Managing Policy-Managed Oracle RAC Databases – Part I

By Ahmed Baraka

Objectives

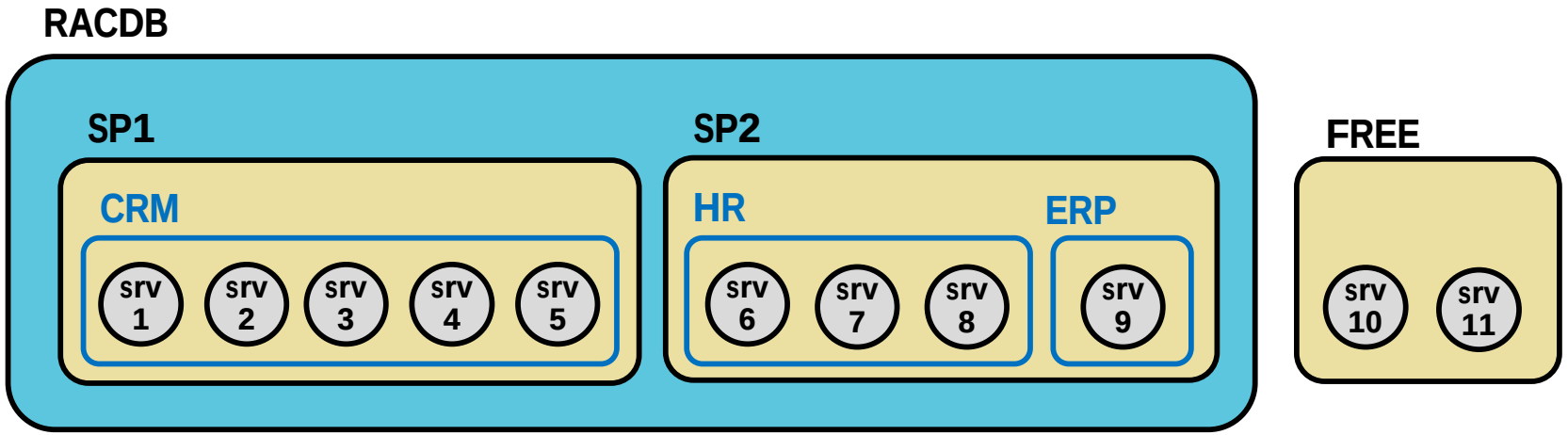
In this lecture, you will learn how to perform the following:

- Understand how the server pools are used in policy-managed RAC database
- Describe the benefits of Policy-managed RAC databases
- Create server pools for RAC databases
- Convert an Administrator-managed RAC Database to Policy-managed Database
- Create a Service for a Policy-Managed Database or PDB

Oracle RAC Database Deployment Types

- Administrator-managed
  - The only available Oracle RAC type before 11.2
  - Each instance is statically configured to a specific node in the cluster
  - Database services run on specific instances using the preferred and available designation
  - Challenges: in case of failover, it does not utilize free server.
- Policy-managed
  - Is based on server pool
  - Databases are deployed in one or more server pools

Policy-managed Oracle RAC Layout Example



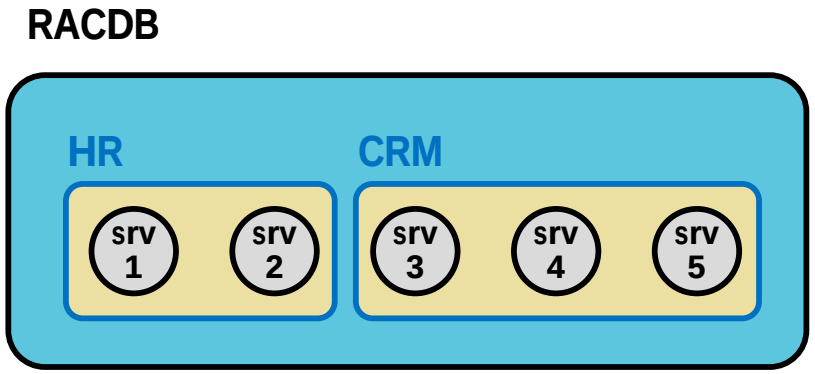
About Server Pools

- Server pool is a logical group of cluster servers (nodes)
- Servers that are not assigned to any server pool belong to FREE
- Policy-managed RAC databases are configured based on server pools, not servers
- A server can belong to only one server pool at a time
- Clusterware can dynamically add or remove a server in or out of a server pool
- Services run as a **singleton** service or as a **uniform** service
- There can be only one instance of a particular RAC database on a specific server at any point in time

Sever Pool Properties

- Server pool properties:
  - Server placement and failover properties:
    - **MIN_SIZE** : the minimum number of servers. Zero is accepted.
    - **MAX_SIZE** : the maximum number to be allocated. -1 value means unlimited
  - Availability properties:
    - **IMPORTANCE** : the importance of the server pool. It accepts the values between 0 and 1000, where zero is lower boundary and 1000 is the upper boundary.

Administrator-managed RAC: Database Service Start Order



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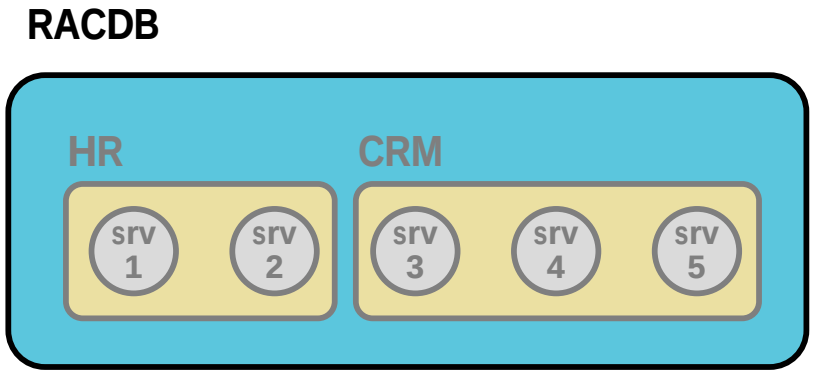

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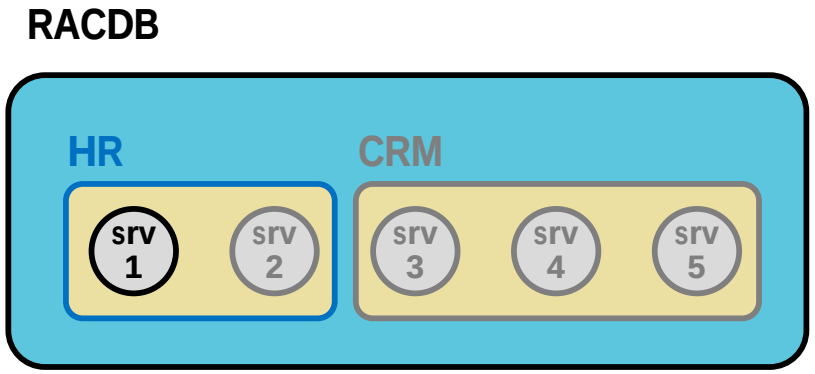

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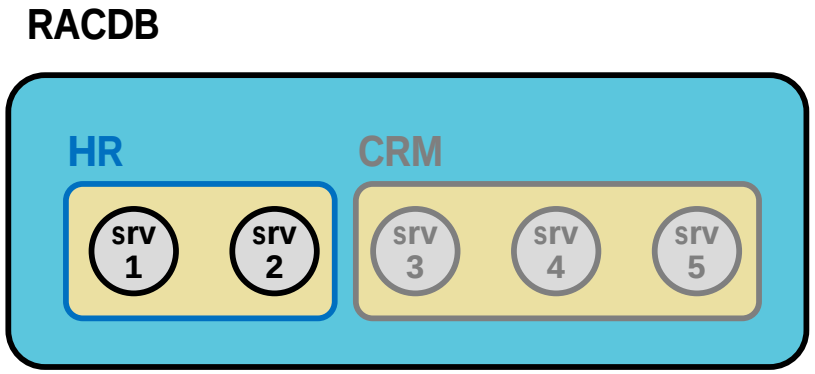

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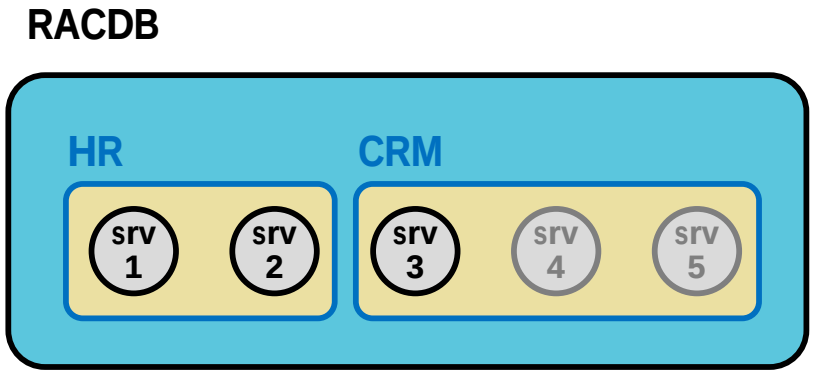

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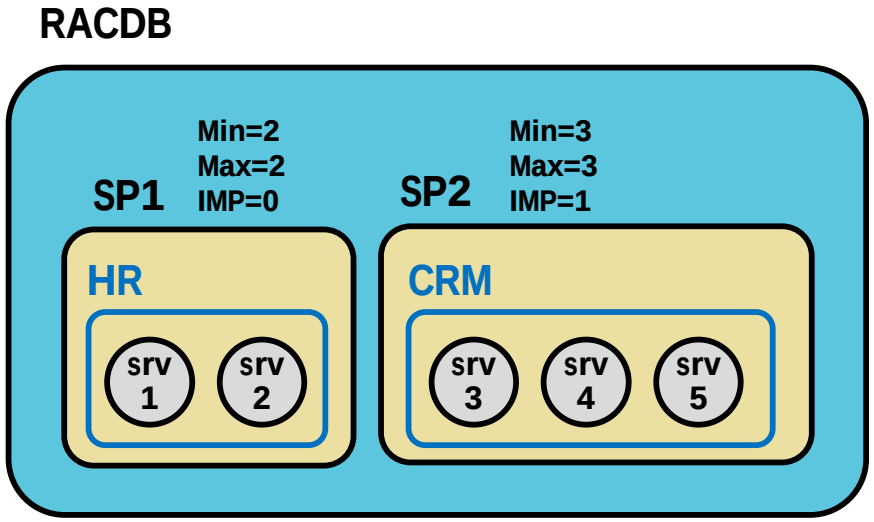

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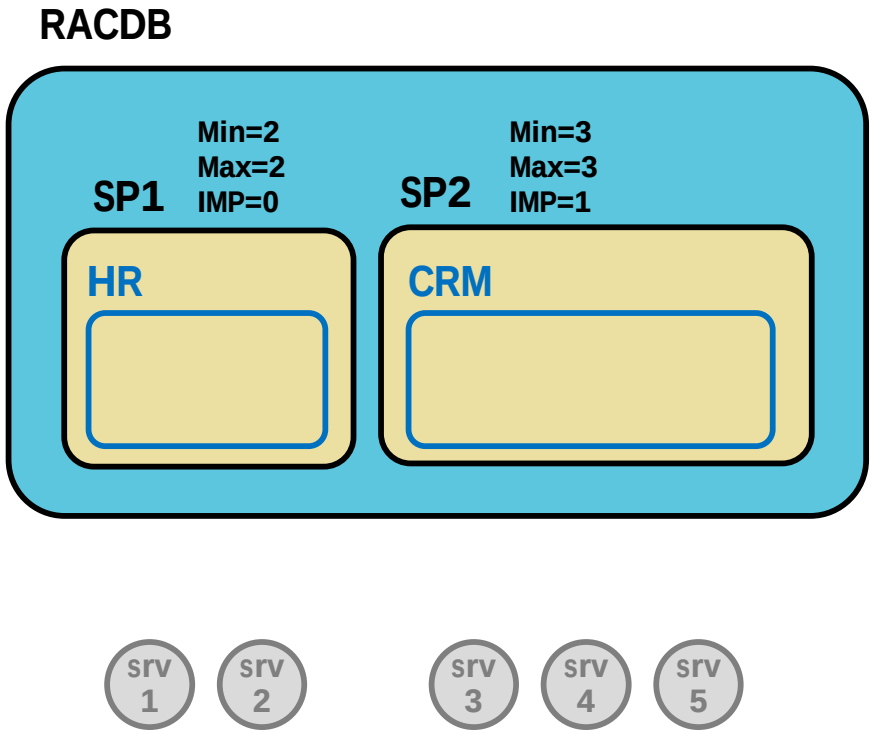

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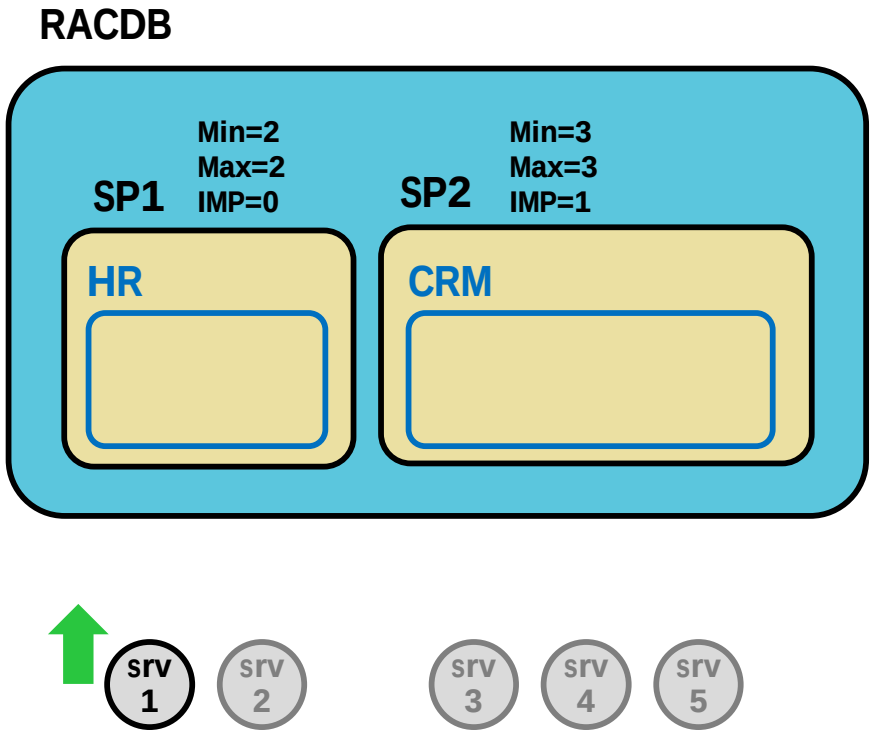

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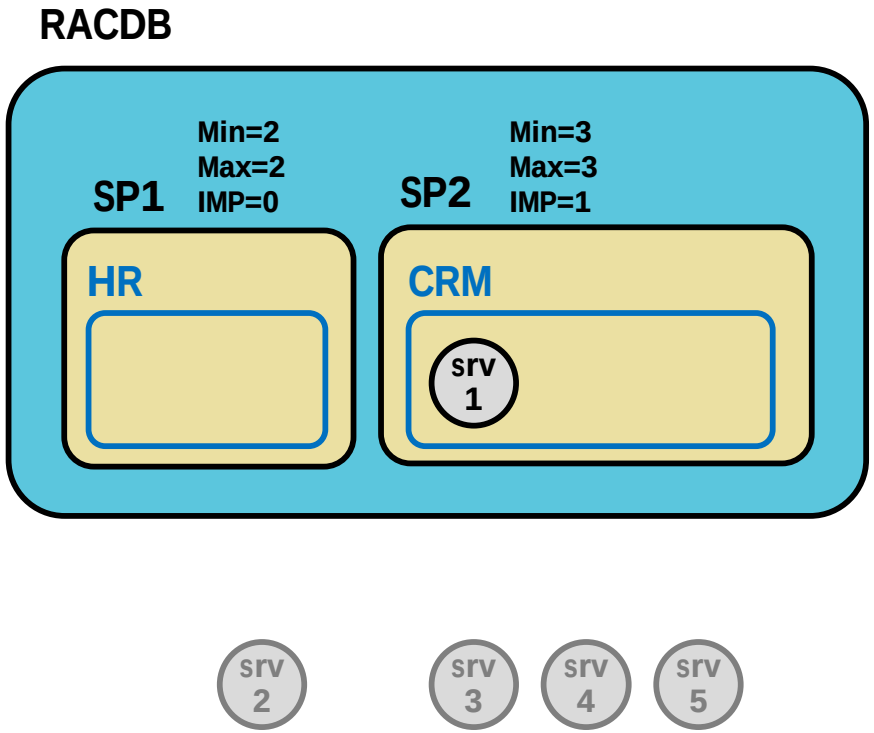

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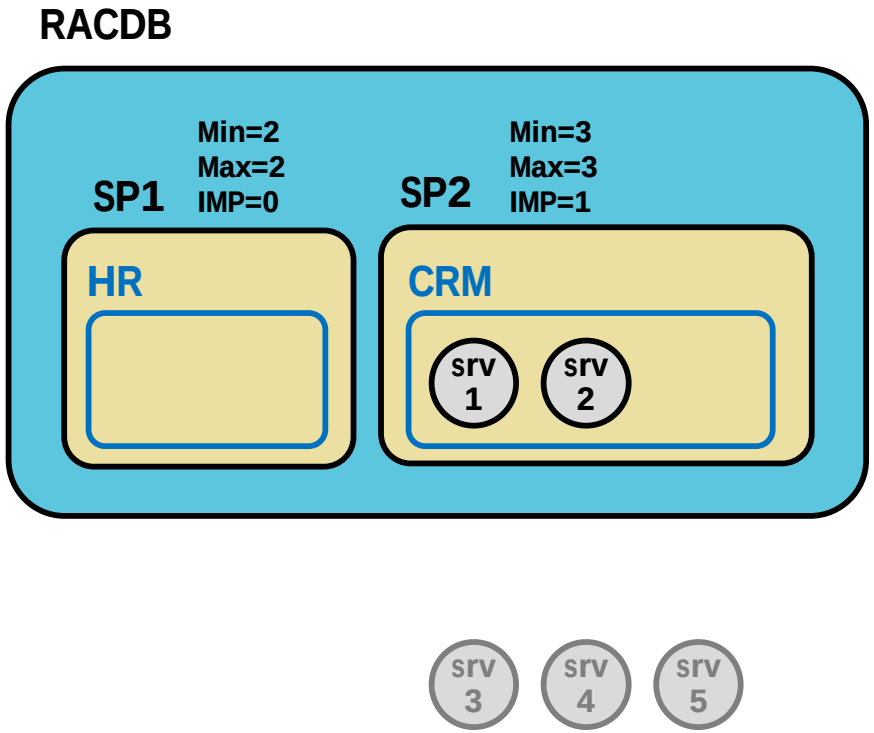

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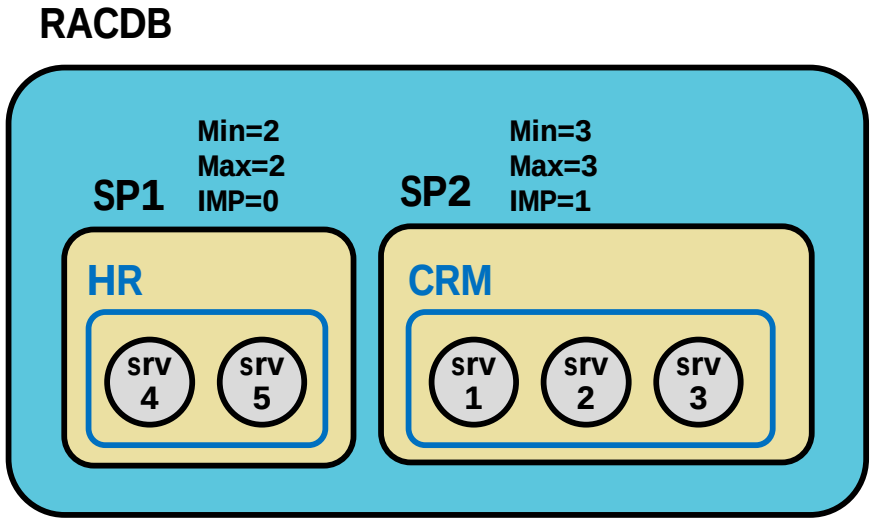
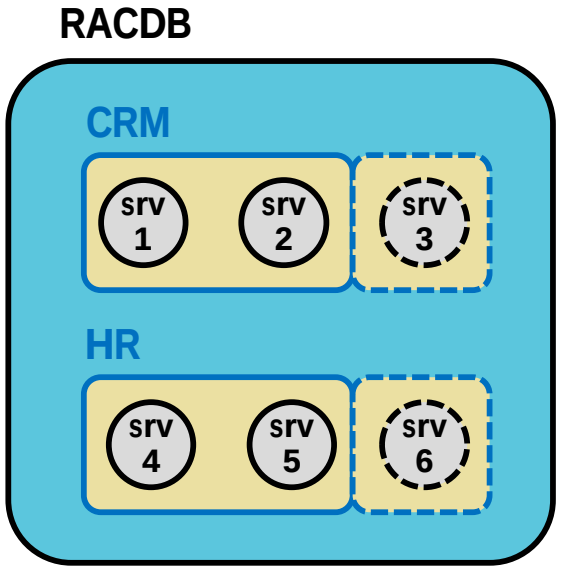


Policy-Management Benefits

- Ensuring database service start order

Administrator-managed RAC: Service Failover



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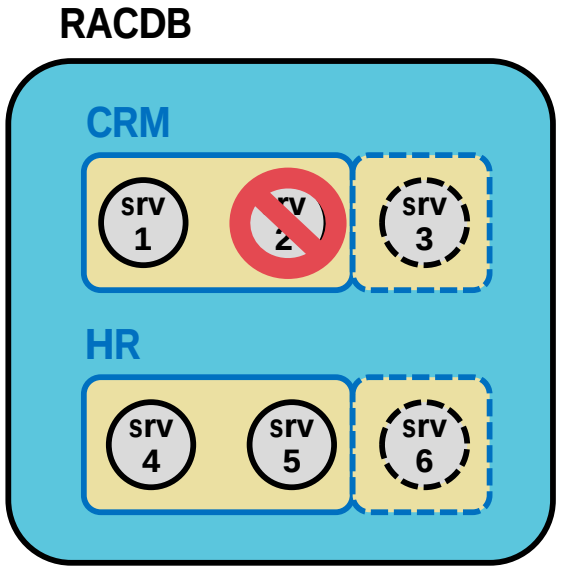

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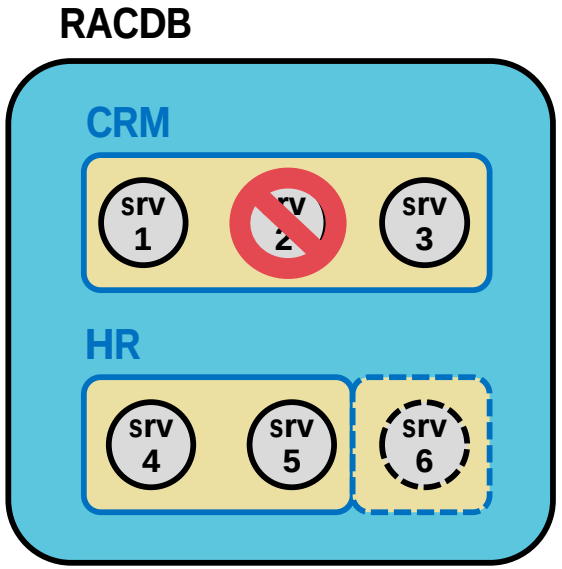

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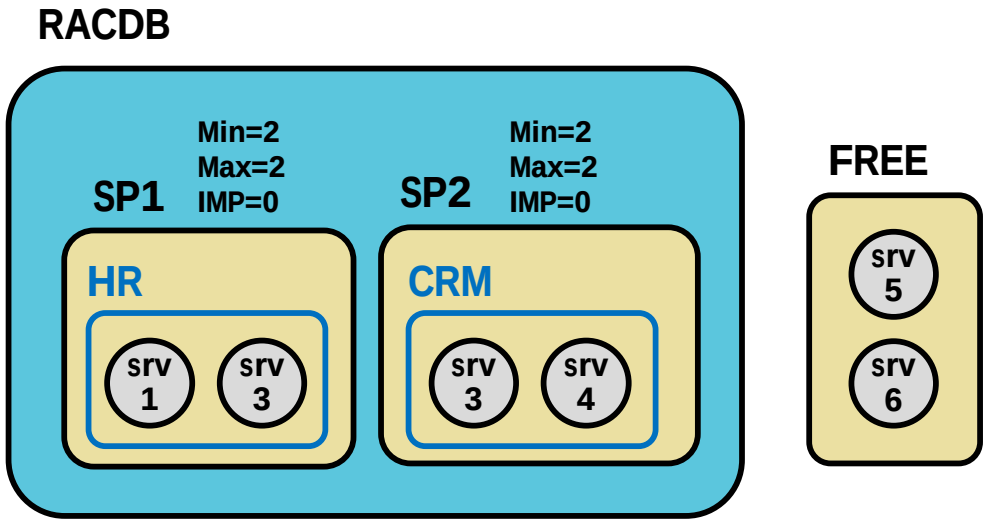

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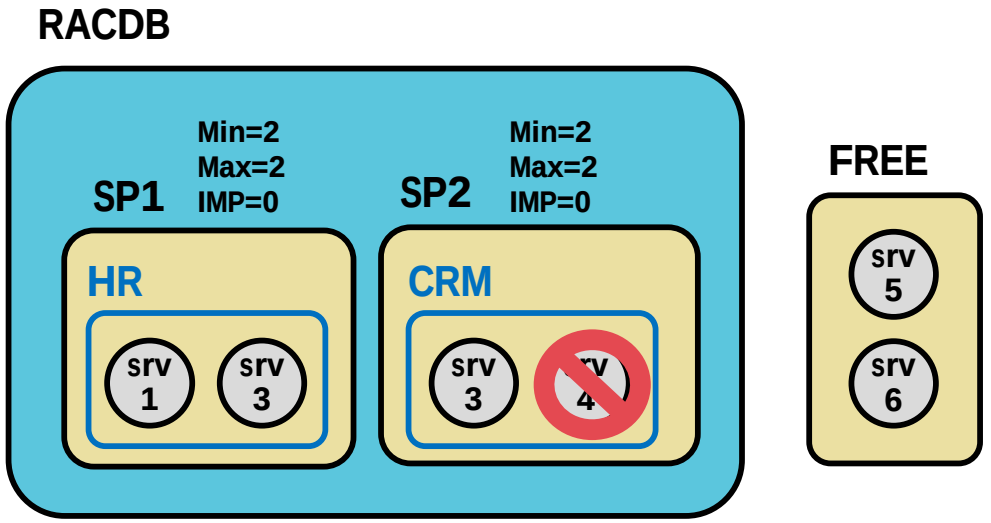

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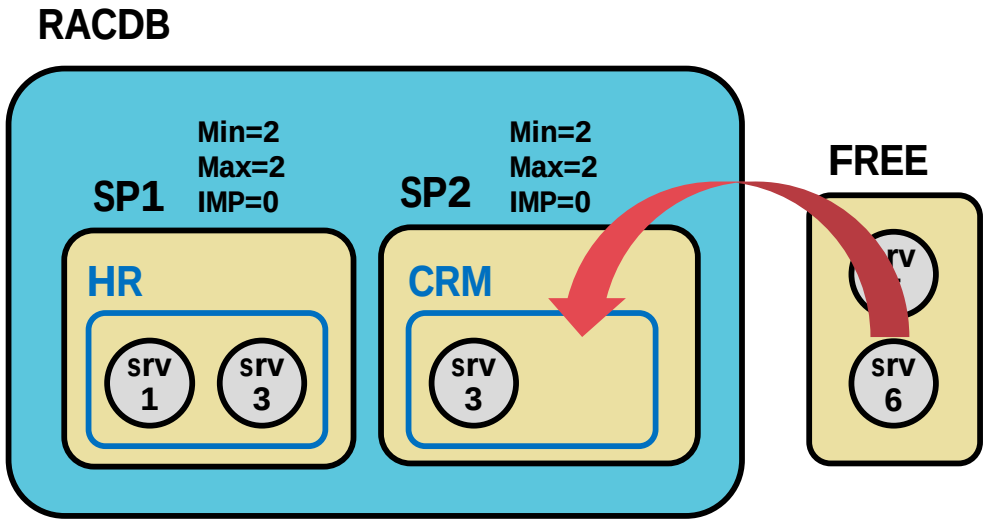

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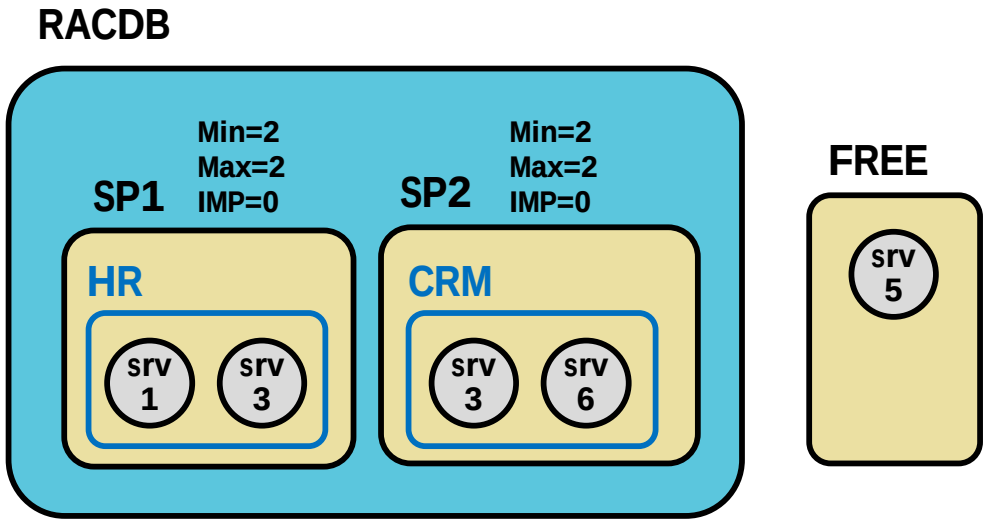
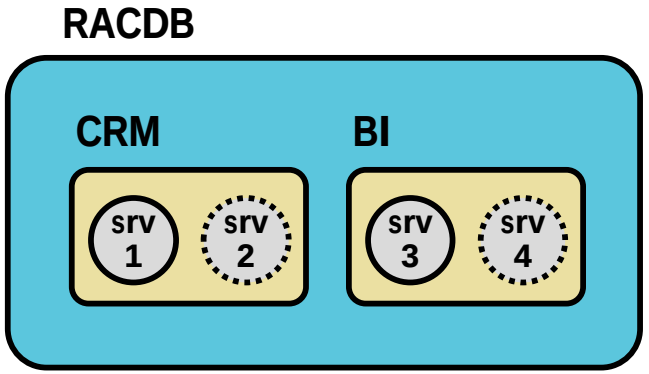


Policy-Management Benefits

- Ensuring database service start order
- Better service failover:
  - Automatically use any server in the FREE server pool for failover

Administrator-managed RAC: Multi-node outage on a critical service



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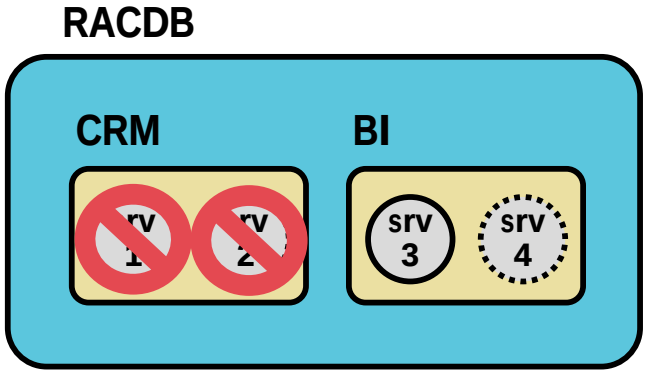
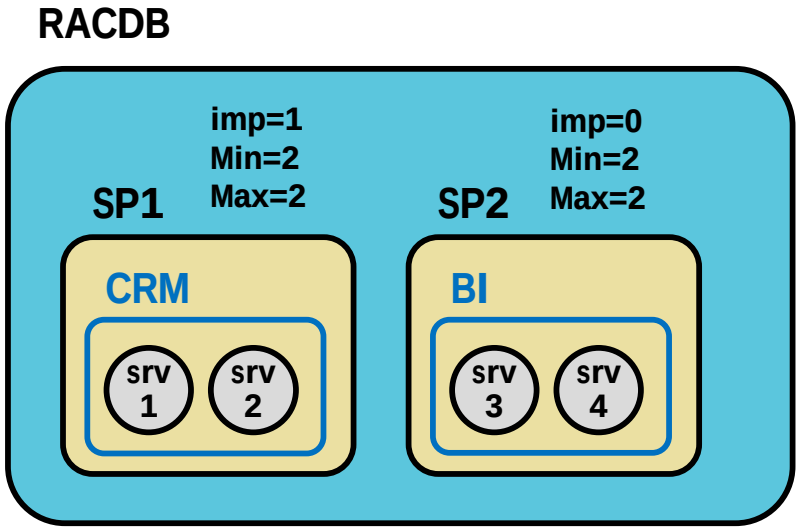


Policy-managed RAC: Node failover and placement



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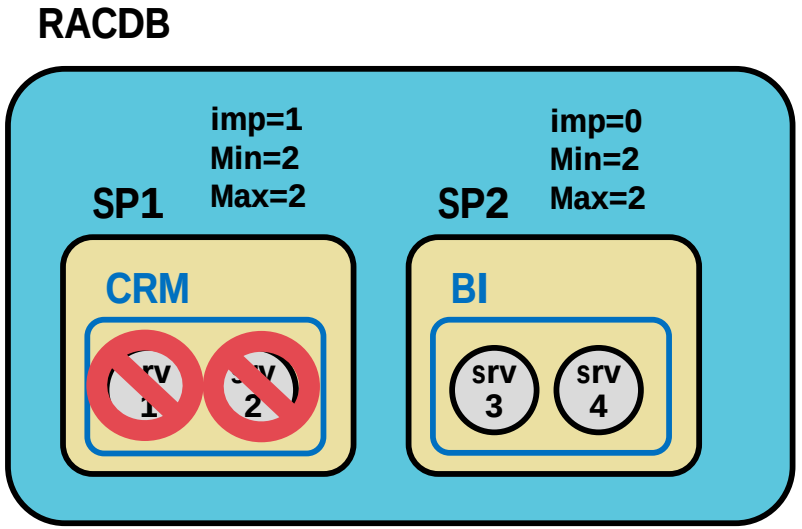

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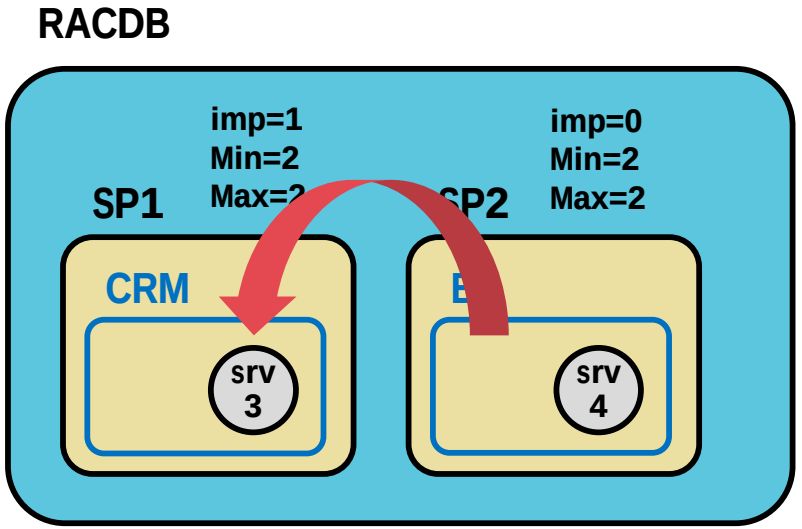


Policy-Management Benefits

- Ensuring database service start order
- Better service failover:
  - Automatically uses any server in the FREE server pool for failover
  - Provides priority to important services for failover

About Default Server Pools

- Free Server Pool
  - Contains servers that are not assigned to any other server pools
  - Only IMPORTANCE and ACL can be edited by the user
- Generic Server Pool
  - Stores administrator-managed database servers

Creating a Server Pool

- By the clusterware owner:

```
srvctl add srvpool –serverpool srvpl_pbd –min 0 –max 4
crsctl add serverpool sp1 -attr "MIN_SIZE=1, MAX_SIZE=1, IMPORTANCE=1"
```

- To list the available server pools and their status:

```
crsctl status serverpool [-p | -v | -f]
```

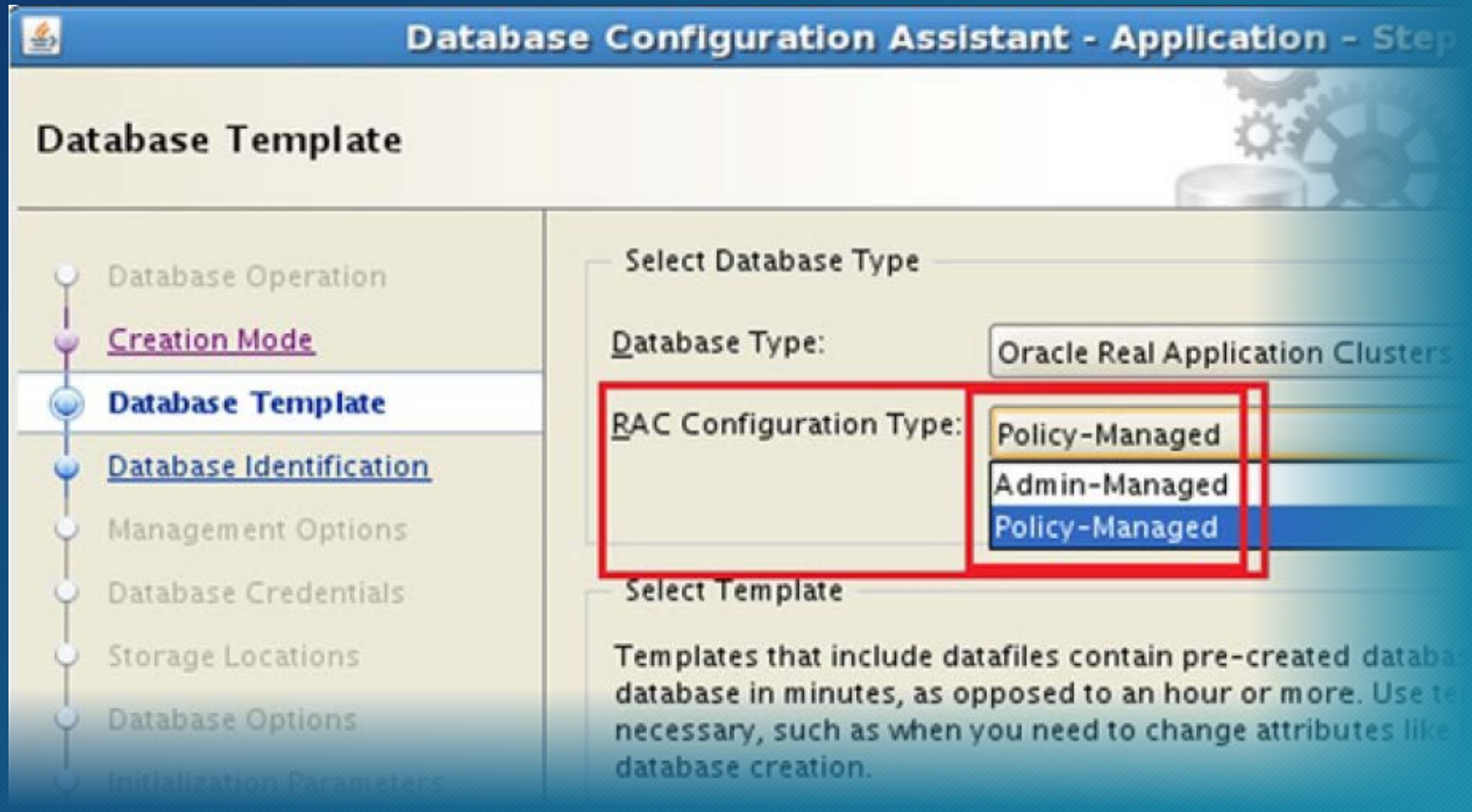
- To display configuration data of a specific server pool:

```
srvctl config serverpool -g Free
```

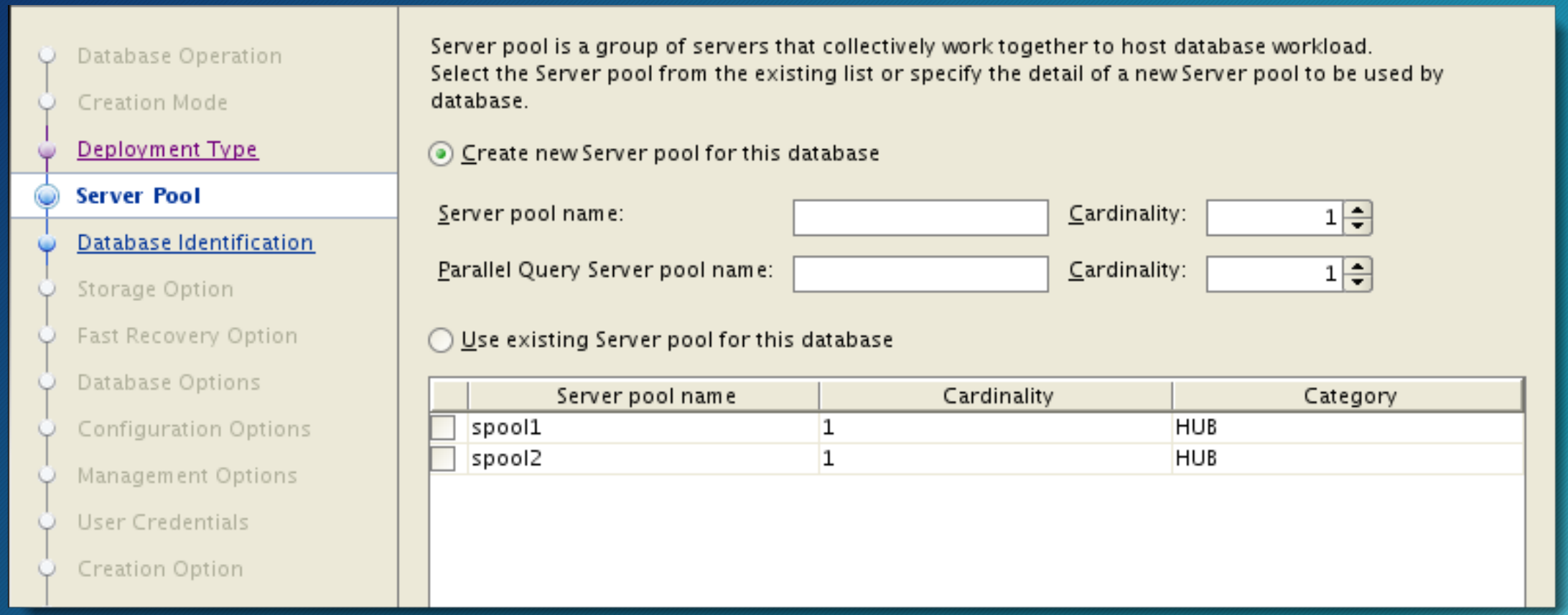
- To list available servers:

```
crsctl status server [-g | -p | -v | -f]
```

Creating a Policy-managed Database



Creating a Policy-managed Database (cont)



Converting an Administrator-managed RAC Database to Policy-managed Database

- To display the current deployment type:

```
srvctl config database -d rac
```

- To convert database to policy-managed database:

```
srvctl stop database -d rac
srvctl modify database -d rac -g sp1
srvctl modify database -d rac -serverpool sp1
```

- Instance new name format SID_*n*

Creating a Service for a Policy-Managed Database or PDB

- Cardinality option accepts: **SINGLETON** or **UNIFORM**
- A singleton service for a PDB:

```
srvctl add service -db rac -pdb pdb1 -service hrsrv -
serverpool spool1 -cardinality singleton
```

- A uniform service for a RAC database:

```
srvctl add service -db rac -service hrsrv -serverpool
spool1 -cardinality uniform
```

Summary

In this lecture, you should have learnt how to perform the following:

- Understand how the server pools are used in policy-managed RAC database
- Describe the benefits of Policy-managed RAC databases
- Create server pools for RAC databases
- Convert an Administrator-managed RAC Database to Policy-managed Database
- Create a Service for a Policy-Managed Database or PDB