Managing Applications and Application Containers

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Objectives

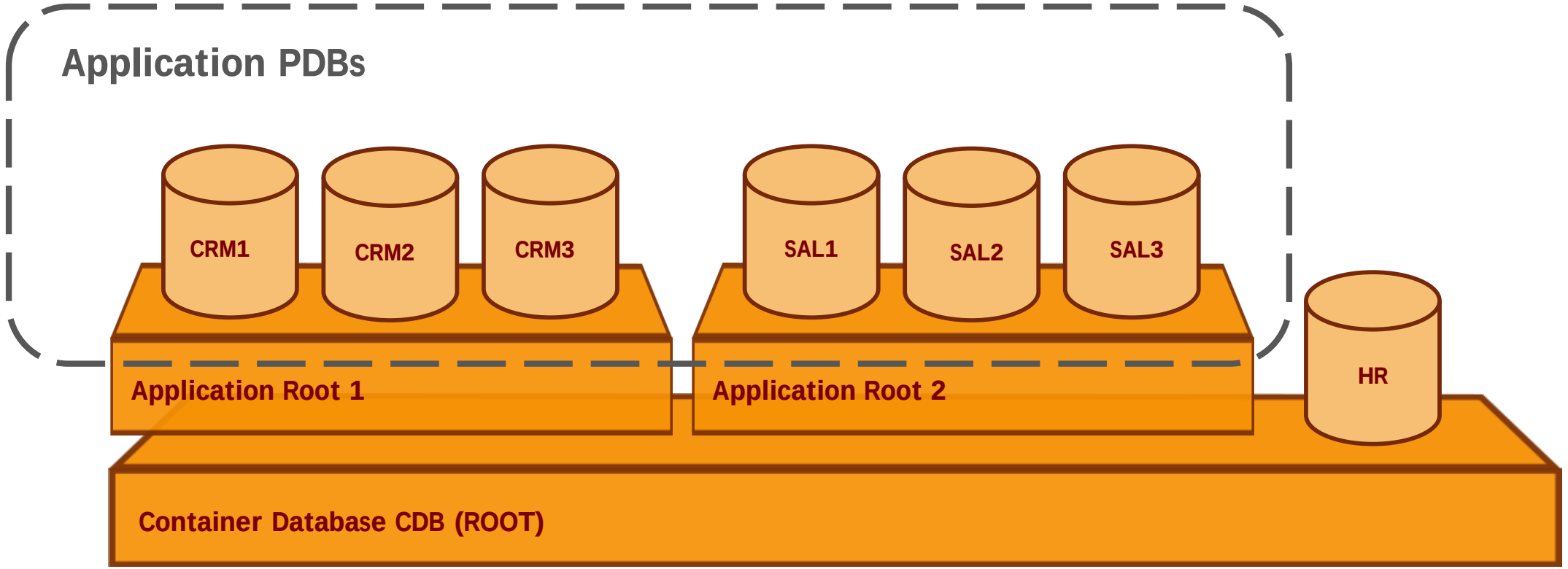
By the end of this lecture, you should be able to:

- Describe the Application containers
- Understand the benefits of using Application Containers
- Create Application containers
- Create Application seed

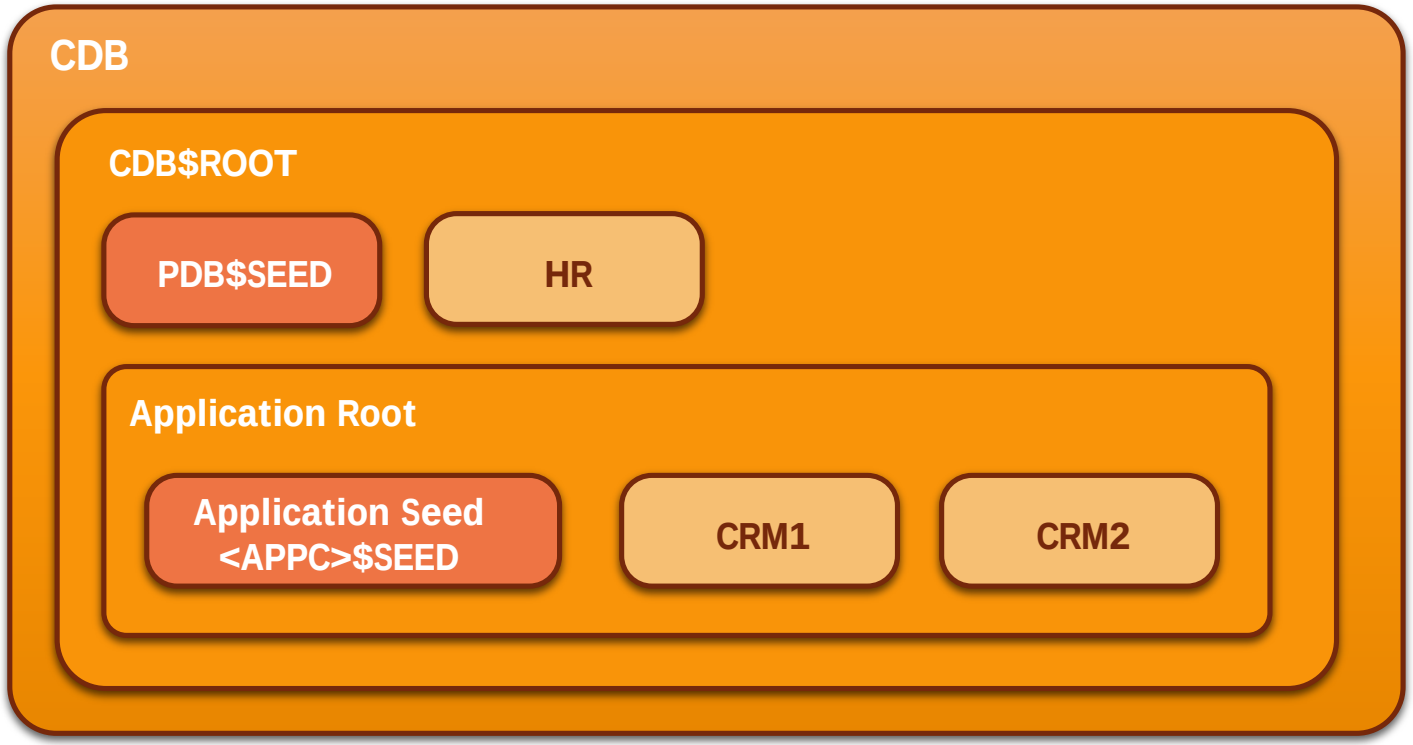
About Application Containers

- Useful in case of multiple PDBs that run the same application:
  - SaaS (Software as a Service) providers
  - Application operated by multiple branches
- Introduced in 12.2
- Terms affected from 12.1 to 12.2
  - Object Links -> Data Links
  - Common Data -> Extended Data

Application Containers



Application Seed



Application Container Concepts Summary

- Application Container is useful for streamlining the application maintenance tasks.
- Application container is a CDB component that stores data and metadata for one or more applications.
- The master application definition is maintained in the application root.
- Application components: common users, metadata-linked common objects, and data-linked common objects

About Creating an Application Container

- Possible techniques:
  - Using the CDB seed
  - Cloning an existing PDB or non-CDB
  - Relocating a PDB
  - Plugging in an unplugged PDB

Creating Application Container Examples

- Creating an Application Container using the CDB seed:

```
CREATE PLUGGABLE DATABASE hr_ac AS APPLICATION CONTAINER
 ADMIN USER hr_acadm IDENTIFIED BY mypassword;
```

- Creating an Application Container by cloning a local PDB:

```
CREATE PLUGGABLE DATABASE hr_ac AS APPLICATION CONTAINER
FROM pdb1
FILE_NAME_CONVERT = ('/u01/pdb1/', '/u01/hract/')
```

About Creating an Application Seed

- Typical procedure:
  - Create application root
  - Install the application in the application root
  - Create application seed:
    - From the CDB seed
    - Cloning a PDB
    - From application root
  - Synchronize the application seed with application root

Creating an Application Seed from CDB root Example

1. Connect to the application root
2. Create the application seed:

```
CREATE PLUGGABLE DATABASE AS SEED ADMIN USER hrseedadm
IDENTIFIED BY password;
```

3. Open the new application seed in read/write mode:

```
ALTER PLUGGABLE DATABASE hr_ac$SEED OPEN;
```

Creating an Application Seed from CDB root Example (cont)

4. Synchronize the application seed:

```
ALTER SESSION SET CONTAINER=hr_ac$SEED;
ALTER PLUGGABLE DATABASE APPLICATION ALL SYNC;
```

5. Close the application seed, and then open it in open read-only mode.

Creating an Application Seed From an Application PDB Example

```
CREATE PLUGGABLE DATABASE AS SEED FROM hrpdb;
ALTER PLUGGABLE DATABASE hr_ac$SEED OPEN;
ALTER PLUGGABLE DATABASE CLOSE IMMEDIATE;
ALTER PLUGGABLE DATABASE OPEN READ ONLY;
```

Creating an Application Seed from an Application Root Example

```
CREATE PLUGGABLE DATABASE AS SEED FROM hr_ac;
ALTER PLUGGABLE DATABASE hr_ac$SEED OPEN;
ALTER SESSION SET CONTAINER=hr_ac$SEED;
@$ORACLE_HOME/rdbms/admin/pdb_to_apppdb.sql
ALTER PLUGGABLE DATABASE CLOSE IMMEDIATE;
ALTER PLUGGABLE DATABASE OPEN READ ONLY;
```

About Creating an Application PDB

- The application root must be the current PDB
- You can create application PDBs using the same SQL statements that you use to create PDBs in the CDB root

1. Make the application root the current container
2. Run a CREATE PLUGGABLE DATABASE statement
3. Open the new application PDB in read/write mode
4. Switch current container to the application PDB
5. Synchronize the PDB with the application root
6. Close the PDB, and then open it

Obtaining Information about the Application Roots and Application PDBs

- Information about the application roots:

```
ALTER SESSION SET CONTAINER=CDB$ROOT ;
SELECT CON_ID, NAME, OPEN_MODE
FROM V$PDBS WHERE APPLICATION_ROOT='YES';
```

- Information about the application PDBs:

```
ALTER SESSION SET CONTAINER=CDB$ROOT ;
ALTER SESSION SET CONTAINER=hr_ac ;
SELECT CON_ID, NAME, OPEN_MODE
FROM V$PDBS WHERE APPLICATION_PDB='YES';
```

Summary

In this lecture, you should have learnt how to:

- Describe the Application containers
- Understand the benefits of using Application Containers
- Create Application containers
- Create Application seed