Oracle 11GR2

Best Practices for Highly Available Oracle Databases

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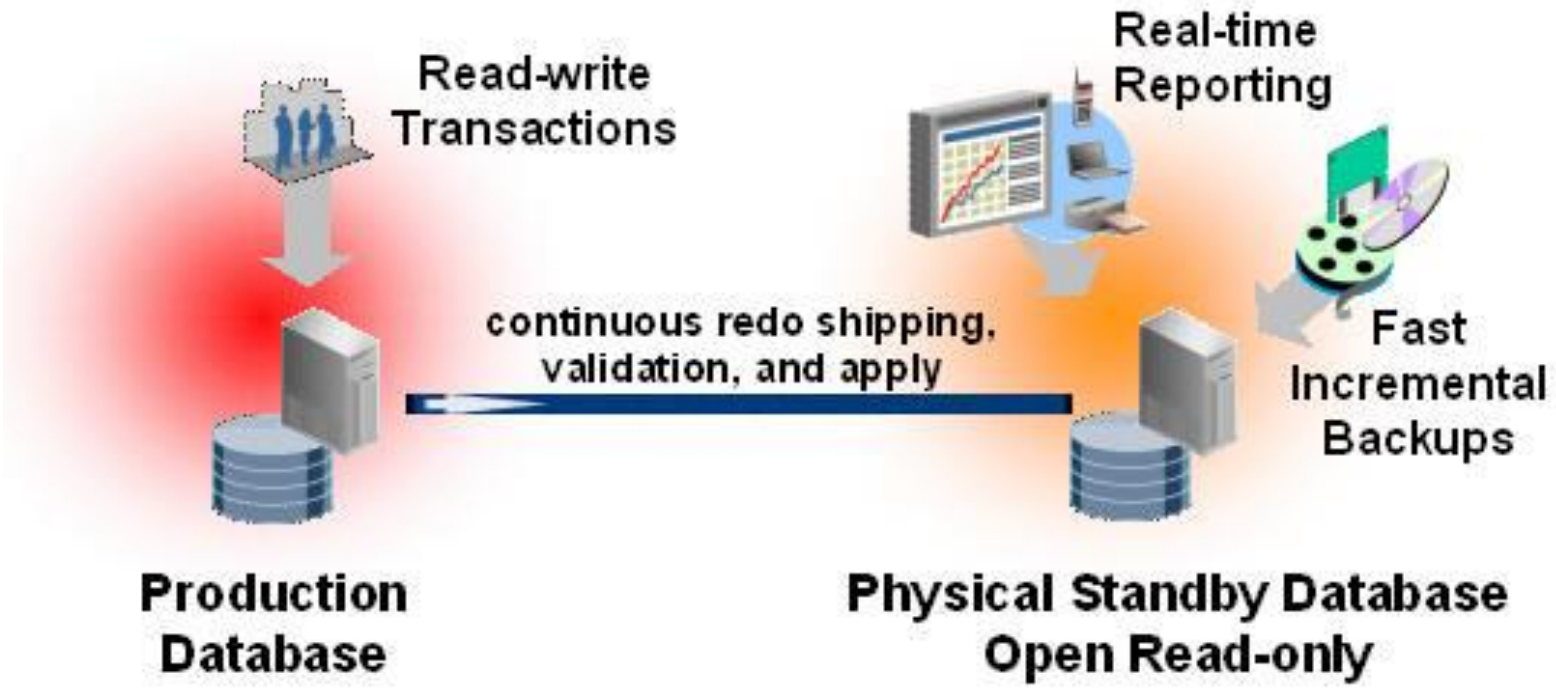
Goal

- Understand High Availability Concept
- Understand Active Data Guard Concept
- Required Software and License
- SCAN Listener
- Services
- Role-based database services
- TNS Configuration for HA
- How is CNAMES used for?

Understand High Availability Concept

Understand Active Data Guard Concept



Required Software and License

Enterprise Edition

+Options

The Database Pillars of High Availability

Scan Listener	Services	Client Configuration
• Load Balance - DNS • Listener Redundancy	• Load Balance workload based • Preferred Instances • TAF	• Connect Settings • Timeout config • Services

SCAN Listener

Single Client Access Name

- Define a SCAN using the corporate DNS (Domain Name Service)

First Execution

nslookup proddbscn.example.com
Server: 143.166.220.125
Address: 143.166.220.125#53

Non-authoritative answer:
Name: proddbscn.example.com
Address: 10.178.116.225
Name: proddbscn.example.com
Address: 10.178.116.226
Name: proddbscn.example.com
Address: 10.178.116.224

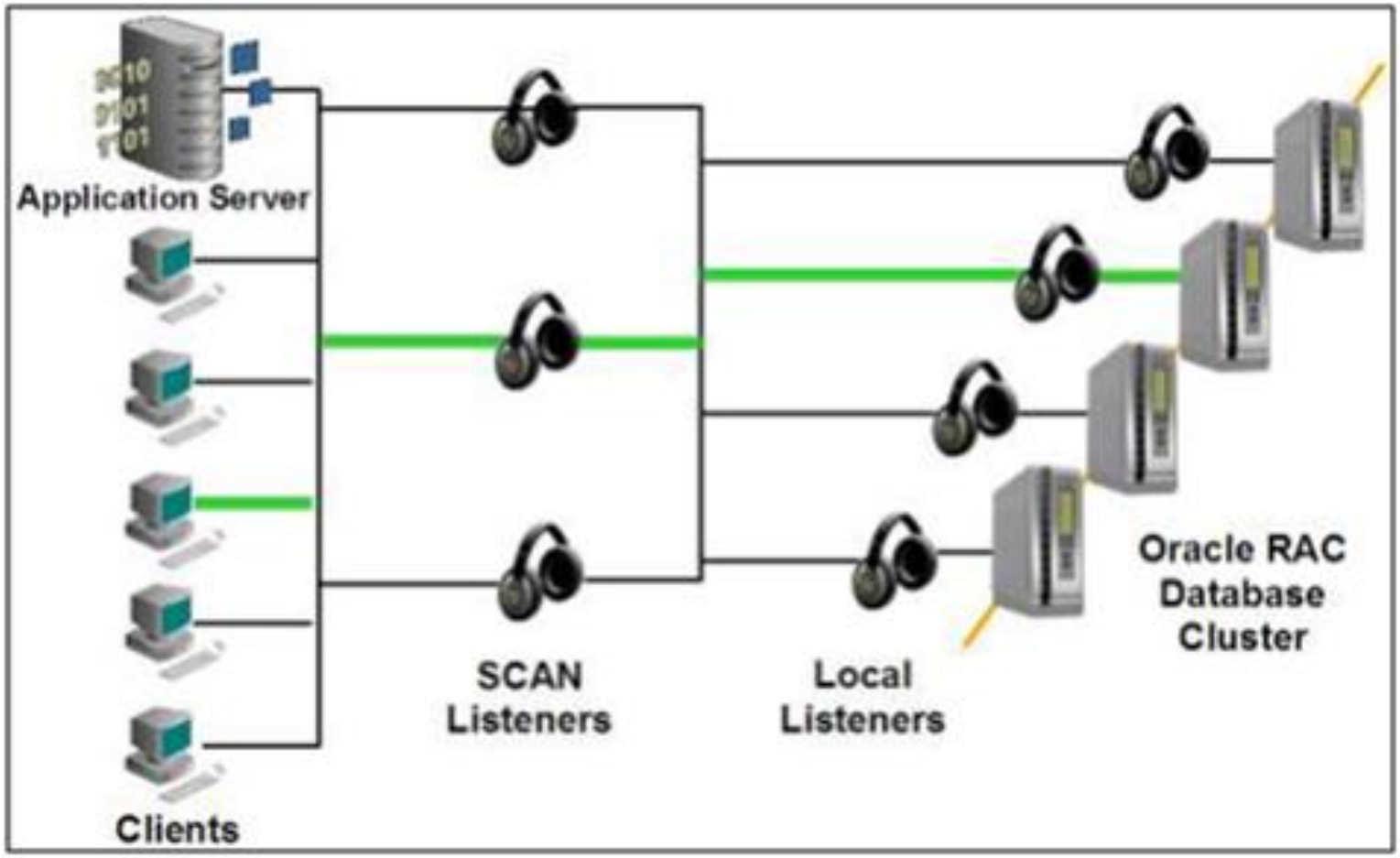
Second Execution

nslookup proddbscn.example.com
Server: 143.166.220.125
Address: 143.166.220.125#53

Non-authoritative answer:
Name: proddbscn.example.com
Address: 10.178.116.224
Name: proddbscn.example.com
Address: 10.178.116.226
Name: proddbscn.example.com
Address: 10.178.116.225

SCAN Listener

Single Client Access Name

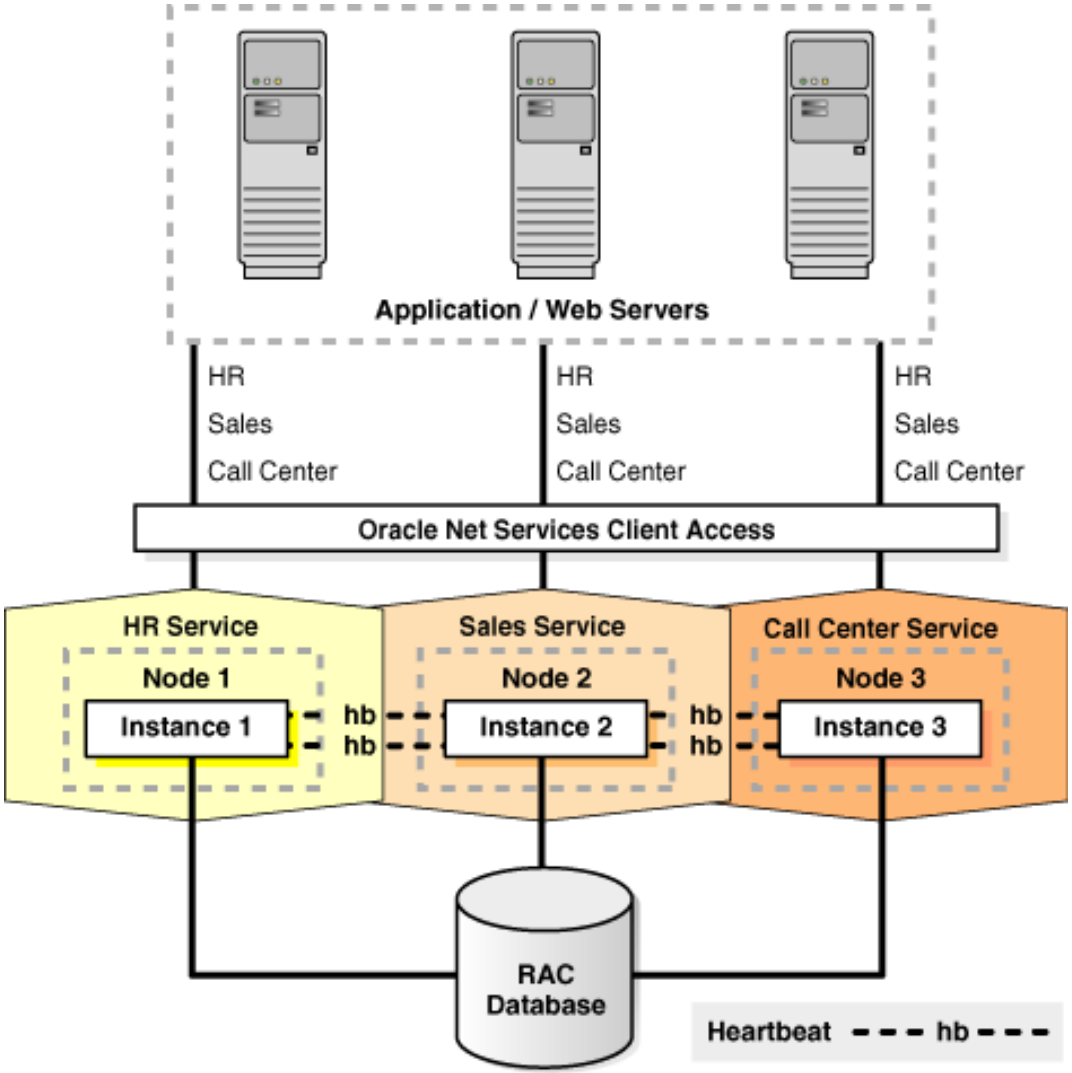


Why SCAN Listener?

```
PROD =
 (DESCRIPTION =
  (ADDRESS = (PROTOCOL = TCP)(HOST = prddb01-vip.us.dell.com)(PORT = 1521))
  (ADDRESS = (PROTOCOL = TCP)(HOST = prddb02-vip.us.dell.com)(PORT = 1521))
  (ADDRESS = (PROTOCOL = TCP)(HOST = prddb03-vip.us.dell.com)(PORT = 1521))
  (ADDRESS = (PROTOCOL = TCP)(HOST = prddb04-vip.us.dell.com)(PORT = 1521))
  (ADDRESS = (PROTOCOL = TCP)(HOST = prddb05-vip.us.dell.com)(PORT = 1521))
  (LOAD_BALANCE = yes)
  (CONNECT_DATA=(SERVER=DEDICATED)(service_name=prod)
  )
 )
```

```
PROD =
 (DESCRIPTION =
  (ADDRESS = (PROTOCOL = TCP)(HOST = prdbscn.us.dell.com)(PORT = 1521))
  (LOAD_BALANCE = yes)
  (CONNECT_DATA=(SERVER=DEDICATED)(service_name=prod)
  )
 )
```

Services



Services Benefits

- Dynamic Resource Allocation
- High Availability
  - TAF
- Tuning and Monitoring
- Role Based
- Resource Management
  - Database Jobs

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 prod -s prod_adg_sql -r prod1, prod2, prod3 -l physical_standby -y AUTO

Services Example

- Using Services and Scan Listener with RMAN

```
prod_all_instances=
      (DESCRIPTION=
         (ADDRESS_LIST=
            (ADDRESS=(PROTOCOL=tcp)(HOST=proddbscn.us.dell.com)(PORT=1521)))
         (CONNECT_DATA=(SERVICE_NAME=prod_all_instances)
         ))
```

Service name: prod_all_instances
Cardinality: 6
Service role: PRIMARY
Preferred instances: prod1, prod2, prod3, prod4, prod5, prod6
Available instances:

Services Example

```
connect target /
CONFIGURE DEVICE TYPE disk PARALLELISM 24;
CONFIGURE CHANNEL DEVICE TYPE disk CONNECT sys/@prod_all_instances;
CONFIGURE DEFAULT DEVICE TYPE TO disk;
run {
set controlfile autobackup format for device type disk to '/bkp/%F.bck';
backup as compressed backupset incremental level 0 filesperset 1 format '/bkp/full_db_%d_t%t_s%s_p%p'
        database include current controlfile;
backup as compressed backupset filesperset 10 format '/bkp/full_arch_%d_%s_%p' archivelog all;
}
```

```
Starting backup at 06-NOV-15
allocated channel: ORA_DISK_1
channel ORA_DISK_1: SID=2529 instance=prod2 device type=DISK
allocated channel: ORA_DISK_2
channel ORA_DISK_2: SID=3518 instance=prod4 device type=DISK
allocated channel: ORA_DISK_3
channel ORA_DISK_3: SID=5539 instance=prod3 device type=DISK
allocated channel: ORA_DISK_4
channel ORA_DISK_4: SID=3524 instance=prod6 device type=DISK
allocated channel: ORA_DISK_5
channel ORA_DISK_5: SID=2767 instance=prod5 device type=DISK
allocated channel: ORA_DISK_6
channel ORA_DISK_6: SID=3534 instance=prod2 device type=DISK
allocated channel: ORA_DISK_7
channel ORA_DISK_7: SID=1019 instance=prod3 device type=DISK
allocated channel: ORA_DISK_8
channel ORA_DISK_8: SID=1273 instance=prod4 device type=DISK
```

TNS configuration for HA

```
PROD =
 (DESCRIPTION_LIST=
  (LOAD_BALANCE=OFF)
  (FAILOVER=ON)
  (DESCRIPTION=
   (CONNECT_TIMEOUT=5)
   (TRANSPORT_CONNECT_TIMEOUT=3)
   (RETRY_COUNT=3)
   (ADDRESS_LIST=
    (LOAD_BALANCE=ON)
     (ADDRESS=(PROTOCOL=TCP)(HOST=proddbscn.us.dell.com)(PORT=1521)))
     (CONNECT_DATA=(SERVICE_NAME=PROD_FORMS_N_WEB))
  )
  (DESCRIPTION=
   (CONNECT_TIMEOUT=5)
   (TRANSPORT_CONNECT_TIMEOUT=3)
   (RETRY_COUNT=3)
   (ADDRESS_LIST=
    (LOAD_BALANCE=ON)
    (ADDRESS=(PROTOCOL=TCP)(HOST=proddrdbscn.us.dell.com)(PORT=1521)))
    (CONNECT_DATA=(SERVICE_NAME=PROD_FORMS_N_WEB))
  )
 )
```

TNS configuration for HA

SCAN LISTENER

Service “prod_forms_n_web" has 5 instance(s).

Instance “prod1", status READY, has 1 handler(s) for this service...

Instance "prod3", status READY, has 1 handler(s) for this service...

Instance "prod4", status READY, has 1 handler(s) for this service...

Instance "prod5", status READY, has 1 handler(s) for this service...

Instance "prod6", status READY, has 1 handler(s) for this service...

LOCAL LISTENER NODE 1

Service “prod_forms_n_web" has 1 instance(s).

Instance “prod1", status READY, has 1 handler(s) for this service...

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

The power to do more