

# 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

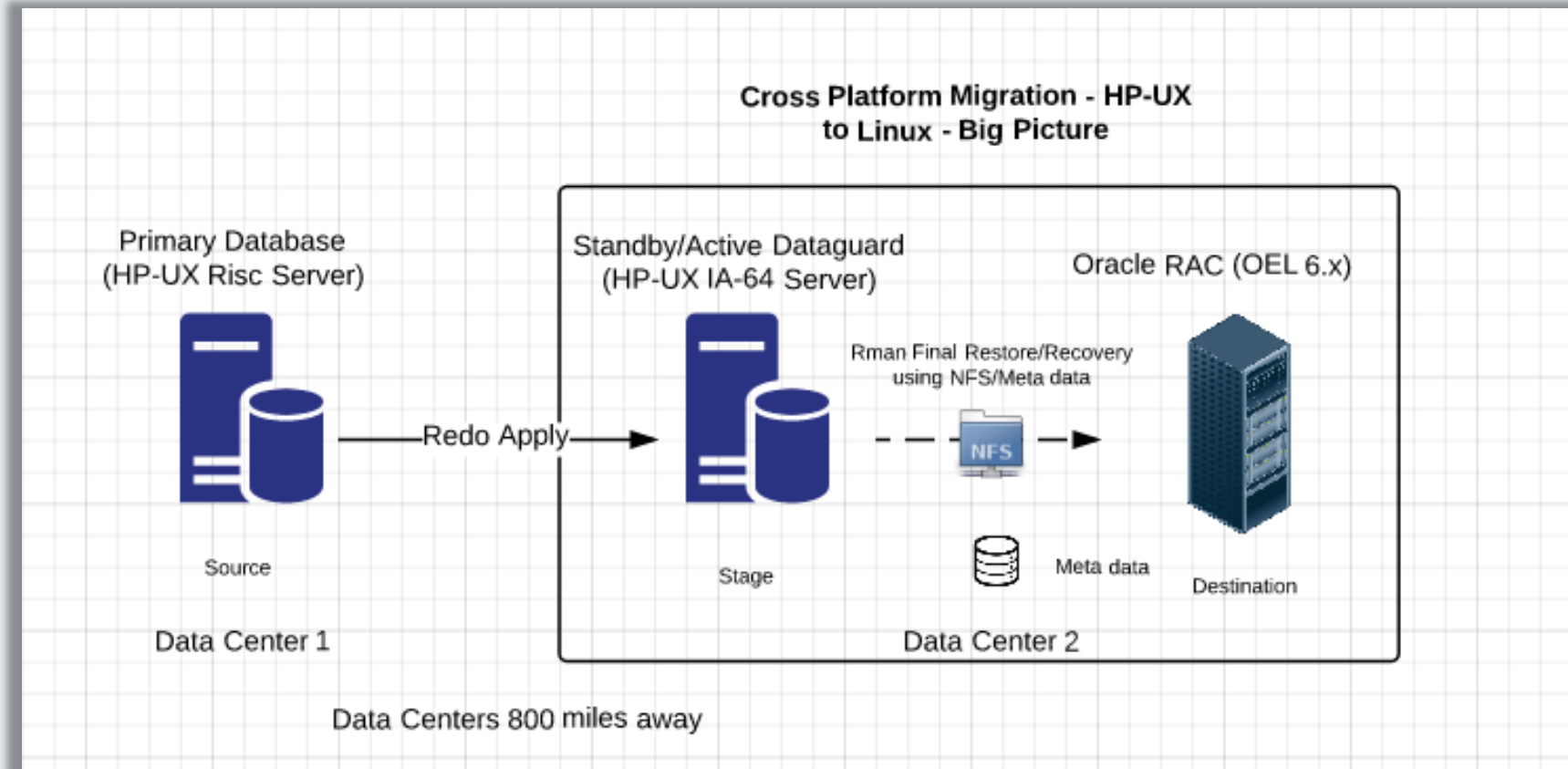
- Atlanta Data Center
- Oracle Enterprise Linux 6.x Platform
- Oracle 12.1.0.2
- Oracle RAC

## 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

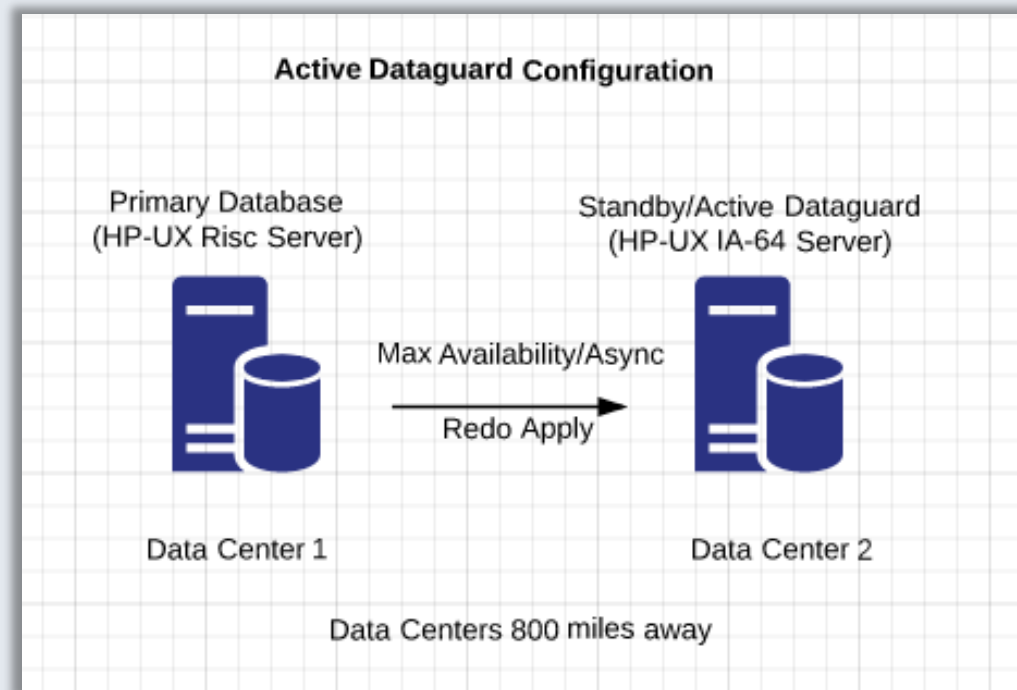
## Topology through Big Picture



# Step 1: Synchronize Data Between Data Centers

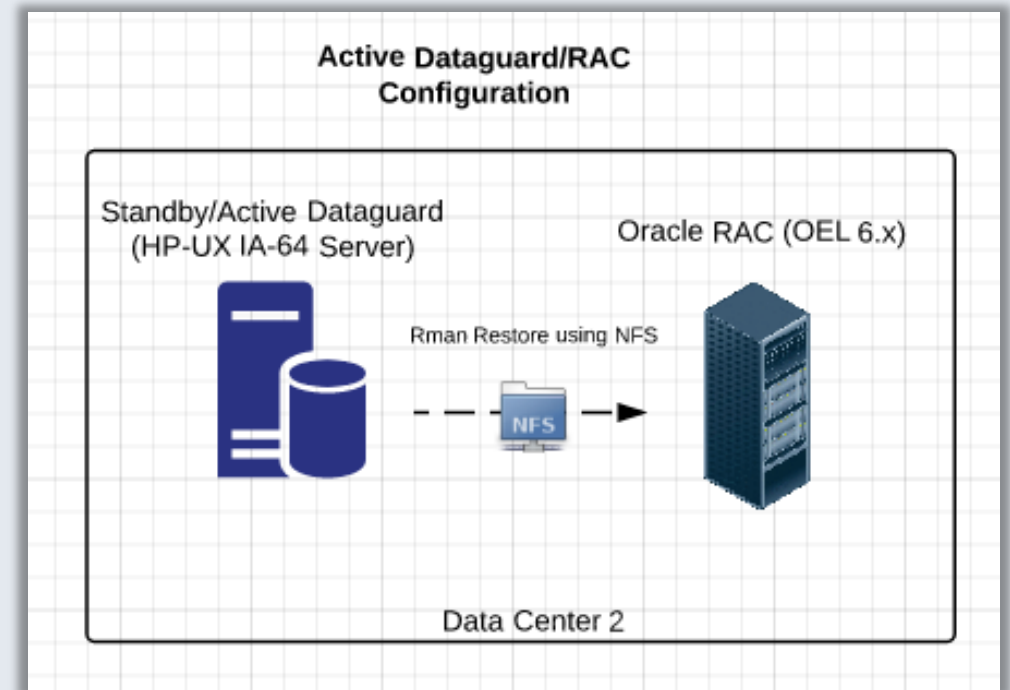
## Staging using Active Data Guard

- 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

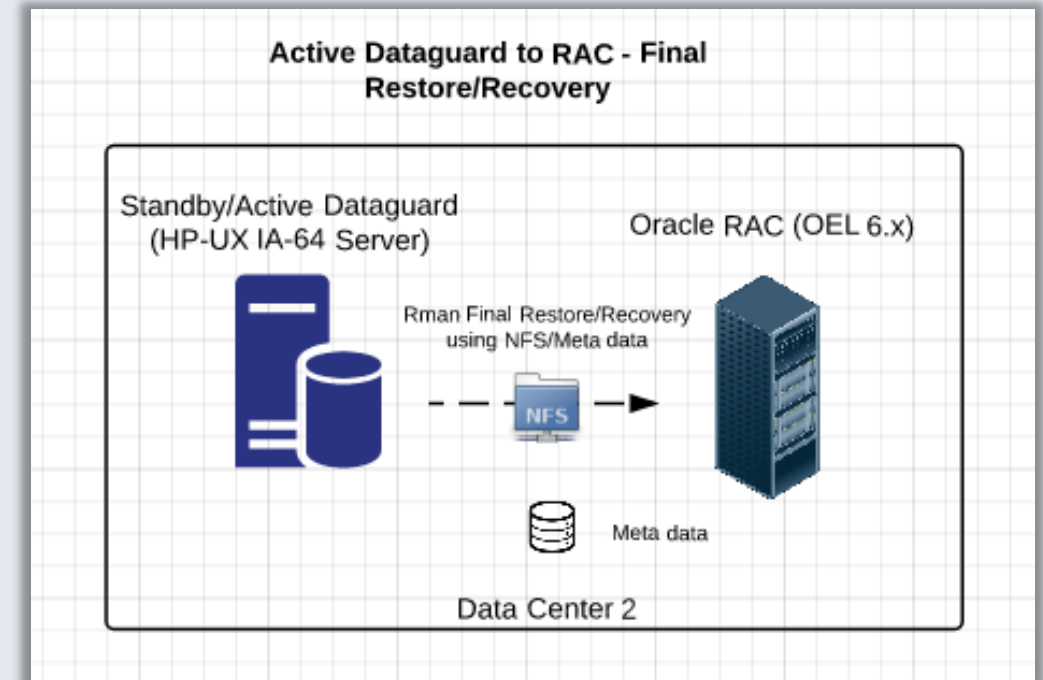
- Destination Servers: Linux / X86 Blade
- One time Level 0 Backup
  - Take Initial Level 0 backup from Staging Server (which is a Standby Server)
  - Use NFS mount point for backups
  - Restore Backups at Destination RAC Server
- Repeated Incremental Level 1 Backups
  - Keep taking Incremental (L1) 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