Using RMAN & Data Guard in Nokia

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Nokia Overview

- World leader in mobility technologies
- Provides wide range of mobile devices with services and software that enable people to experience music, navigation, video, television, imaging, games, business mobility
- Head office in Finland
- Strong R&D presence in 10 countries
- Device manufacturing in 9 countries
- World’s #1 manufacturer of mobile devices
- Estimated 39% share of global device market in 2008
- World’s 5th most valued brand
- #1 brand in Asia and #1 brand in Europe
- World's number one supply chain
Oracle at Nokia

- 9 DBAs
- Applications
  - OLTP: 50%
  - Hybrid (OLTP & DW): 40%
  - DW: 10%
- About 900 Oracle databases hosted internally:
  - Oracle Database 10g: 60%
  - Oracle Database 9i: 37%
  - Oracle8i: 2%
  - Oracle Database 11g: 1%
- Host platforms:
  - Solaris
  - HP-UX
Oracle at Nokia (cont.)

- Production databases
  - 5 MB – 7 TB range
- Leverage virtually all Oracle database features
- DBAs share responsibilities
- Many federated databases
- Common Oracle platform
- 99% of databases backed up with RMAN (primary & standby databases)
- Over 1200 backup clients
- 6 RMAN catalog databases
- 2 PB+ backed up / month
Maximum Availability Architecture (MAA) at Nokia

- Most critical databases use RAC Primary & RAC Standby
- Disaster recovery planning
- Tiered service level agreements
  - Always Available (Zero downtime and data loss)
  - Fast Recovery from Disk (RPO/RTO = 1-12 hours)
  - Recover from Tape (RPO/RTO > 12 hours)
    - Incremental backup to tape strategy
    - Archived logs backed up throughout the day
- Managing double failures
- Flash Recovery Area: pros and cons
Standby Databases at Nokia

• Use OEM to create the standby database
• Use RMAN to duplicate the database for standby
• Hundreds of databases refreshed/cloned on regular basis
Duplicate from Active Database

Oracle Database 11g

RMAN> DUPLICATE TARGET DATABASE FOR STANDBY FROM ACTIVE DATABASE DB_FILE_NAME_CONVERT ('JD1','JD3');

• Network-enabled database duplication **without** backups

• Benefits
  • Much faster
  • No need to use backup devices
  • Easier **standby database** creation over the network
Oracle Database 11g
Features of Interest to Nokia

• Data Guard
  • Compression of Redo Traffic Over the Network
  • Real-Time Query Capability of Physical Standby Database (Active Data Guard)

• RMAN
  • Configuring backup compression: use `CONFIGURE` command to choose between BZIP2 and ZLIB compression algorithms for RMAN backups
  • Undo optimization during full backup
  • *Intrafile* parallel backup of large data files allows backup workload to be more efficiently distributed.