ORACLE

Summer Camp:
Modern Software Development Workshop

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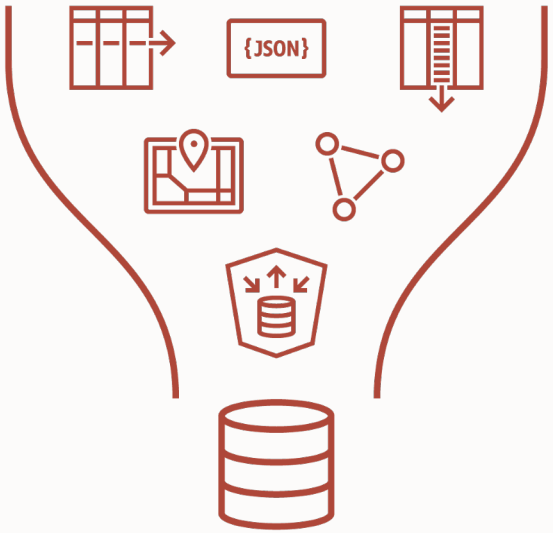
Customers: July 19, 20 & 21, 2022
Partners: July 27, 2022

Enterprise-class performance, scalability, reliability & security for all data-driven workloads

Any Data

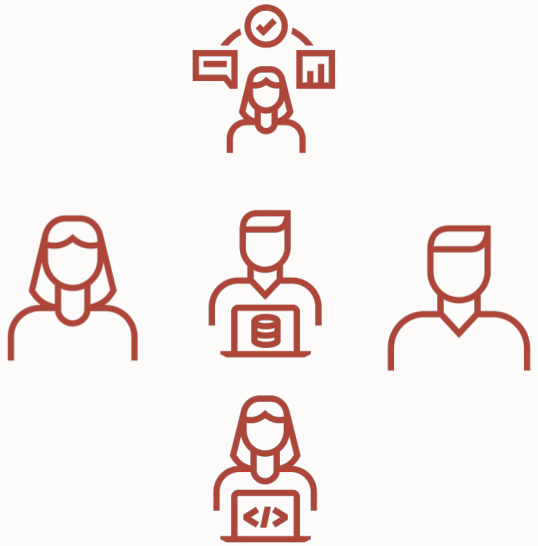


Converged, open, SQL database for multiple data types and data models

Any Workload

OLTP, DW, Datalake, Modern Data Platform for Microservices

Most Productive



Developers & Architects, Data Analysts/Scientists and DBAs

On-premise, Private Cloud, Public Cloud, Hybrid, Cloud@Customer

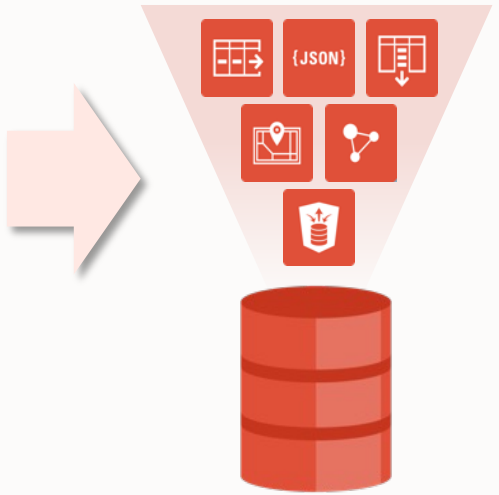
Fragmented Features vs. Converged Product

Phone calls, messaging, photos, etc. originally required separate products

- Now are features of Smartphones

Similarly, ML, JSON, Blockchain, etc. originally required separate databases

- Now are features of a Converged Database



Converged Is Inherently Simpler

Contrasting Operations Strategies

It is dramatically simpler to operate one converged Oracle database

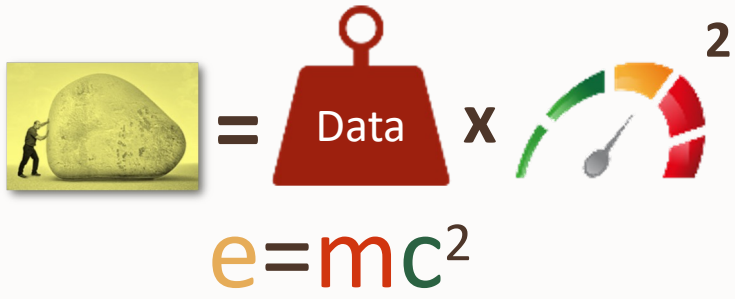
Instead of individually making each single-purpose database highly Available, Secure, and Scalable using product specific mechanisms

Data Gravity

Data Volume is Exponentially Growing

Moving Data is Slow and Expensive

Leave Data In Place



Avoid Storing Data in Different Places or Technologies

It's Easier to Move Apps to Data rather than Moving Data to Apps

Process Data In Place

Magic Quadrant for Cloud Database Management Systems

Gartner

These DBMSs reflect optimization strategies designed to support transactions and/or analytical processing for one or more of the following use cases:

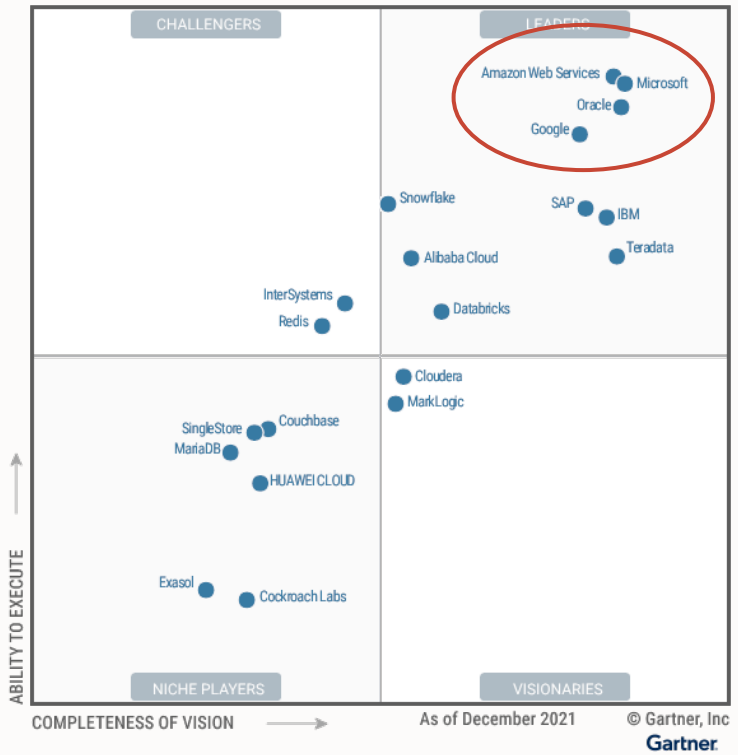
- Traditional and **augmented transaction** processing
- Traditional and logical data warehouse
- Data science exploration/deep learning
- Stream/event processing
- Operational intelligence

Strengths

- **Augmented DBMS Technology**
- **Hybrid Cloud**
- **Richness of Portfolio**

Cautions

- **OCI-Centric DBMS Strategy**
- **Premium Price Perception**
- **Cloud Transition Focus**



Strategic Planning Assumptions

By 2025, cloud preference for data management will substantially reduce the vendor landscape while the growth in multi-cloud will increase the complexity for data governance and integration.

By 2022, cloud database management system (DBMS) revenue will account for 50% of the total DBMS market revenue.

Comparison between 4 leaders

aws

Database

Amazon DocumentDB
Fully-managed MongoDB-compatible database service

DynamoDB
Managed NoSQL Database

ElastiCache
In-Memory Cache

Amazon Keyspaces
Serverless Cassandra-compatible database

Amazon MemoryDB for Redis
Fully managed, Redis-compatible, in-memory database service

Neptune
Fast, reliable graph database built for the cloud

Amazon QLDB
Fully managed ledger database

RDS
Managed Relational Database Service

Amazon Timestream
Amazon Timestream is a fast, scalable, and serverless time series database for IoT and operational applications.

Azure

Databases

Support rapid growth and innovate faster with secure, enterprise-grade, and fully managed database services

Azure SQL
Modern SQL family for migration and app modernization

Azure Cosmos DB
Build or modernize scalable, high-performance apps

Azure SQL Database
Managed, intelligent SQL in the cloud

Azure Database for PostgreSQL
Fully managed, intelligent, and scalable PostgreSQL

Azure SQL Managed Instance
Managed, always up-to-date SQL instance in the cloud

Azure Database for MySQL
Fully managed, scalable MySQL Database

SQL Server on Azure Virtual Machines
Migrate SQL Server workloads to the cloud at lower total cost of ownership (TCO)

Azure Cache for Redis
Accelerate apps with high-throughput, low-latency data caching

Azure Database Migration Service
Accelerate your data migration to Azure

Azure Managed Instance for Apache Cassandra
Modernize Cassandra data clusters with a managed instance in the cloud

Azure Database for MariaDB
Deploy applications to the cloud with enterprise-ready, fully managed community MariaDB

ORACLE Cloud

Oracle Database

Overview

Autonomous Database
Autonomous Data Warehouse
Autonomous JSON Database
Autonomous Transaction Processing

Autonomous Dedicated...

Oracle Base Database (VM, BM)

Exadata on Oracle Public Cloud

Exadata Cloud@Customer

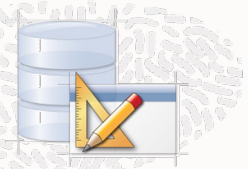
External Database

Google Cloud

Nombre	Descripción
SQL	MySQL, PostgreSQL, SQL Server administrados
Datastore	Base de datos NoSQL en apps web y móviles
Firestore	BD de documentos NoSQL sin servidores
Spanner	BD relacional con escalamiento horizontal
Bigtable	Escala de petabytes, baja lat., no relacional
Memorystore	Redis y Memcached administrados
Migración de bases de d...	Migraciones de Cloud SQL simplificadas
MongoDB Atlas P	Modelos, consultas y escalamiento tipo JSON
Base de datos como ser... P	BD de gráficos integradas y administradas
Redis Enterprise P	Plataforma de BD sólida en la memoria
DataStax Astra P	Desarrollo de apps de Cassandra de la nube

Summer Camp: Modern Software Development

Agile, Low Code, Microservices, Events and Advanced Analytics



Intro (Start) 60’

Business Case

The challenge is to create new Data-Driven and Event-Driven Apps with AI. Even Expanding and Modernizing from your legacy (*) Data and Applications

{JSON}

{ SQL:SODA: ORDS }

Stop 1: Multi-model 120’

PDB 1 Current APP Relational | PDB 2 New APP JSON

CDB

Focus on Oracle DB as a Multi-model Data Repository with REST Data Services

{ REST:API }

kafka

{ PL:Java:Apex}

Stop 2: REST & Events 180’

PDB 1 Current APP Relational | PDB 2 New APP JSON | PDB 3 New APP Events

CDB

Focus on Oracle DB as a Multi-model Data & Event Engine with Low Coding

python

{ ML:TSP:OPG }

Stop 3: Auto ML, S&G 150’

PDB 1 Current APP Relational | PDB 2 New APP JSON | PDB 3 New DS +ML, S&G

CDB

Focus on Oracle DB as a Multi-workload Data, Event and Machine Learning, Spatial & Graph Engine for Augmented Transaccions

Inspire (End) 30’

Innovation

Focus on How to add Agile Innovation to your Business Uses Cases

(*) You can’t re-invent the wheel again starting from scratch.

HOL Content Day by Day

Day 1	Day 2	Day 3
1. Know your environment 2. Application Container 3. JSON (PDB1) 4. Node.js and SODA (PDB2) 5. Querying Data from APP ROOT Views and ORDS (INTRO)	1. Know your environment 2. Events and APIs (PDB3) 3. OSAK (SQL access 4 Kafka) 4. API Rest PL/SQL GeoRouting 5. API Rest Java AEMET 6. Enrich Data 7. Querying Enriched Data from APP ROOT Views and ORDS 8. Low Code APP with APEX using Views and/or (ORDS Livelabs)	1. Know your Environment 2. Spatial (Routing Optimization and Visualization using Java and APEX) 3. Graph (Products Recommendations using Java and PGQL Queries) 4. OML4py (Predictive Delivery Scoring using Python and APEX/ORDS)

Start (30’)

Workshop explanation

The challenge is to create new Data-Driven and Event-Driven Apps with AI. Even Expanding and Modernizing from your legacy (*) Data and Applications

Image Checklist

- Compute Instance Linux with Linux Desktop and Docker (Node.js)
- Oracle DB 21c EE
- Python, Jupyterlab, Java, Kafka, SQL Developer and OSAK
- ORDS and APEX
- Swingbench Order Entry Schema (SOE)
- SQLcl
- Script extractor/injector de documentos JSON
- Spatial Studio
- PGX Engine
- Podman and Firefox
- Git Client

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Inspiration & Innovation

Our mission is to help people see data in new ways, discover insights, unlock endless possibilities.

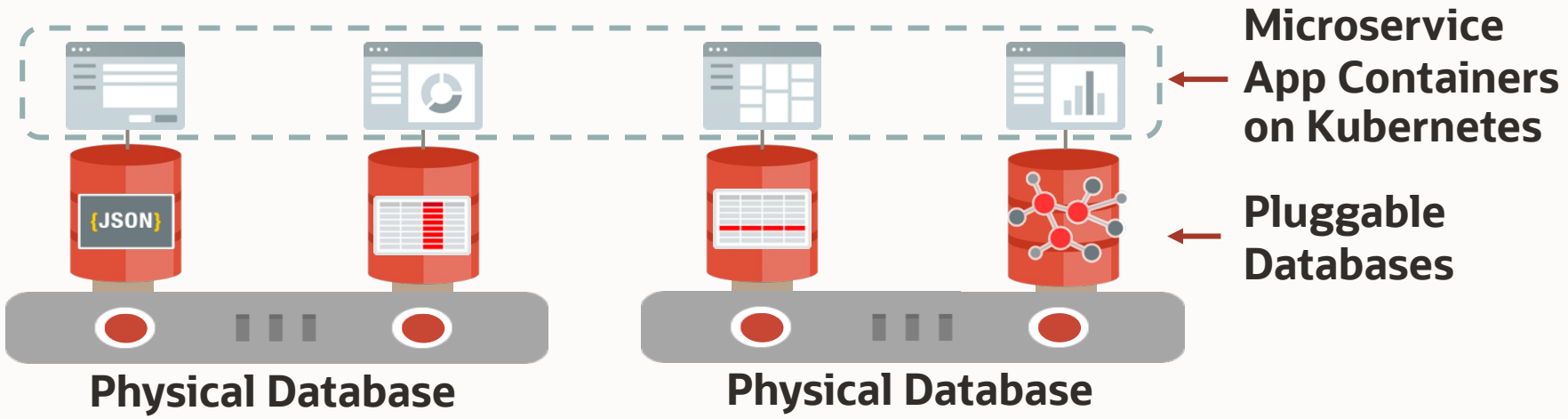
Thank you!

Oracle Spain

Pluggable Databases Simplify Microservice Architectures

Oracle makes it simple for each Microservice to store its data in a logically separate Data Container called a Pluggable Database

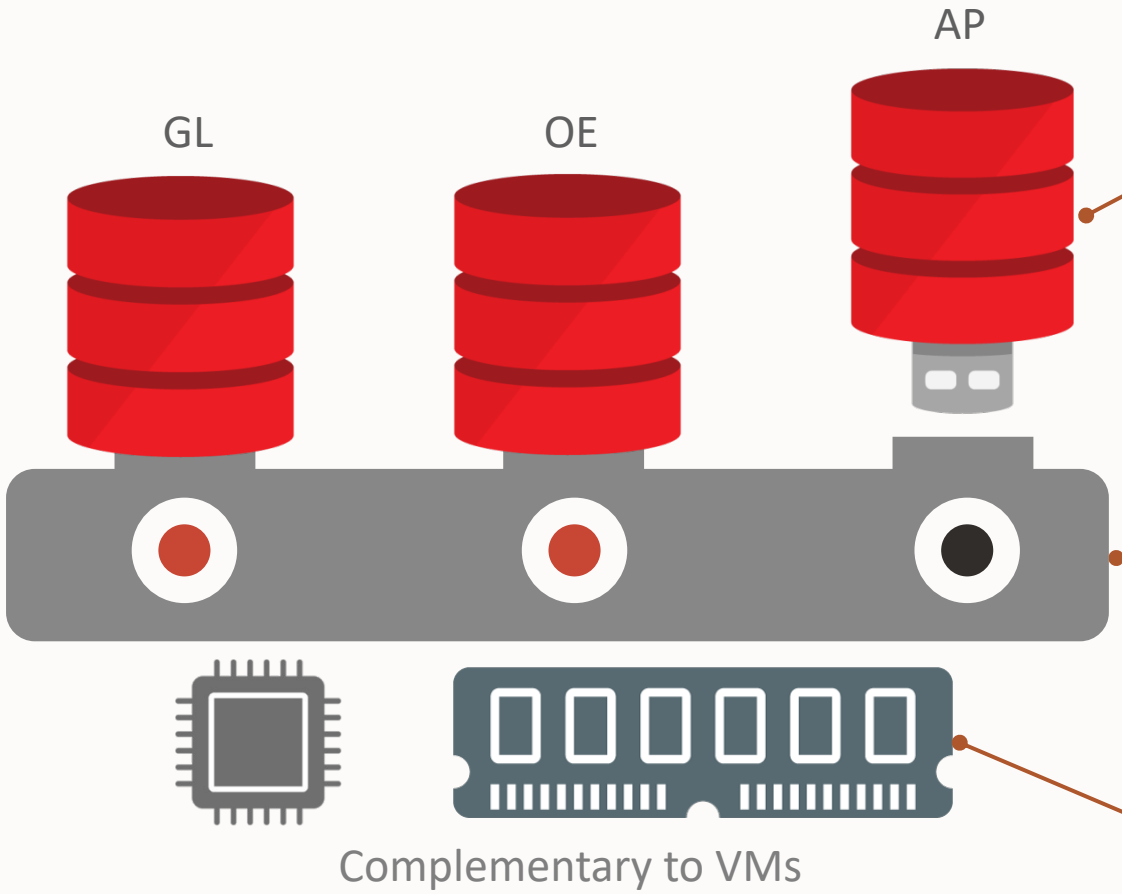
Pluggable Databases can easily be physically combined to simplify deployment, or separated to improve isolation and scalability



Oracle Makes Microservices Simple

Advantages of Multitenant Architecture

Reduced CapEx & OpEx, Increased Agility, Easy to Adopt and Use



Self-contained PDB for each application

- Applications run unchanged
- Rapid provisioning (via clones)
- Portability (via pluggability)

Common operations performed at CDB level

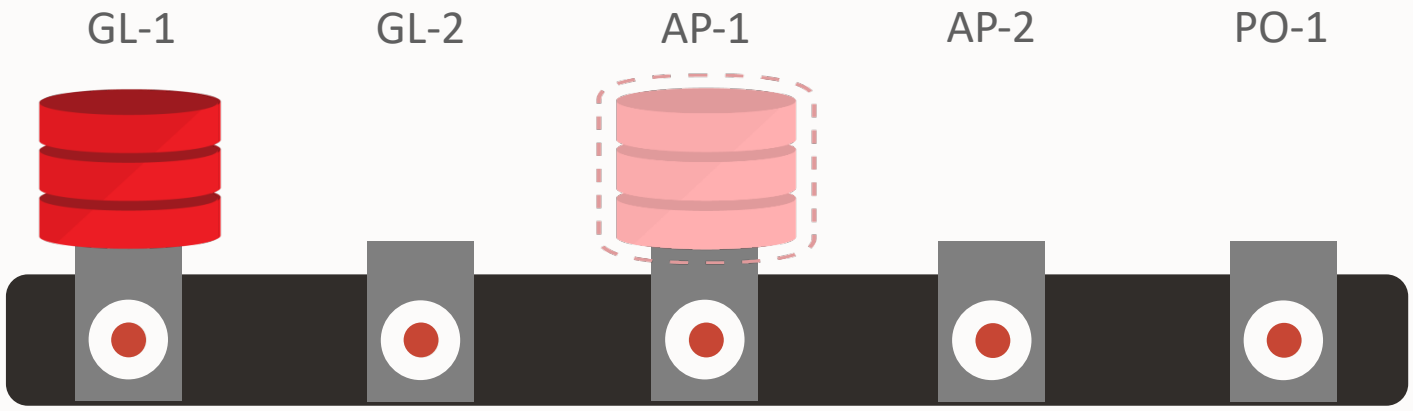
- Manage many as one (upgrade, HA, backup)
- Granular control when appropriate
- Manage many as one

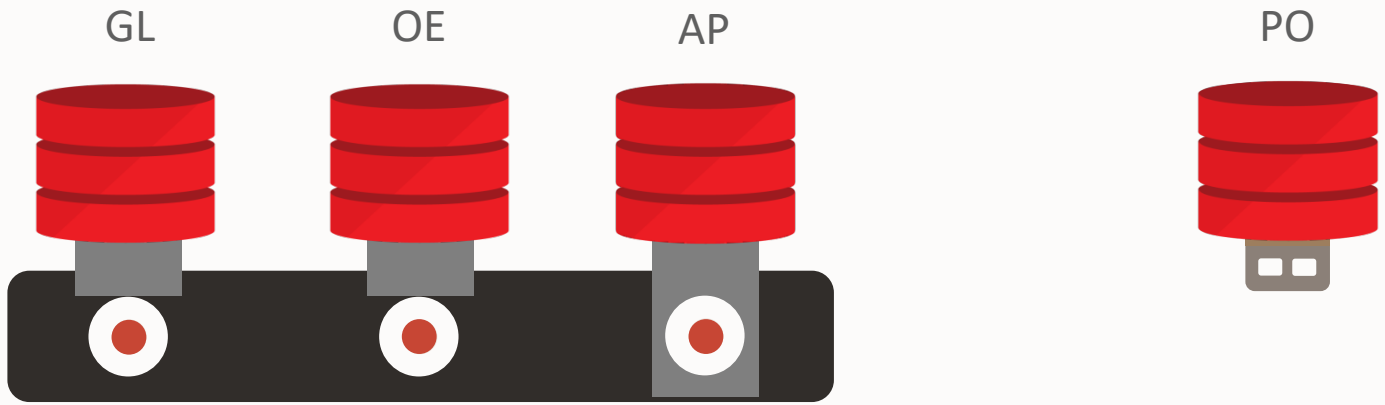
Shared memory and background processes

- More applications per server
- Consolidation

Agility: Rapid provisioning

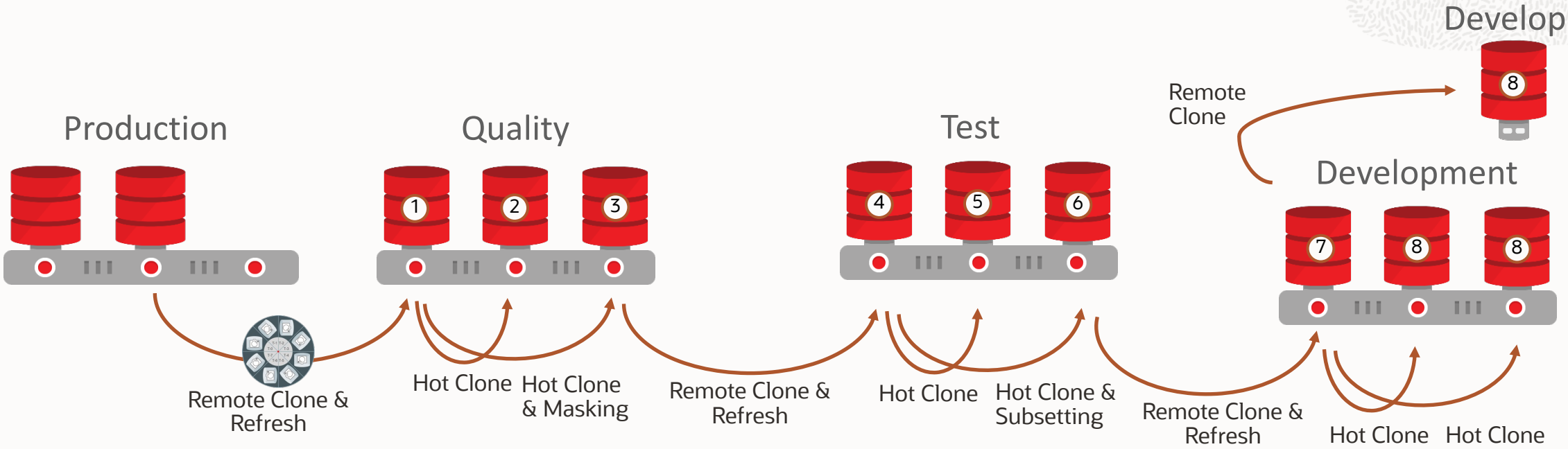
Cloning of PDBs facilitates continuous delivery and continuous deployment





- **Cloning in same container**
- **Cloning in remote containers**
- **Master images**
- **Snapshots in seconds**

Environment Sync via Hot Clone and PDB Refresh



1. Read-only (refreshable) PDB – master for sync
2. Writable copy of production data – performance test
3. Writable copy of masked data – quality
4. Read-only masked PDB – master for test
5. Writable copy of test data – integration test
6. Writable copy of subset data – integration test
7. Read-only PDB – master for dev data
8. Development data – shared/cloud environment

Continuous Integration with Hot Clone

Commit / PR approval / Manually triggered

- (instant) PDB Hot Clone via REST APIs
- Temporary credential creation

- Code build
- Apply schema/data changes
- Execute tests

- Drop PDB via REST APIs