# ■ Learn Oracle RAC 19c Architecture – Simplified Breakdown

## ■■ 1. What is Oracle RAC?

• RAC = Real Application Clusters
• It lets **multiple servers (nodes)** run the **same Oracle database**, working together.
• Purpose: **High Availability (HA)** + **Scalability**
• If one node fails, others keep running the database → **No downtime**

## ■ 2. How Do the Nodes Work Together?

• Each node runs a **separate Oracle instance**, but all access **one shared database**.
• Uses **Cache Fusion** to share data in memory between nodes using the interconnect network.

## ■ 3. Storage – Where the Data Lives

• Uses **shared storage** (typically **ASM**)
• All nodes must see the same disk groups
• Key files: Datafiles, Control files, Redo logs, Server parameter files

## ■ 4. Network Setup

Each node must have:
1. Public Interface
2. Private Interface (interconnect)
3. VIP (Virtual IP)
4. SCAN IP (Single Client Access Name)

## ■ 5. Oracle Clusterware & Grid Infrastructure

• **Clusterware**: Core software managing cluster
• **Grid Infrastructure** = Clusterware + ASM
• Manages resources, restarts failed services

## ■ 6. Services & Load Balancing

• Uses **Database Services** for grouping workloads
• Two types: Connection Load Balancing and Runtime Load Balancing (RLB)

## ■ 7. High Availability (HA) in RAC

• Node/instance failure auto-recovery
• Fast Connection Failover (FCF) re-routes sessions
• RAC + Data Guard = HA + DR

## ■■ 8. Setup Tools You'll Use

• OUI, DBCA, srvctl, crsctl, asmcmd, cluvfy

## ■ 9. Monitoring & Management

• Use Oracle Enterprise Manager (OEM)
• CLI tools: srvctl, crsctl, asmcmd

## ■ 10. Key Features in 19c RAC

• Simplified patching with opatchauto
• Better Data Guard integration
• Enhanced Cluster Resource Groups

■ ***Tip:*** *RAC = HA & scalability, Data Guard = DR*

# ■ Interactive Quiz – Test Your Oracle RAC 19c Knowledge

1. What does Oracle RAC stand for and what is its main benefit?

A. Real Automatic Cluster – Speed
B. Real Application Clusters – High Availability & Scalability
C. Remote Access Control – Security

2. What is Cache Fusion used for?

A. Saving storage
B. Distributing CPU
C. Sharing memory blocks across nodes

3. Which storage method is most common in RAC for shared access?

A. NFS
B. ASM
C. Local SSDs

4. What does SCAN stand for and why is it useful?

A. Single Client Access Name – simplifies connections
B. Secure Cluster Address Node – for security

5. What tool is used to manage the Oracle Clusterware?

A. srvctl
B. dbca
C. crsctl

■ **Answer Key:** 1-B, 2-C, 3-B, 4-A, 5-C