

Oracle 19c Standard Edition

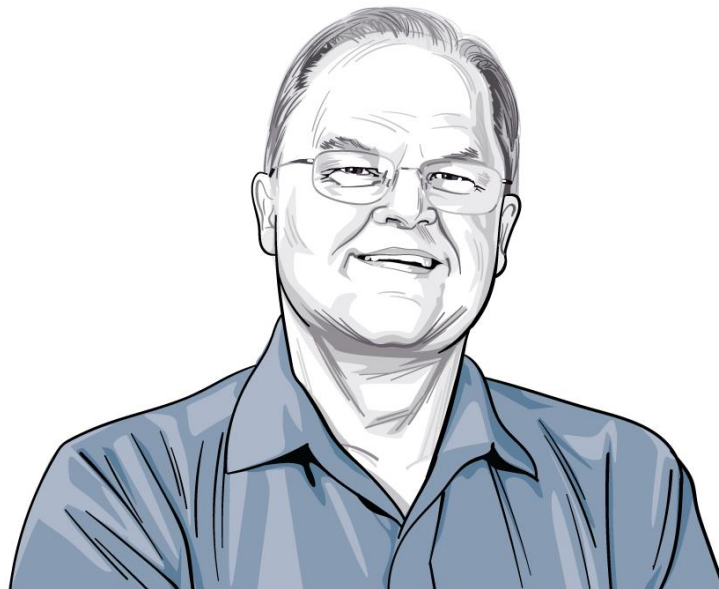
Goodbye RAC

Agenda

- Got RAC?
- Why RAC?
- HA and DR – Differences and similarities
- No RAC - What are my options?
- Wrap Up

Who am I

- Quest Solutions Architect
- Oracle DBA/DBA Manager
- Oracle since Version 6
- Oracle Large Database Customer Group
- Oracle Version 7 Alpha test program
- Oak Table member



Got RAC?

- **Not in 19c Standard Edition**
- **Oracle MOS Doc ID 2504078.1 (January 2020)**

Starting with Oracle Database 19c, Oracle RAC is no longer supported with the Oracle Standard Edition (SE), customers attempting to upgrade to Oracle Database 19c will have to choose between one of the following upgrade paths, unless a migration into the Oracle Cloud can be considered.

Upgrade from Standard Edition to Enterprise Edition.

Convert the Oracle RAC Database to a Single Instance database

- **Is that it?**
 - Not really
 - You have options
 - But first.....

Why RAC?

- **Different talk**
- **Major uses**
 - Workload Isolation
 - Extreme Scaling
 - Not with Standard Edition
 - RAC is not HA

Why RAC – Workload Isolation

- **Scalability**
- **Like a second instance**
 - If done correctly
 - Block pings if not
- **Single point of failure**
- **Probably the best case for Enterprise Edition or Cloud**

HA and DR – Differences and Similarities

- **What's the difference?**

- HA – High Availability – “Characteristic of a *system* which aims to ensure an agreed upon level of operational, usually uptime for a higher than normal period”
- Disaster Recovery – “A set of policies and procedures which focus on protecting an *organization* from any significant effects in case of a negative event”

- **Key Words – *SYSTEM, ORGANIZATION***

- Your BUSINESS won't stay running if your database is available, but your network is not; or if you can't ship your goods because your building has burned to the ground

- **Discover and manage expectations**

- Will you have a job if the business expected a 5 second outage and your “HA solution” took 30 minutes?

- **How much is enough?**

- **Proper Planning Prevents Pretty Poor Performance!**

Why RAC is not HA

- **Single Point of failure**
 - The database
- **Usually located in same data center**
 - Non-Redundant Services
 - Network
 - Power
 - HVAC
 - Facility
- **Use DataGuard**
 - Oh, wait – Standard Edition

No RAC - What are your options?

- Do without
- Enterprise Edition
- SE/HA
- The cloud
- Replication

Do without

- **Did you really need RAC in the first place?**
- **Backup and Recover**
- **Mount disks on a non-Production System**
- **Consider expectations**
 - Time to recover
 - Data loss
 - Cost of Downtime
- **Consider risks**
 - It's all about costs
- **Consider management and maintenance**

Enterprise Edition

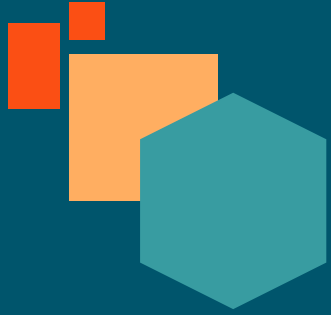
- **Easiest**
 - Just pay Oracle and run some scripts
- **Most expensive**
 - Pay Oracle
 - Needs more management
 - Still has a single-point of failure
 - The database
 - No DR without additional cost

SE/HA

- **Standard Edition/High Availability**
 - StopGap
- **No “migration”**
- **Less expensive than Enterprise Edition**
- **SE/HA vs RAC**
 - Requires Clusterware and ASM
 - Longer failovers
 - “Back to the Future” – it’s OS Clustering
- **Still no DR**
- **Still has single point of failure**

The cloud

- **That's another talk**
- **Can provide both HA and DR**
- **Autonomous is great for most cases**
- **Costs are hard to compare; but it's not "free"**
- **Definitely a "project"**
 - Requires migration
- **Security concerns**



Replication

Replication

- A second instance
- HA and DR in one

A Second Instance

- Open Read/Write
- Workload Isolation
- Rolling upgrades
- Database/OS Version agnostic

HA and DR in One

- No single point of failure
- No location limitations
- No recovery time

Making it work - Options

- **New 19c Instance**
 - Start clean
 - No conversion/update
 - Starts with a consistent copy
- **Use one of the RAC nodes**
 - No additional copy
 - Use DBUA

Upgrading with Replication

- Near-Zero Downtime
- No Data Loss
- Testing and Failback

Questions?

A woman with blonde hair tied back, wearing a white knit sweater, is sitting at a desk in a home office. She is looking at a laptop screen and has her hand on the keyboard. The room is dimly lit, with a desk lamp and a window in the background. The overall tone is professional and focused.

Quest
Where Next Meets Now.