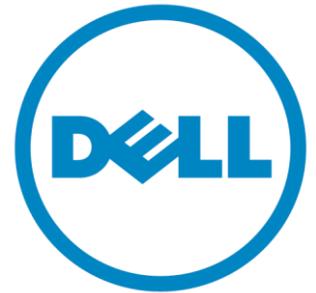# Oracle 11GR2

Client Failover Best Practices for Highly Available Oracle Databases

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Goal

- Understand Active Data Guard Concept

- Role-based database services

- Creating database services using TAF

- Client Transition During Switchover operations

- Automatic Failover for Client Applications

- Consideration for Active Data Guard connections

- Oracle (LDAP)

- How is CNAMES used for?

Active Data Guard Concepts

Role-based database services

We can control the startup of database services assigning a Database role.

-l PRIMARY, PHYSICAL_STANDBY, LOGICAL_STANDBY and SNAPSHOT_STANDBY

A database service will automatically start based in its role if the service is AUTOMATIC and the ROLE matchs with Database ROLE

srvctl add service -d nebsp -s nebsp_adg_sql -r nebsp1, nebsp2, nebsp3 -l physical_standby -y AUTO

Creating database services using TAF

srvctl add service -d nebstr -s nebstr_taf -r nebstr1,nebstr2 -l PRIMARY -q false -e select -m BASIC -w 10 -z 150

-r A list of preferred instances on which the service runs when the database is administrator managed.

-P {BASIC | NONE | PRECONNECT} - TAF policy specification (for administrator-managed databases only).

-e {NONE | SESSION | SELECT} - Failover type.

-l {[PRIMARY] |[PHYSICAL_STANDBY] | [LOGICAL_STANDBY] | [SNAPSHOT_STANDBY]}

-y {AUTOMATIC | MANUAL}

-z failover_retries - The number of failover retry attempts.

-w failover_delay - The time delay between failover attempts.

Client Transition During Switchover operations

- First the primary database is converted to a standby database. The command to do so disconnects all sessions and brings the database to the mount state. The Data Guard Broker shuts down any read write service.

- Client sessions receive a ORA-3113 and begin going through their retry logic (TAF for OCI and application code logic for JDBC)

- The standby database is converted to a primary database and any existing sessions are disconnected. The Data Guard Broker shuts down read-only services

- Read-only connections receive a ORA-3113 and begin going through their retry logic (TAF for OCI and application code logic for JDBC)

- As the new primary and new standby are opened the respective services are started for each role and clients performing retries now see the services available and connect.

Considering Data Guard Connections - TNSNAMES Configuration –

```
NEBSP_INTERFACE=
 (DESCRIPTION_LIST=
  (FAILOVER=on)
  (LOAD_BALANCE=off)
  (DESCRIPTION=
   (ADDRESS_LIST=
    (LOAD_BALANCE=on)
    (ADDRESS=
     (PROTOCOL=TCP)
     (HOST=nebsprdbscn.us.dell.com)
     (PORT=1521))    )
   (CONNECT_DATA=
    (SERVICE_NAME=_INTERFACE)))
  (DESCRIPTION=
   (ADDRESS_LIST=
    (LOAD_BALANCE=on)
    (ADDRESS=
     (PROTOCOL=TCP)
     (HOST=nebsdrdbscn.us.dell.com)
     (PORT=1521))    )
   (CONNECT_DATA=
    (SERVICE_NAME=_INTERFACE))))
```

Managing existing connections for unplanned outages

If the new primary database has enough capacity to support both the primary application connections and the reporting application connections, then:

- Manually start the reporting database service on the primary database.
- Once the service is available, restart the reporting application to get connections established.

Oracle LDAP

 # ldap.ora Network Configuration File:
C:\app\client\carlos_pimentel\product\12.1.0\client_1\network\admin\ldap.ora
Generated by Oracle configuration tools.

DIRECTORY_SERVERS= (ldap.dell.com:389:636)

DEFAULT_ADMIN_CONTEXT = ""

DIRECTORY_SERVER_TYPE = OID

 # sqlnet.ora Network Configuration File:
C:\app\client\carlos_pimentel\product\12.1.0\client_1\network\admin\sqlnet.ora
Generated by Oracle configuration tools.

This file is actually generated by netca. But if customers choose to
install "Software Only", this file wont exist and without the native
authentication, they will not be able to connect to the database on NT.

SQLNET.AUTHENTICATION_SERVICES= (NTS)

NAMES.DIRECTORY_PATH= (LDAP,TNSNAMES, EZCONNECT)

How is CNAMES used for?

CNAME Record

It is short abbreviation for Canonical Name
Provides an alias name for same hostname
Helps create subdomains

CNAMES is really useful for server replacement purpose. It avoids changes in app network configuration.

We don't need use CNAME in a database switchover.

Q&A

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