for backups
  – Restore Backups at Destination RAC Server

• Repeated Incremental Level 1 Backups
  – Keep taking Incremental (L1) Backups on Staging
  – Keep Restoring Incremental (L1) Backups at Destination
Step 3: Cutting Over to Destination Database

Final Plug-In Procedure on the Cut-Off Day

- Ensure Physical standby (Staging) Synchronized to Last Archive log
- Shutdown Source (Production) database
- Final Incremental Backup (L1)
  - Physical standby is already in read-only mode
  - Take final incremental L1 backup
  - Restore the last L1 at Destination
- Meta Data Plug-in
  - Export Meta Data from the Stage Server
  - Import Meta data into Destination database
- Open Destination database
Observation, Best Practices & Future Plans

• Very smooth & efficient migration completed using Oracle supplied Cross-Platform Scripts (MOS 1389592.1)

• Performed multiple incremental backups to keep the destination server data as close to production

• Use Multi-Section Incremental Backups

• Use NFS (SAN based) mounted file system for cross-platform migration between staging & destination servers
  – Avoids additional steps required to copy backups between servers

• Future Plans
  – Implement backup & recovery procedures using RMAN 12c capabilities
  – Identify and Migrate other HP-UX databases to future Oracle version using 12c enhancements