Oracle Cloud Infrastructure Database Services

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Agenda

Oracle Cloud Infrastructure DB Options
DB Systems
DB Systems Backup
DB Systems HA and DR
Autonomous Databases
Oracle Cloud Infrastructure Database options

Virtual Machine (VM DB Systems)  Bare Metal (BM DB Systems)  RAC  Exadata DB Systems  Autonomous – Shared  Autonomous – Dedicated

Fast Provisioning  Fast Performance  Managed High Availability  Managed Exadata infrastructure  Self-driving  Self-securing  Self-repairing
DB Systems

- **Exadata DB Systems**: Managed DB Systems – Exadata, RAC, Bare Metal, VM
- **Complete lifecycle automation**: Provisioning, Patching, Backup & Restore
- **High Availability and DR**: RAC & Data Guard
- **Scalability**: Dynamic CPU and Storage scaling
- **Security**: Infrastructure (IAM, VCN, Audit), Database (TDE, Encrypted RMAN backup / Block volume encryption)

**Bring Your Own License (BYOL)**
DB Systems Operations

- Launch, start, stop, or reboot DB Systems
  - Billing continues in stop state for BM DB Systems (but not for VM DB)
- Scale
  - CPU cores – scale up the number CPU cores (BM DB systems only)
  - Storage – increase the amount of block storage with no impact (VM DB systems only)
- Patch
  - 2 step process – DB System patched first before the database is patched
  - For Exadata and RAC shapes, patches are rolling
DB Systems Backup/restore

- Manual or Automatic backups
- Automatic backups written to Oracle owned object storage buckets (customers cannot view the backups)
- Backups run between midnight – 6:00 AM in the DB system's time zone (optionally, specify a 2 hr. window)
- Preset retention periods: 7, 15, 30, 45 and 60 days

- Recover a database from a backup stored in Object Storage
  - To last known good state with least possible data loss
  - Using the timestamp specified
  - Using the SCN specified
Oracle Data Guard provides a set of services that create, maintain, manage, and monitor one or more standby databases to enable Oracle databases to survive disasters and data corruptions. It maintains synchronization between the primary and the standby db.

Active Data Guard extends Data Guard by providing advanced features for data protection and availability. It is included in the Extreme Performance Edition and Exadata Service.

Two modes – switchover and failover
- Switchover – planned migration, no data loss
- Failover – unplanned migration, minimal data loss
Primary and standby databases can be either a single-instance Oracle database or a RAC database.
DB Systems HA and DR (single AD region)

Primary and standby databases can be either a single-instance Oracle database or a RAC database.

- If your primary and standby databases are 2-node RAC databases
- and both are in the same AD
- only one of the two nodes of the standby database can be in a fault domain that does not include any other nodes from either the primary or standby database.
Autonomous Database

Fully managed database with 2 workload types
- Autonomous Transaction Processing
- Autonomous Data Warehouse

Deployment options
- Dedicated: you have exclusive use of the Exadata hardware. Supported for both ATP and ADW.
- Shared: you provision and manage only the Autonomous DB, while Oracle handles Exadata infrastructure deployment and management. Supported for both ATP and ADW.

Automates the following tasks
- Backing up the database
- Patching the database (incl. maintenance w/o downtime)
- Upgrading the database
- Tuning the database
# DB services

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<th>VM DB Systems</th>
<th>BM DB Systems</th>
<th>Exadata DB Systems</th>
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<td>CPU (storage cannot be changed)</td>
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<td>Both CPU and Storage</td>
<td>Both CPU and Storage</td>
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<td>Local disks and NVMe flash cards</td>
<td>Local disks and NVMe flash cards</td>
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<tr>
<td>RAC</td>
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<td>Available</td>
<td>Not Available</td>
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<tr>
<td>Data Guard</td>
<td>Available</td>
<td>Available</td>
<td>Available*</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

*You can manually configure Data Guard on Exadata DB systems using native Oracle Database utilities and commands. dbcli is not available on Exadata DB systems.

**The database can be a container database with multiple pluggable databases, if the edition is High Performance or Extreme Performance.
Summary

Oracle Cloud Infrastructure DB Options
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DB Systems Backup
DB Systems HA and DR
Autonomous Databases
Oracle Cloud always free tier: [oracle.com/cloud/free/](https://oracle.com/cloud/free/)

[education.oracle.com/oracle-certification-path/pFamily_647](https://education.oracle.com/oracle-certification-path/pFamily_647)

OCI hands-on labs:  
[ocitraining.qloudable.com/provider/oracle](https://ocitraining.qloudable.com/provider/oracle)

Oracle learning library videos on YouTube:  
[youtube.com/user/OracleLearning](https://youtube.com/user/OracleLearning)
Thank you