Starting up and Shutting Down Database Instances

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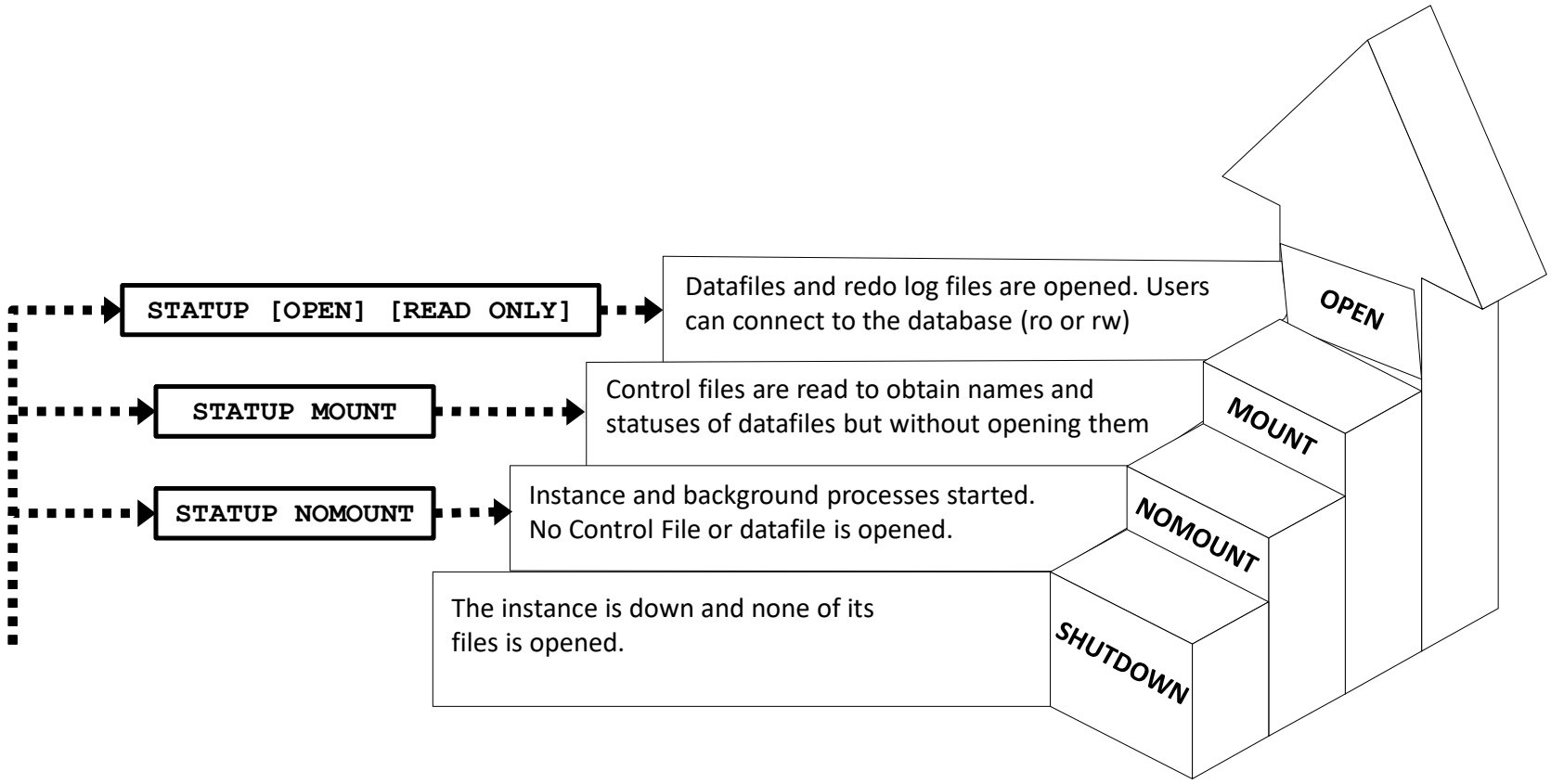
Objectives

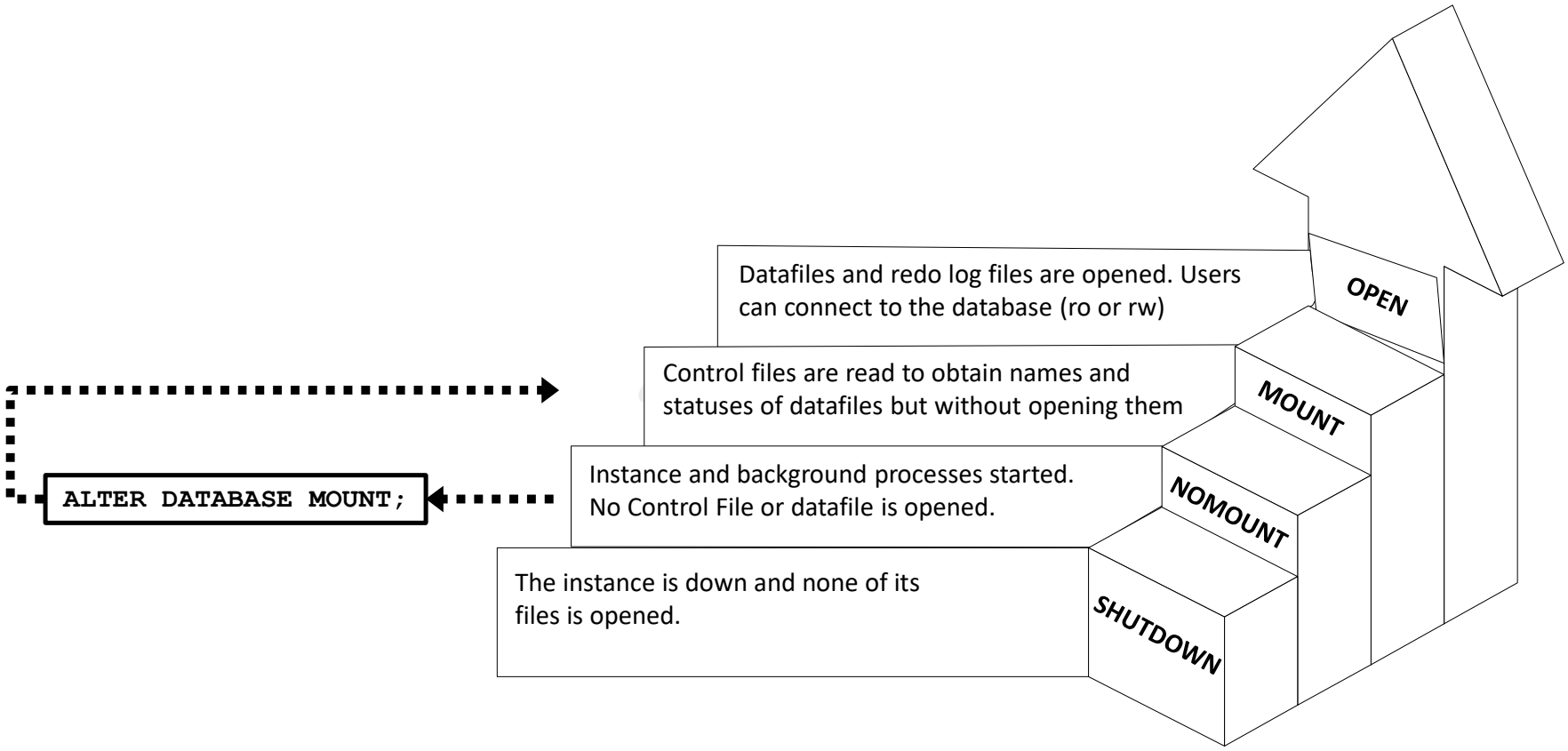
In this lecture, you will learn how to perform the following:

- Use Database Startup Options
- Use Database Shutdown Options
- Describe the best practices for shutting down a production system in work environment

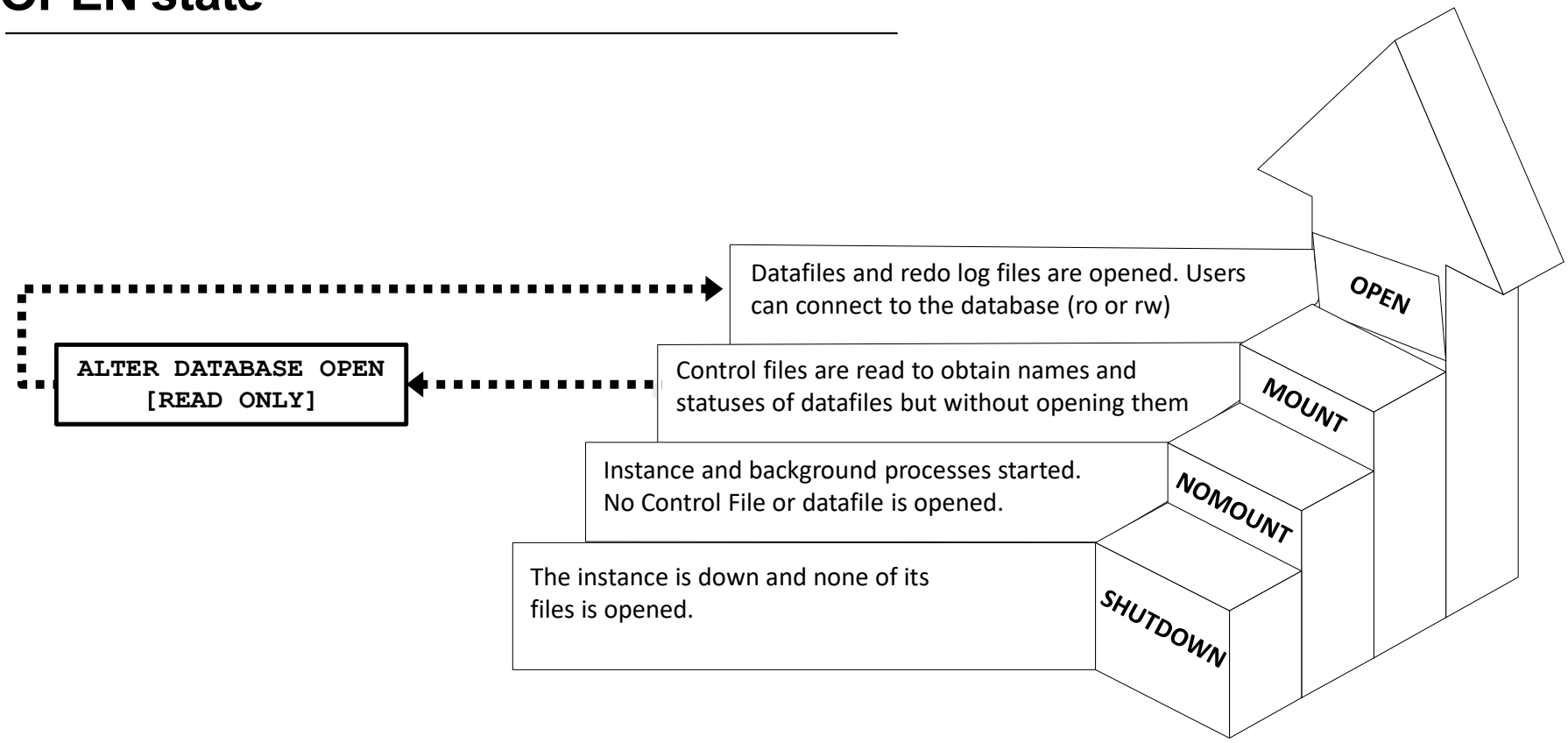
Oracle Database Instance Open Modes



Switching from NOMOUNT to MOUNT



Switching from NOMOUNT or MOUNT to OPEN state



Startup Common Scenarios

Open Mode	Common Scenarios
`NOMOUNT`	Re-creation of control files Certain backup and recovery scenarios
`MOUNT`	Enabling and disabling online redo log file archiving options Performing full database recovery
`OPEN READ ONLY`	Allow the users to perform read only operations
`OPEN`	Normal application user transactions

Note: Other options are available.

Restricting Access to an Instance at Startup

- To startup the database normally but without allowing general database users from logging to the database:

```
STARTUP RESTRICT
```

- Only DBAs can connect to the database
- The connection must be locally (remote connection is not allowed)
- Is used in troubleshooting situations
- To allow the normal users to connect:

```
ALTER SYSTEM DISABLE RESTRICTED SESSION;
```

Shutdown Modes

```
SHUTDOWN [<shutdown mode>]
```

Shutdown modes:

- N = **NORMAL**
- T = **TRANSACTIONAL**
- I = **IMMEDIATE**
- A = **ABORT (inconsistent or unclean state)**

Shutdown Mode	N	T	I	A
Allows new connections	No	No	No	No
Waits until current sessions end	Yes	No	No	No
Waits until current transactions end	Yes	Yes	No	No
Forces a checkpoint and closes files	Yes	Yes	Yes	No

About SHUTDOWN Options

- **`NORMAL`**, **`TRANSACTIONAL`**, **`IMMEDIATE`** are clean methods for shutting down the database
  - The database files are consistent after the shutdown
  - They are different in the waiting mechanism
- **`ABORT`** option is an abnormal or unclean shutdown
  - The database files are inconsistent after the shutdown
  - The database must perform instance recovery after the next startup
  - Should be used only when needed

Further Notes About Starting Up and Shutting Down Database Instance

- The state of a database instance can be changed with SQL*Plus by connecting as **SYSOPER**, **SYSDBA**, **SYSBACKUP**, or **SYSDG**.
- When the database instance is registered in Clusterware (Grid Infrastructure), we should use the **srvctl** utility to startup and shutdown the database instance is different. However, **STARTUP** and **SHUTDOWN** commands still work.
- A way to restart the database in one command:

```
STARTUP FORCE
```

  - This is equivalent to: **SHUTDOWN ABORT** + **STARTUP**
  - Should be used only when the clean shutdown is not possible.

Shutting Down Databases: Best Practices

- Any system should eventually shutdown (planned or unplanned)
- Adhere to any documented approved procedure implemented in the work environment
- If you need to shutdown a database for a scheduled maintenance, all users (may include third-party) should be notified in advance
- If a user or more are still connected, consult the manager

Summary

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

- Use Database Startup Options
- Use Database Shutdown Options
- Describe the best practices for shutting down a production system in work environment