

IEEE Day 2013

Best 10 New Features of Oracle Database 12c

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- ❑ **AZEROUG** (Azerbaijan Oracle User Group)
- ❑ **TROUG** (Turkish Oracle User Group)
- ❑ OCE, RAC 11g and Grid infrastructure
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Agenda

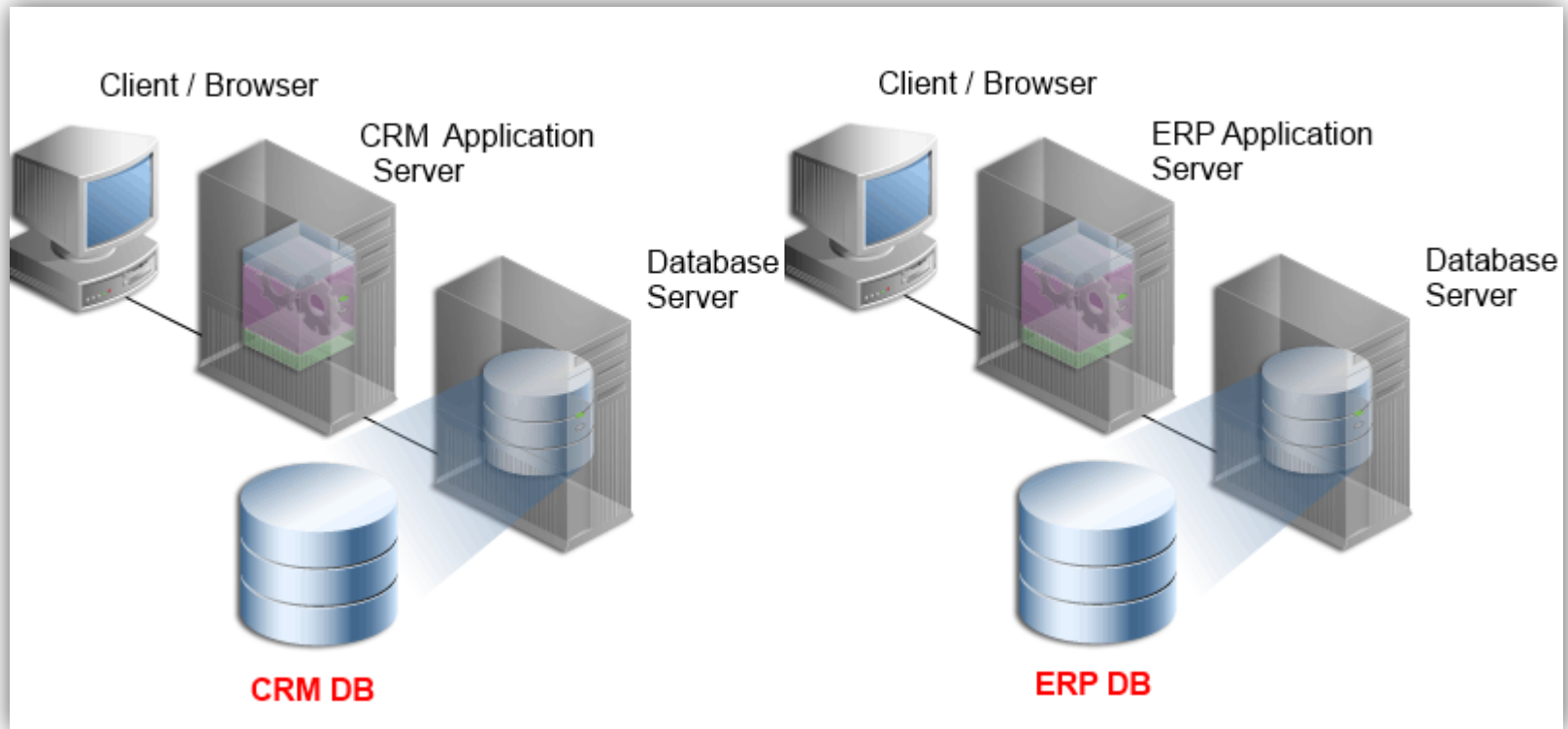
- Oracle Database 12c Architecture
 - Multitenant Architecture, Pluggable Databases (PDBs)
- Oracle Database Recovery Manager (RMAN) and DATA PUMP.
 - Table Recovery, Cross-Platform Transport with RMAN...
 - NOLOGGING on duration of import with IMPDP
- Oracle Data Guard 12c
 - FAST SYNC, FAR SYNC ...
- Oracle Real Application Clusters 12c and Grid Infrastructure
 - Flex Cluster and Flex ASM ...
- Performance Tuning
 - Adaptive Plans and Adaptive Statistics ...
- Your questions



Oracle Database 12c Architecture

How to use, Oracle Database Pre-12c?

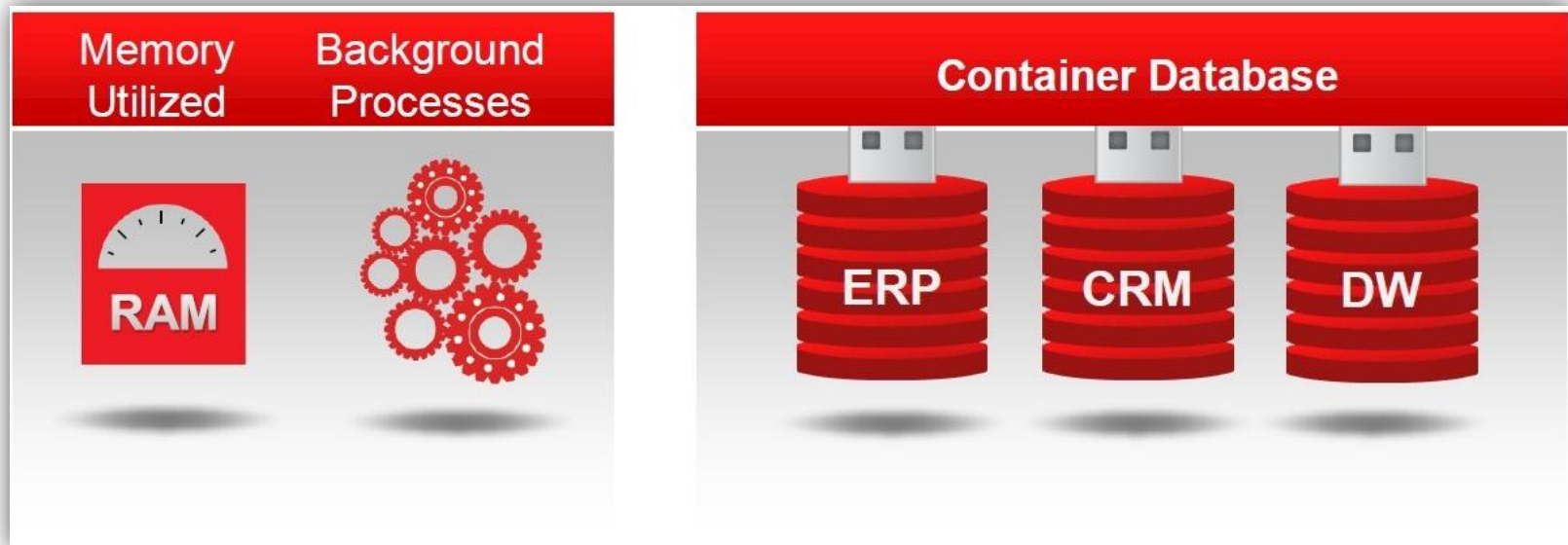
- Every database server contain only one database
- Each database need management



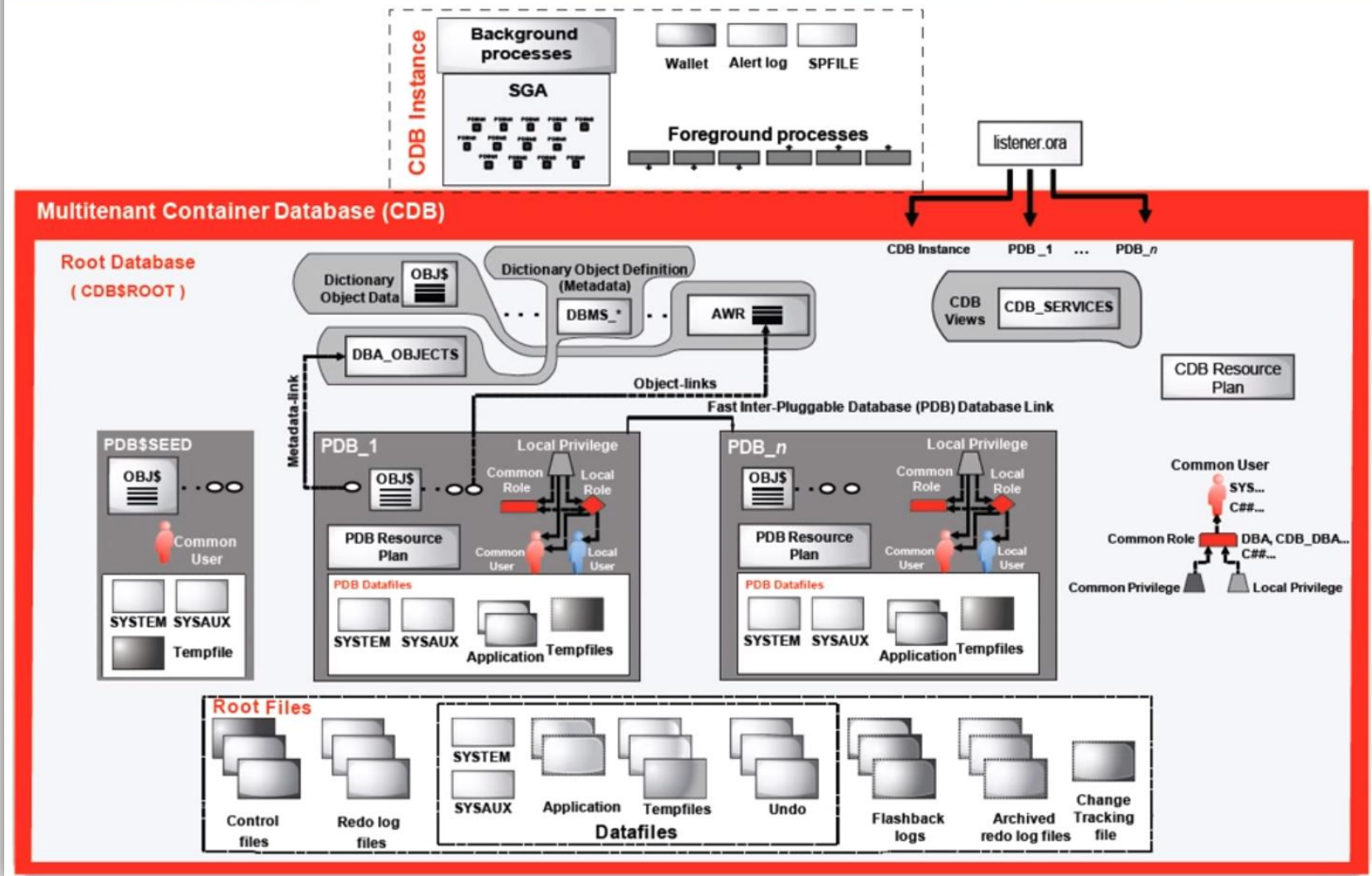
Courtesy by Oracle Documentation Library

Oracle Database 12c, Pluggable Databases

- Multi Pluggable Database on one server
- Management all databases as one
- Backup many database as one
- Move Database rapidly



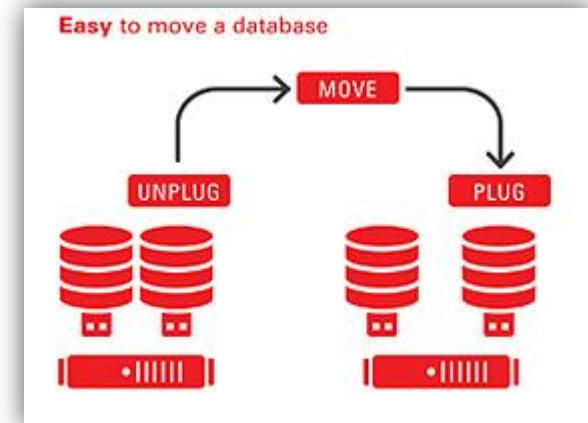
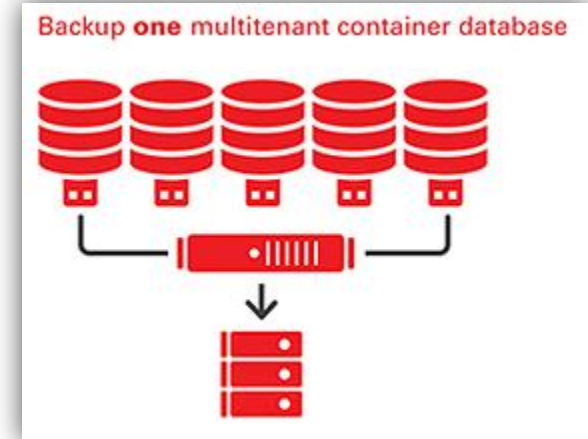
Courtesy by OOW, Presenter Larry Ellison



Courtesy by Oracle Learning Library

Benefits of Multitenant

- Manage Many Databases As One
 - Patch and upgrade one multitenant container database
- Increase server utilization
 - High density database consolidation per server
- Backup many database as one
 - Backup one multitenant container database
- Provision Databases Rapidly
 - Single step to clone database instantly
- Move Database rapidly
 - Easy to move database (UnPlug&Plug)
- Dynamic resource management between pluggable databases.



Courtesy by Oracle.com



Recovery Manager and Data Pump

Recovery Manager and Data Pump

ORACLE **12^c**
DATABASE

- Recovery Manager 12c
 - Pluggable Database-level Recovery
 - **RECOVER PLUGGABLE DATABASE**
 - Retrieve point-in-time version of table(s) with
 - **RECOVER TABLE**
 - Cross-Platform Backup and Recovery
 - **BACKUP TO PLATFORM ...**
RESTORE FROM PLATFORM ...
- Data Pump 12c
 - **NOLOGGING** on duration of import with IMPDP

```
>IMPDP ... TRANSFORM=DISABLE_ARCHIVE_LOGGING:Y ...
```



Oracle Data Guard 12c

FAST SYNC

- SYNC NOAFFIRM with Maximum Availability Mode
 - Fast Sync provides an easy way of improving performance in synchronous zero data loss configurations also allows a standby to acknowledge the primary database as soon as it receives redo in memory, without waiting for disk I/O to a standby redo log file.

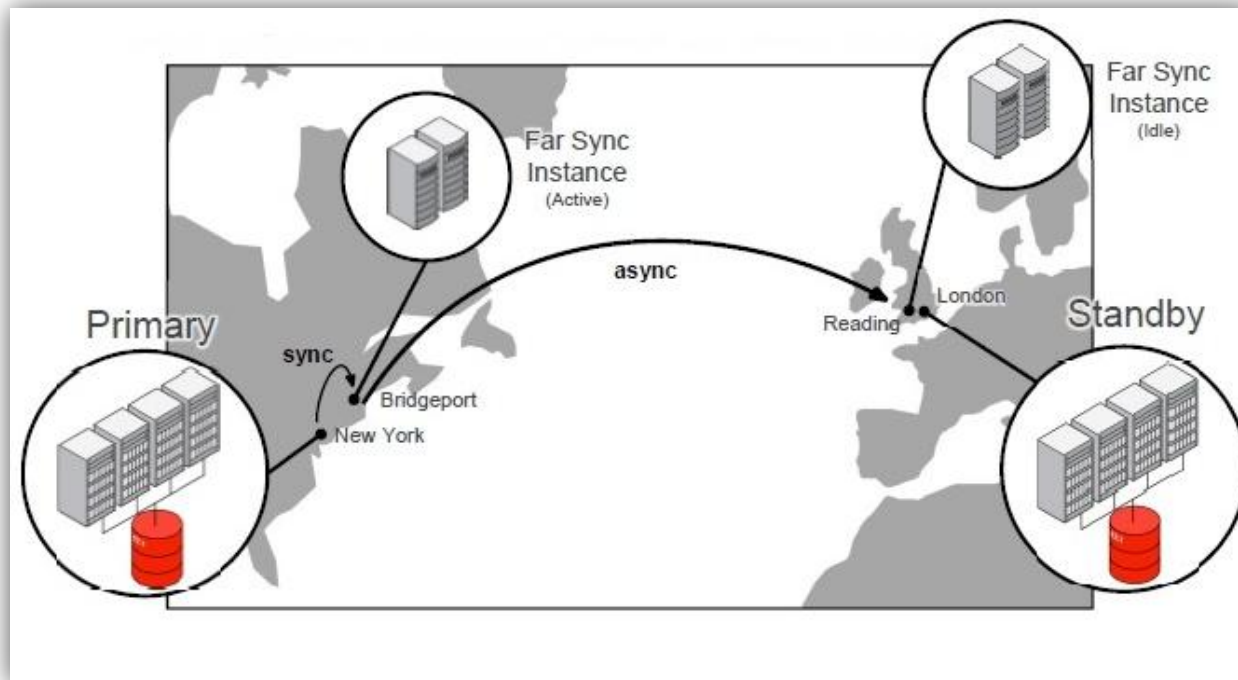
Required Redo Transport Attributes for Data Protection Modes ()*

Maximum Availability	Maximum Protection	Maximum Performance
AFFIRM or NOAFFIRM	AFFIRM	NOAFFIRM
SYNC	SYNC	ASYNCR
DB_UNIQUE_NAME	DB_UNIQUE_NAME	DB_UNIQUE_NAME

Courtesy by Oracle Documentation Library

FAR SYNC

- Far Sync instance is like a little cascading destination standby database.
- Far Sync instance is not have any data files
- A Far Sync instance manages a control file, receives redo into standby redo logs (SRLs)



Courtesy by OOW Presentation



Oracle Real Application Clusters and Grid Infrastructure

Flex Cluster

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DATABASE

■ 12c Cluster

– Traditional and Flex Cluster

▪ Hub nodes and Leaf nodes

- Multiple Leaf nodes can use single Hub node
- Hub nodes have direct access to OCR/Voting disks

– Flex ASM required for Flex Cluster

```
$ ./crsctl get cluster mode status
```



Oracle Grid Infrastructure - Setting up Grid Infrastructure - Step 6 of 17

Cluster Node Information

Provide the list of nodes to be managed by Oracle Grid Infrastructure with their Public Hostname and Virtual Hostname.

Public Hostname	Role	Virtual Hostname
rac12c1	HUB	AUTO
rac12c2	LEAF	
rac12c3	HUB	AUTO
rac12c4	LEAF	

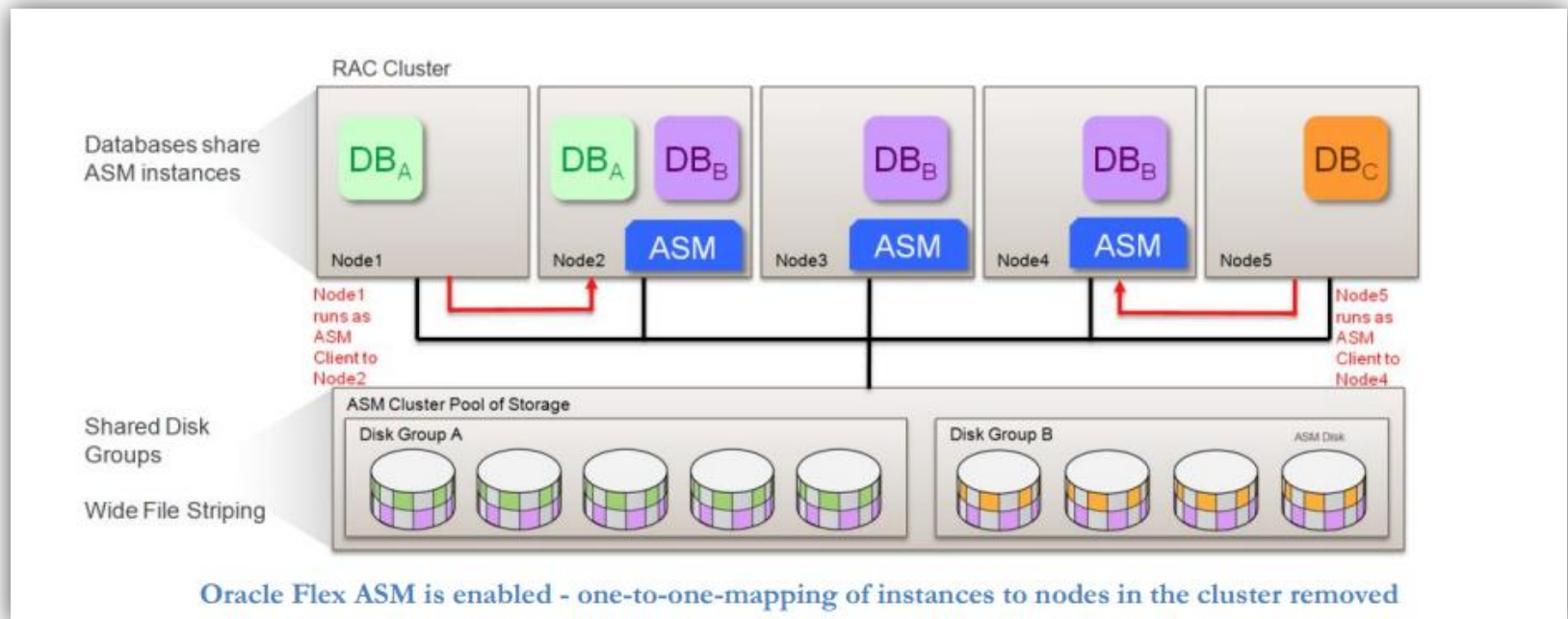
SSH connectivity... Use Cluster Configuration File... Add... Edit... Remove

< Back Next > Install Cancel

Flex ASM

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- Oracle Clusterware automatically starts surviving ASM Instance on different node, when ASM Instance Failed on a Node
- Load balancing capabilities for the instances running on the nodes



Courtesy by Oracle Technical Articles

Additional new features

- Tuning ASM rebalance operations
 - **EXPLAIN WORK FOR** operation and V\$ASM_ESTIMATE view
- ASM Disk Scrubbing

```
SQL> ALTER DISGROUP DATA SCRUB POWER LOW:HIGH:AUTO:MAX;
```

- V\$ACTIVE_SESSION_HISTORY view for ASM instance
- Increased ASM Storage limits
 - Support **511** ASM Disk group, ASM disk can be **32PB**
- OCR can be backed-up in ASM Disk group

```
$ ./ocrconfig -backuploc +DATA;
```

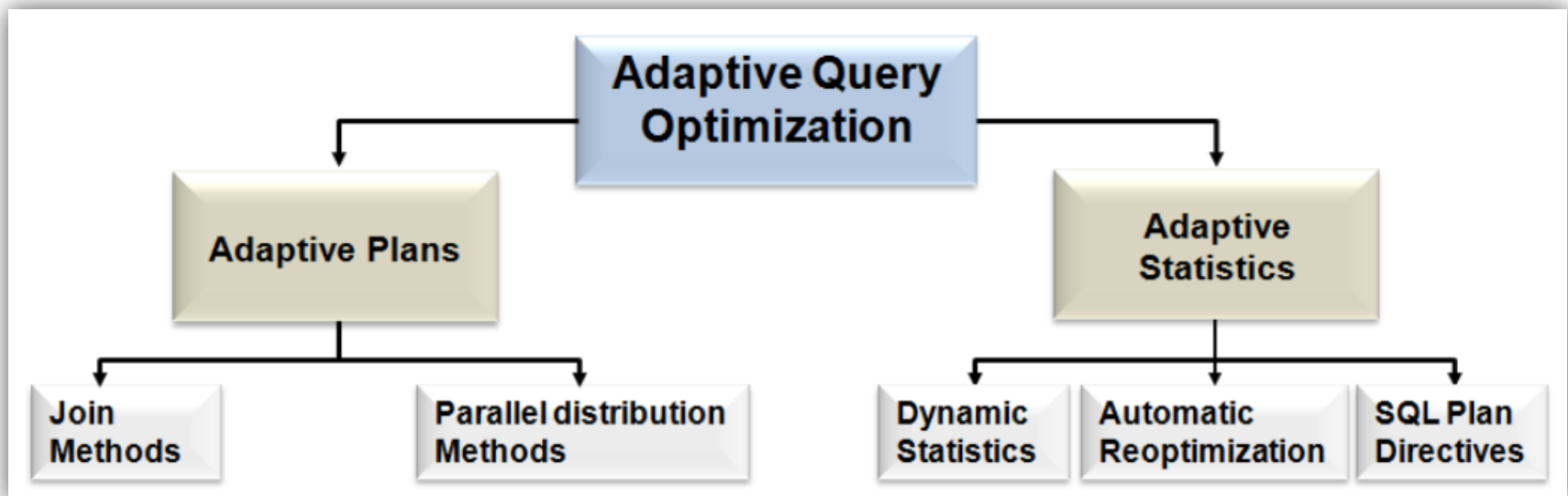


Performance Tuning

Adaptive Query Optimization

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- Adaptive Cursor Sharing – 11g new feature
- Adaptive Query Optimization – 12c new feature
 - Adaptive Plans
 - Adaptive Statistics



Courtesy by Oracle Technical Articles

Your questions



MANY THANKS TO IEEE AZERBAIJAN CHAPTER

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