

# Suddenly Multitenant – What changes for the DBA?

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# Safe Harbor

"THE FOLLOWING IS INTENDED TO OUTLINE OUR GENERAL PRODUCT DIRECTION.

IT IS INTENDED FOR INFORMATION PURPOSES ONLY, AND MAY NOT BE  
INCORPORATED INTO ANY CONTRACT.

IT IS NOT A COMMITMENT TO DELIVER ANY MATERIAL, CODE, OR  
FUNCTIONALITY, AND SHOULD NOT BE RELIED UPON  
IN MAKING PURCHASING DECISIONS.

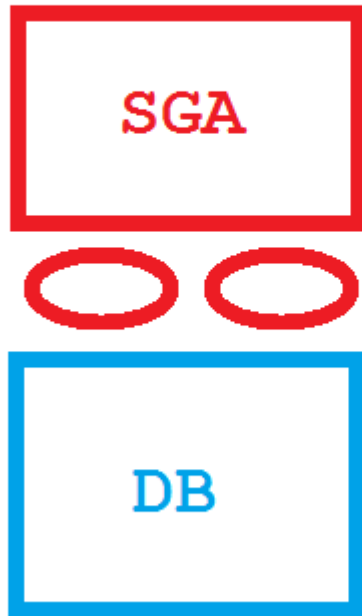
THE DEVELOPMENT, RELEASE, AND TIMING OF ANY FEATURES OR FUNCTIONALITY  
DESCRIBED FOR ORACLE'S PRODUCTS  
REMAINS AT THE SOLE DISCRETION OF ORACLE."

# It's all about Consolidation

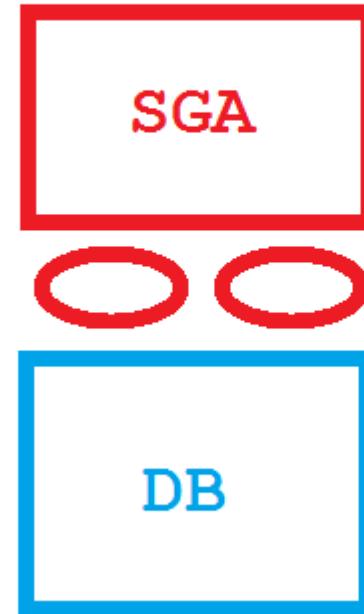
- Many Applications to host
- Only two as an example in the following

# One DB per Application

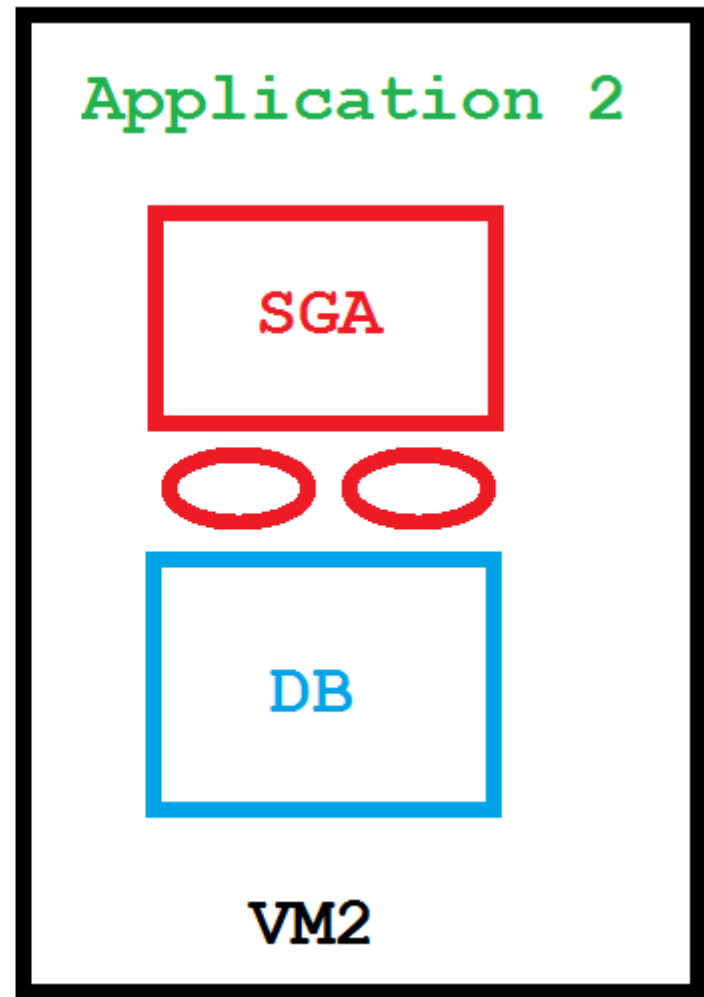
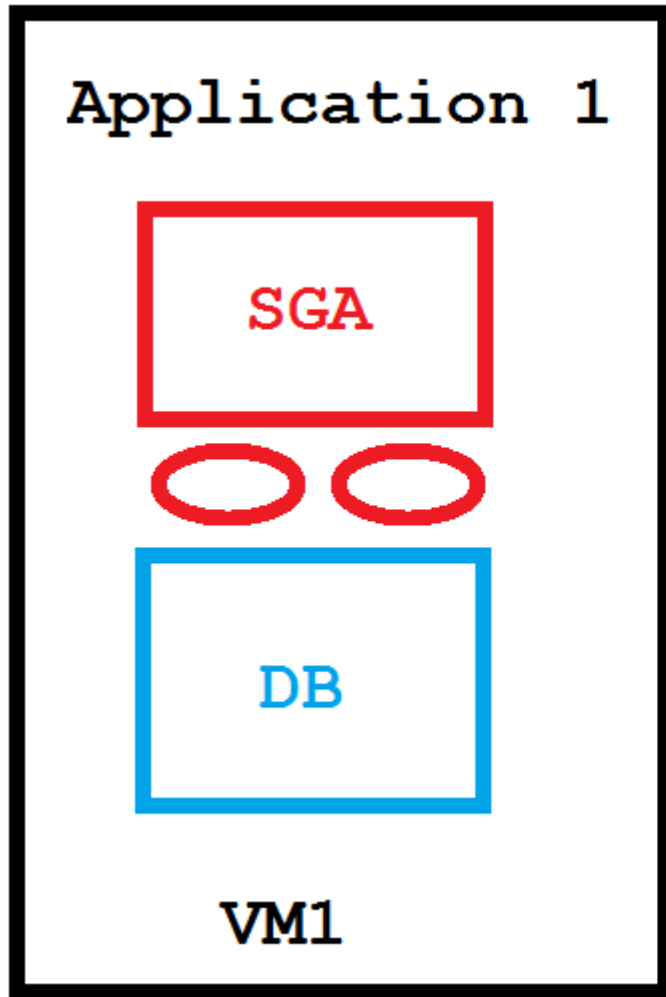
Application 1



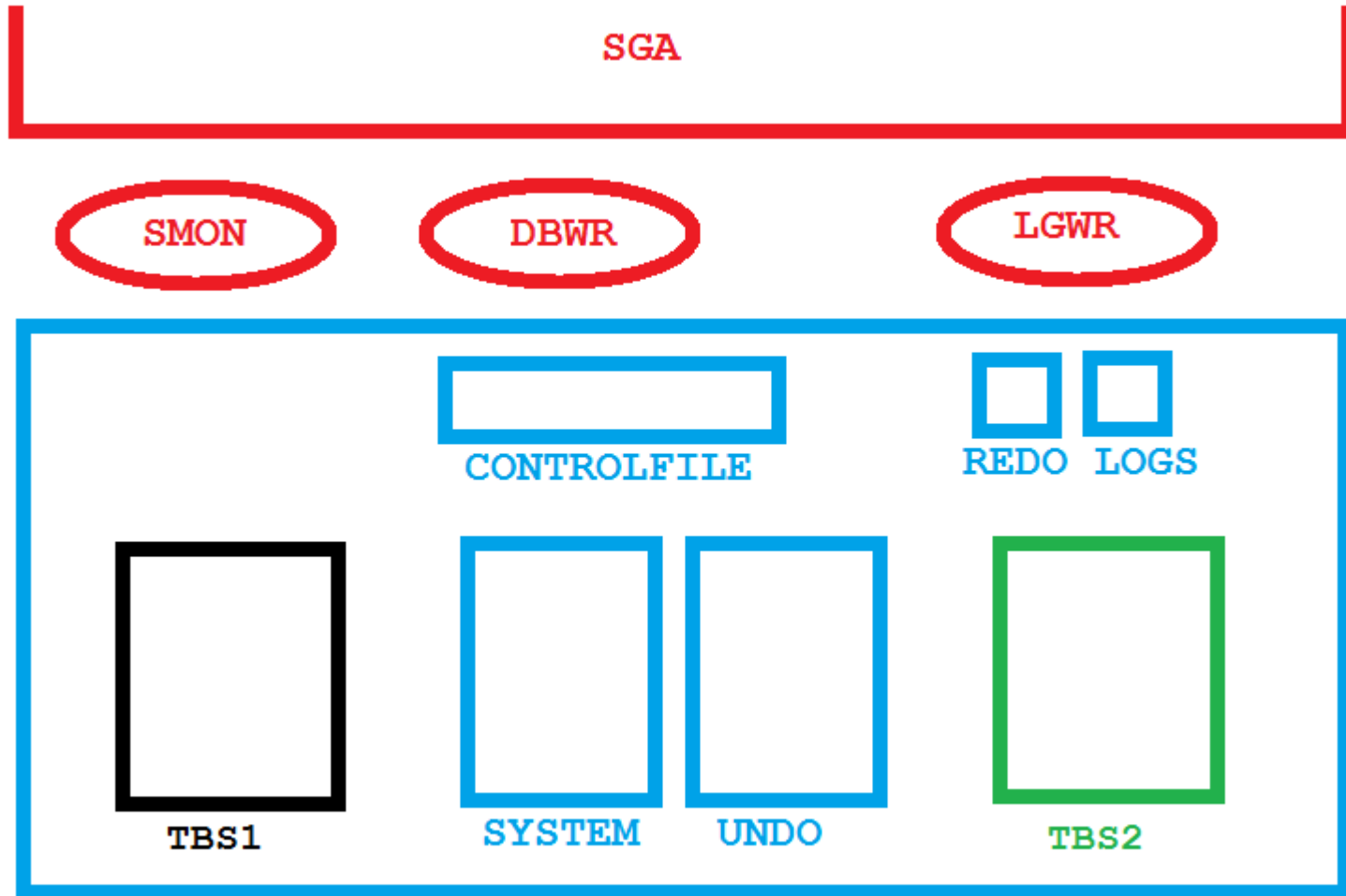
Application 2



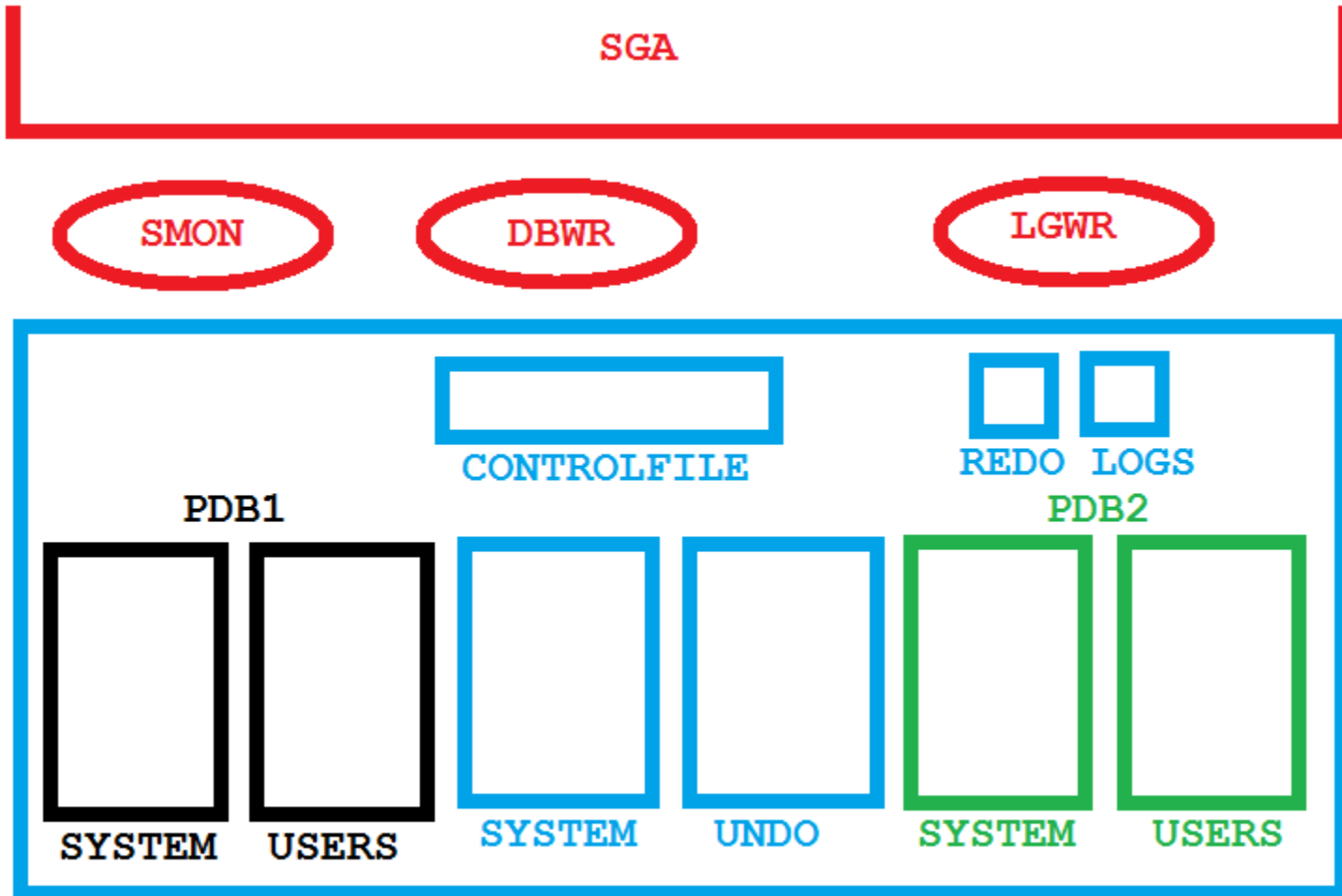
# Using Virtual Machines



# One Big Database!



# Better with Multitenant!



# How to create a CDB?

```
CREATE DATABASE cdb1
```

```
ENABLE PLUGGABLE DATABASE ...;
```

Initialization Parameter

```
ENABLE_PLUGGABLE_DATABASE=true
```



# Or DBCA

Database Configuration Assistant – Create Database – Step 4 of 14

**ORACLE** **12<sup>c</sup>**  
DATABASE

## Database Identification

- Database Operation
- Creation Mode
- Database Template
- Database Identification**
- Management Options
- Database Credentials
- Storage Locations
- Database Options
- Initialization Parameters
- Creation Options
- Prerequisite Checks
- Summary
- Progress Page
- Finish

Provide the identifier information required to access the database uniquely. An Oracle database is uniquely identified by a Global database name, typically of the form "name.domain". Additionally, a database is referenced by at least one Oracle instance which is uniquely identified from any other instance on this system by an Oracle system identifier (SID).

Global Database Name:

SID:

Create As Container Database

Creates a database container for consolidating multiple databases into a single database and enables database virtualization. A container database (CDB) can have zero or more pluggable databases (PDB).

Create an Empty Container Database

Create a Container Database with one or more PDBs

Number of PDBs:

PDB Name:

# How to create an empty PDB?

```
CREATE PLUGGABLE DATABASE pdb1 ...;
```

# How to clone an existing PDB?

```
CREATE PLUGGABLE DATABASE pdb2 FROM  
  pdb1 ... ;
```

# Unplug / Plug

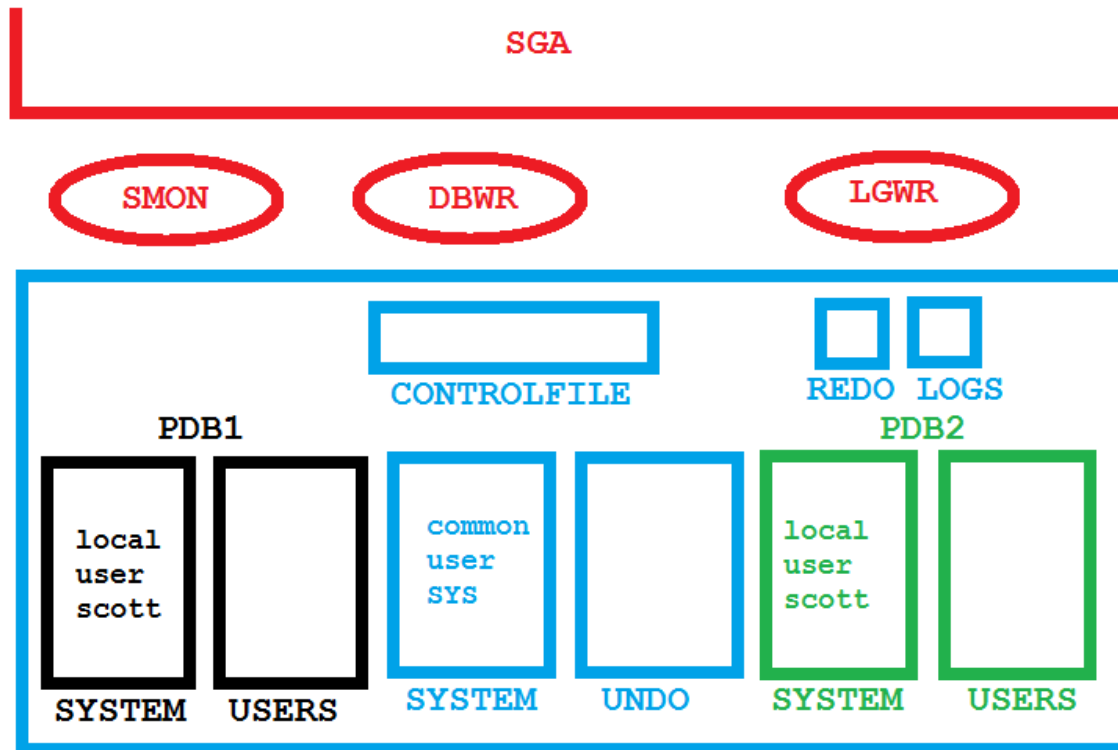
```
alter pluggable database pdb2 unplug into  
  '/home/oracle/pdb2.xml';
```

```
create pluggable database pdb2 using  
  '/home/oracle/pdb2.xml' nocopy;
```

# Connecting into a PDB

```
SQL > connect scott/tiger@pdb1
```

# Common vs Local



# Managing PDBs

- OPEN / CLOSE / SAVE STATE
- Initialization Parameter Handling

# Backup, Recovery & Flashback

- Backup all or just partial
- What impact does it have if ... ?
- How to restore and recover
- What about FLASHBACK DATABASE?



# Conclusion

- Not so very much changes for the DBA
- If you think that was complex – wait until you see 12cR2 Multitenant ...
- We love to entertain you 😊