

# ORACLE AI World

**Empower Your Data with Oracle  
Database@Google Cloud and Native AI  
Services**

LRN 3265

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# Speakers

## **Vijay Bangaru**

Vice President, Product Management  
OCI Multicloud

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Chief Technology Officer  
Pythian

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Senior Principal Solution Architect  
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# Safe harbor statement

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# Oracle AI World 25 LRN 3265

## Agenda

- 1 Oracle Database@Google Cloud Overview
- 2 Pythian's Application Migration Journey
- 3 Deploy, Connect, and Vertex AI integration
- 4 Q&A



# Oracle Database@Google Cloud Overview



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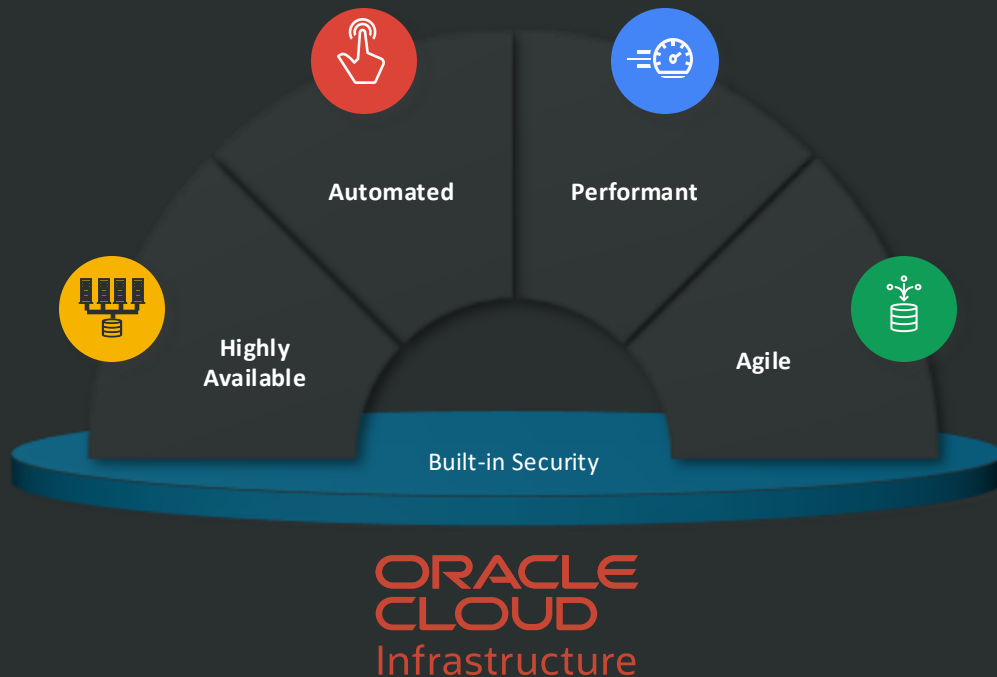
Vijay Bangaru

Vice President, Product Management

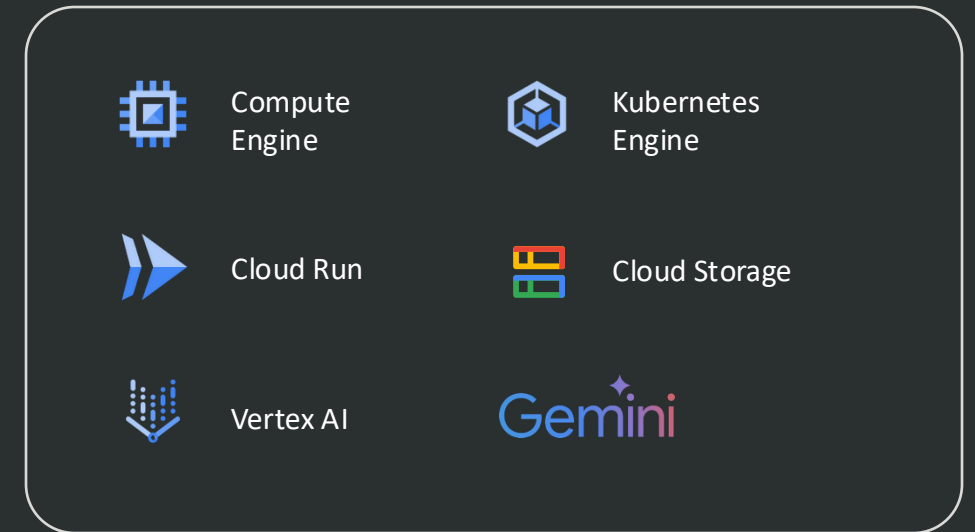
OCI Multicloud

# Oracle Database@Google Cloud – The Best of Both Worlds

Enterprise grade data  
management services



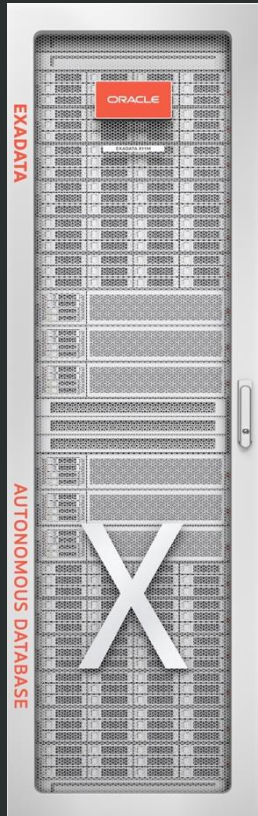
Innovative cloud  
services





# Exadata: Premier Platform for Oracle Database Services

Extreme performance, scalability, and availability for data and AI workloads, at a low cost



## Data optimized hardware

Scale-out, data optimized compute, networking, and storage

## Data intelligent software

Unique algorithms deliver extreme performance and efficiency for AI, analytics, and mission-critical apps, at any scale

## Engineered to run everywhere

On-premises, Cloud@Customer, Oracle Cloud, and Multicloud

# Autonomous Database Delivers the Best Data Experience

Fully-managed, cloud native, lowest TCO



Autonomous  
Database



Mission-Critical  
Database



Exadata



Automation,  
Best Practices  
and Data Tools

Automatically secures, tunes, and scales



Eliminates many  
manual tasks



Reduces  
human error



Simplifies  
scaling



Minimizes  
downtime



Aligns costs  
with demand

Runs on top of **Real Application Clusters** ♦ Up to **99.995% SLA** ♦ **Zero** regression SLO



# Oracle Base Database Service

Co-managed with 100% Oracle Database compatibility on Oracle hardware

## Full-featured Oracle Database cloud instance

- Flexible single VM on shared hardware generation-agnostic Standard x86 compute with block storage
- Support for Oracle Database 19c and 23ai

## Complete customer administrative control

- Customer-controlled automation for create, update, backup, scale, disaster recovery, and more
- Simple deployment in minutes





## Cloud economics

- Low cost with pay-as-you-go pricing and independent compute and storage scaling
- Choice of Oracle Database Standard and Enterprise Edition License-included options or Bring Your Own License (BYOL)

Shape	VM.Standard.x86
Database	Single-instance
ECPU	4 - 256
Memory	8 – 512 GB
Data Storage	256 GB – 40 TB
License Included Editions	Standard, Enterprise, High Performance









# Oracle Database@Google Cloud – The Best of Both Worlds

## Native Database Service Integration

 ADB	 ExaDB
 BaseDB	 ExaXS




## Unified Integrations

 Data Governance	 Console, APIs & Infrastructure-as-a-code
 Networking	 Storage & Backup
 Marketplace	 Security
 Observability	 Deep Integration





# OCI Multicloud Service Availability

		 Google Cloud
Services	Oracle Exadata Database Service – Dedicated (ExaDB-D)	✓
	Oracle Autonomous Database - Serverless (ADB-S)	✓
	Oracle Autonomous Database - Dedicated (ADB-D)	Planned
	Oracle Database Autonomous Recovery Service (RCV/ZRCV)	✓
	Oracle GoldenGate	Planned
	Oracle Base Database Service	✓
	Oracle Exadata Database Service - Exascale Infrastructure (ExaDB-XS)	✓
	Oracle Interconnect	✓
	Exadata X11M	✓
	Exadata X9M	✓



# Oracle Multicloud – Global Footprint



## Oracle Database @Google Cloud

### 8 Live regions

- North America Northeast 1 (Montreal)
- US East 4 (Ashburn)
- US Central 1 (Iowa)
- US West 3 (Salt Lake City)
- Europe-west3 (Frankfurt)
- Europe-west2 (London)
- Asia Northeast 1 (Tokyo)
- Australia Southeast 2 (Melbourne)

#### Dual zones regions

- US East 4 (Ashburn)
- Europe-west2 (London)

### 9 Planned regions

- North America Northeast 2 (Toronto)
- Europe West 8 (Milan)
- Europe West 12 (Turin)
- Australia Southeast1 (Sydney)
- Asia South 2 (Delhi)
- Asia South 1 (Mumbai)
- Asia Northeast 2 (Osaka)
- South America East 1 (Sao Paulo)
- North America South1 (Queretaro)

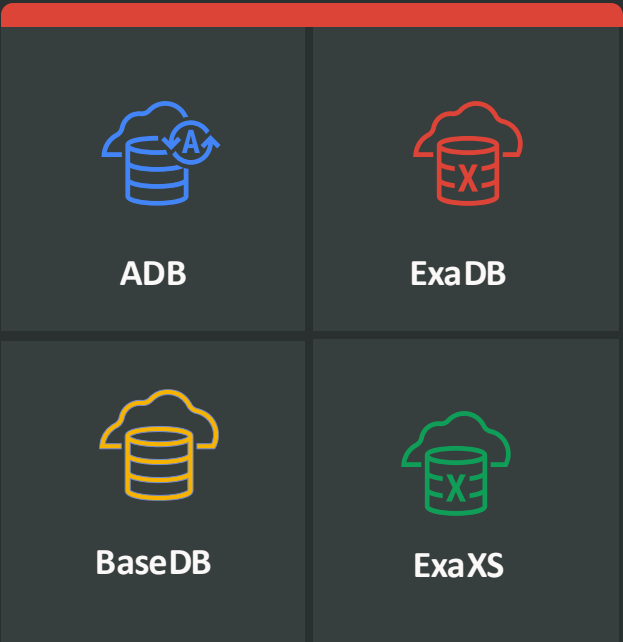
#### Dual zones regions

- Australia Southeast 2 (Melbourne)
- Europe West 8 (Milan)
- Europe-west3 (Frankfurt)

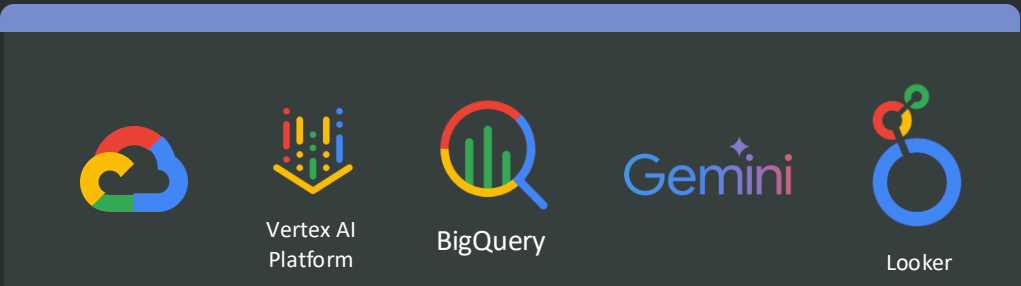


# Oracle Database@Google Cloud – AI and Analytics Integration

## Native Database Service Integration



## Interoperable Services



Pythian

# Pythian Services

## Oracle@Google



Advantages of running Oracle Database@Google Cloud



# Pythian at a Glance

27K+

Databases managed

45+

Data ecosystem technologies

500+

Global customers

**Expertise + experience + technologies:**

Deep data ecosystem expertise and specialization in cutting-edge technologies like AI to empower your business transformation.

**Agility through flexible delivery models:**

Flexible services adapt to your unique needs, whether on-premises or in the cloud, supporting every stage of your digital transformation.

**Long-term partners:**

A commitment to long-term partnerships ensures enhanced value from your data and lays the foundation for your AI future.

28+

Years in business

300+

Data experts

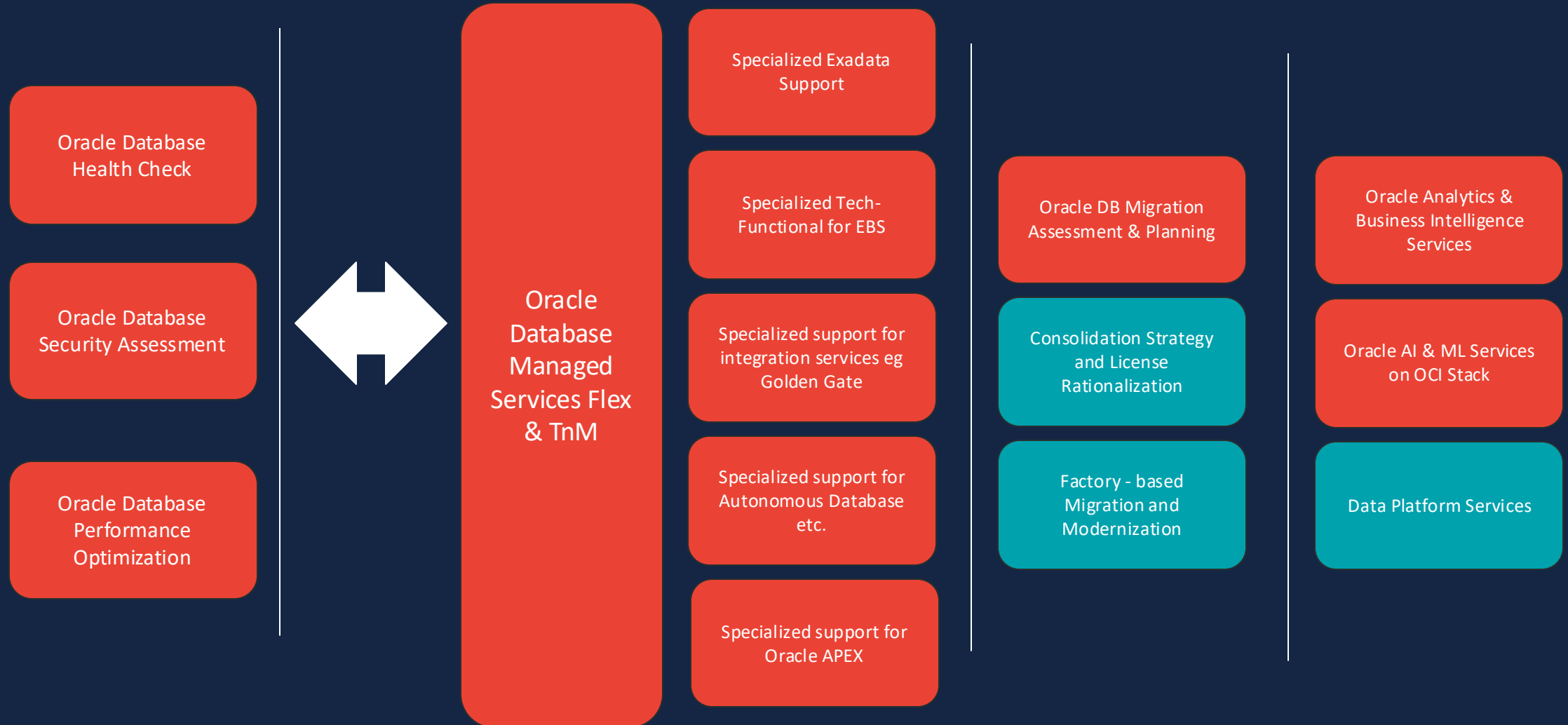
2K+

Environments managed

94

Net Promoter Score (NPS)

# What we do today?





# APEX to GCP

# Why Oracle Database@Google Cloud ?

- The new partnership gave us the ability to run Oracle based apps with ease (friction all gone)
- Can integrate with other Google Cloud services and the things we have and are building there (including the AI solutions)
- Easier cost control: centralized billing through the Projects and in the Google Cloud ecosystem we're used to
- Licensed included costing model means we can add new environments (even if temporarily) with ease and without Oracle licensing concerns
- ADB fully-managed platform allows our software stack to stay up-to-date (the old environment had fallen far far far behind)



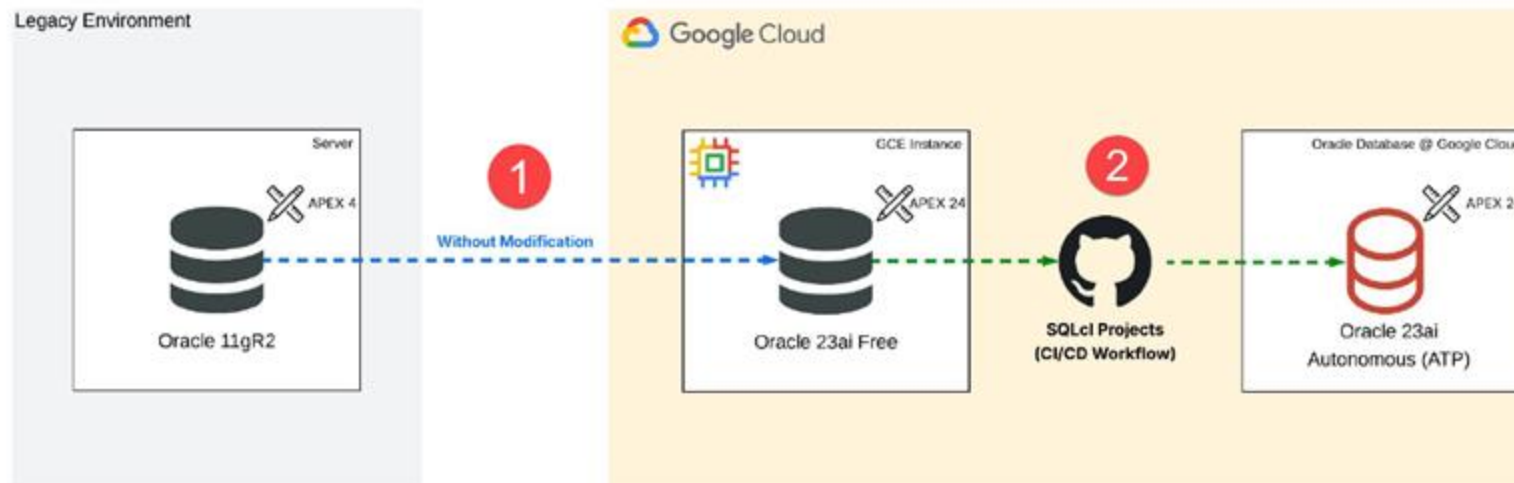
# Identified Candidate: Our Early Mover

## Application (APEX) Modernization Steps

1. Copied the application (APEX) without change into the modernized infrastructure
2. Upgraded the application (APEX rewrites) and implementation of a Git & CI/CD workflow (adding modern tools and workflows to the development process)

### A Pythian internal “Resourcing Application”

- A small APEX Application: in-use but not up-to-date
- No source-code repository – app only exists “in the database”
- Fragile: Can’t do/change anything to avoid risk

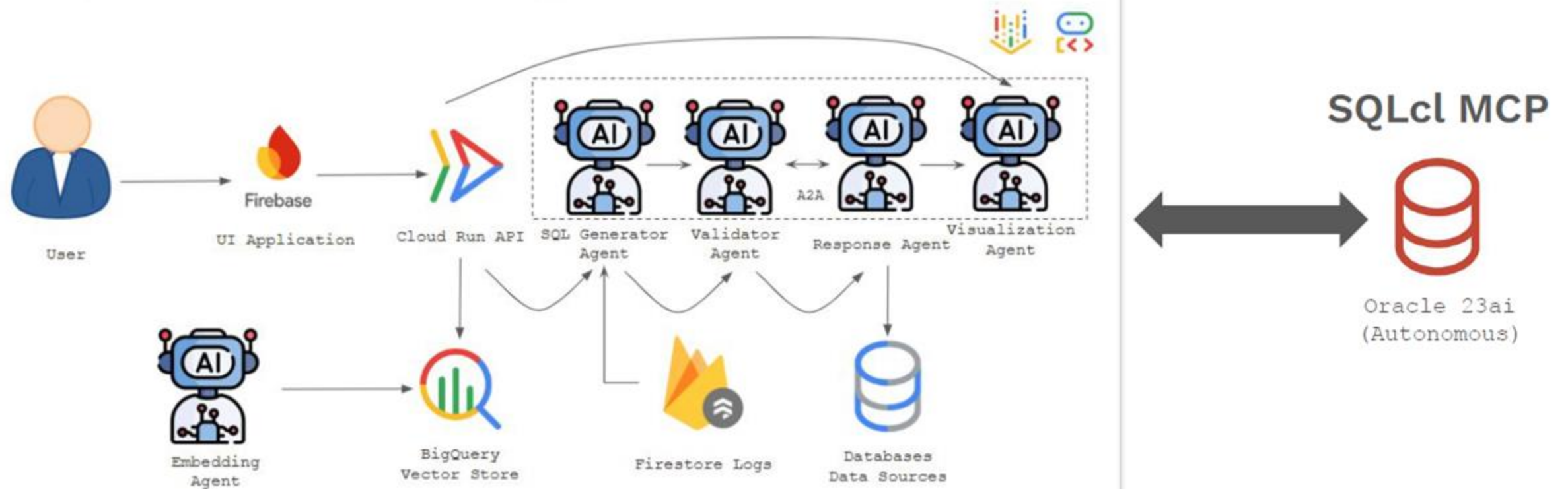




# AI @ Google Cloud

## Advantages of Moving to GCP

### Sample Architecture: Multi-Agent NL2SQL



# Vertex AI / Gemini Built Health Checks

### PostgreSQL Health Check Report Generator

#### Overview

The PG360 Health Check Report Generator is a comprehensive PostgreSQL health check tool.

- Data-Driven Analysis:** Analyzes 157+ pg360 collector tables for comprehensive insights.
- AI-Powered Insights:** Real Claude Sonnet 4.5 integration for root cause analysis and recommendations.
- Business Impact Assessment:** Quantifies risks, costs, and user impact of issues.
- Actionable Remediation:** Provides SQL scripts with prerequisites and estimated durations.
- Phase-Based Action Plans:** Immediate, Urgent, Short-term, Medium-term, and Long-term actions.
- Professional Multi-Format Output:** Markdown reports ready for internal documentation or client delivery.

#### What Makes This System Comprehensive?

##### Comparison with Previous Versions:

Feature	AI Report (LLM)	Human Report (comprehensive)
Data Coverage	✅ 157 tables with samples	❌ Limited
AI Analysis	⚠️ Mock responses	✅ Full analysis
Business Impact	❌ None	✅ Excellent
Remediation	⚠️ Basic SQL	✅ Detailed with prerequisites

#### Key Innovations:

- Business Impact Quantification:**
  - Downtime Risk: 60% probability
  - Performance Degradation: 40%
  - Cost Impact: "\$5K/month wasted"
  - Compliance: "Fails PCI-DSS, HIPAA"
  - User Impact: "Timeout errors, slow loads"
- Complete Remediation SQL:**
  - Full SQL commands (not just descriptions)
  - Prerequisites checklist
  - Rollback commands for safety
  - Risk level assessment
  - Downtime requirements
  - Estimated duration
- Phase-Based Action Plans:**
  - 🔴 Immediate (24-48 hours)
  - 🟡 Urgent (7 days)
  - 🟠 Short-term (30 days)
  - 🟢 Medium-term (60-90 days)
  - 🟣 Long-term (Ongoing)
- Real Claude Sonnet 4.5 Integration:**
  - Executive summaries for C-level
  - Root cause analysis
  - Strategic recommendations

#### Report Structure

The ultimate report includes:

- Executive Summary**
  - AI-generated business-focused summary
  - Findings breakdown by severity
  - Key metrics and recommendations
- AI-Powered Analysis**
  - Root cause analysis
  - Risk assessment with probabilities
  - Interdependency mapping
  - Strategic recommendations
- Prioritized Action Plan**

Five phases with:

  - Specific actions with numbers (1.1, 1.2, etc.)
  - SQL commands for each action
  - Validation criteria
  - Dependencies
  - Success criteria
- Detailed Findings**

Organized by area (Architecture, Configuration, Design, Security, Performance):

## Future AI Use @ Pythian

**Application development:** Using to re-write long and complicated SQL of internally developed and AI-based APEX security review tool

**Testing:** recursively so it can “check it’s own changes”

### Application insights:

Delivery resourcing efficiencies: Predictive analysis on utilization and team trends;

Resourcing allocations (true “forecasting”) and who can be assigned for future projects



# Thank You!

**Paul Lewis, Chief Technology Officer**  
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# Oracle Database@Google Cloud

## Deploy and Connect

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Julien Silverston

Senior Principal Solution Architect

OCI Multicloud

**Unify**

**Empower your data with  
native AI services**

## Customer journey



Onboard with Oracle Database@Google Cloud through the Google Cloud Marketplace



Use Oracle Database Network to connect your data to Google Cloud services and applications



Combine the capabilities of Oracle Database 23ai with Google Cloud Vertex AI



# 1. Onboard with Oracle Database@Google Cloud through the Marketplace

Purchase a **PAYG** or **private offer** through the **Google Cloud Marketplace**

- Work with Oracle account team on private offer
- Pay Google Cloud – consumption applies to Google Cloud commitments
- Deploy OCI database services
  - Oracle-managed Oracle Exadata hardware
  - Located within Google Cloud data centers
- Earn Oracle Support Rewards towards your tech software license support bill



## 2. Provision Oracle database services into your Google Cloud

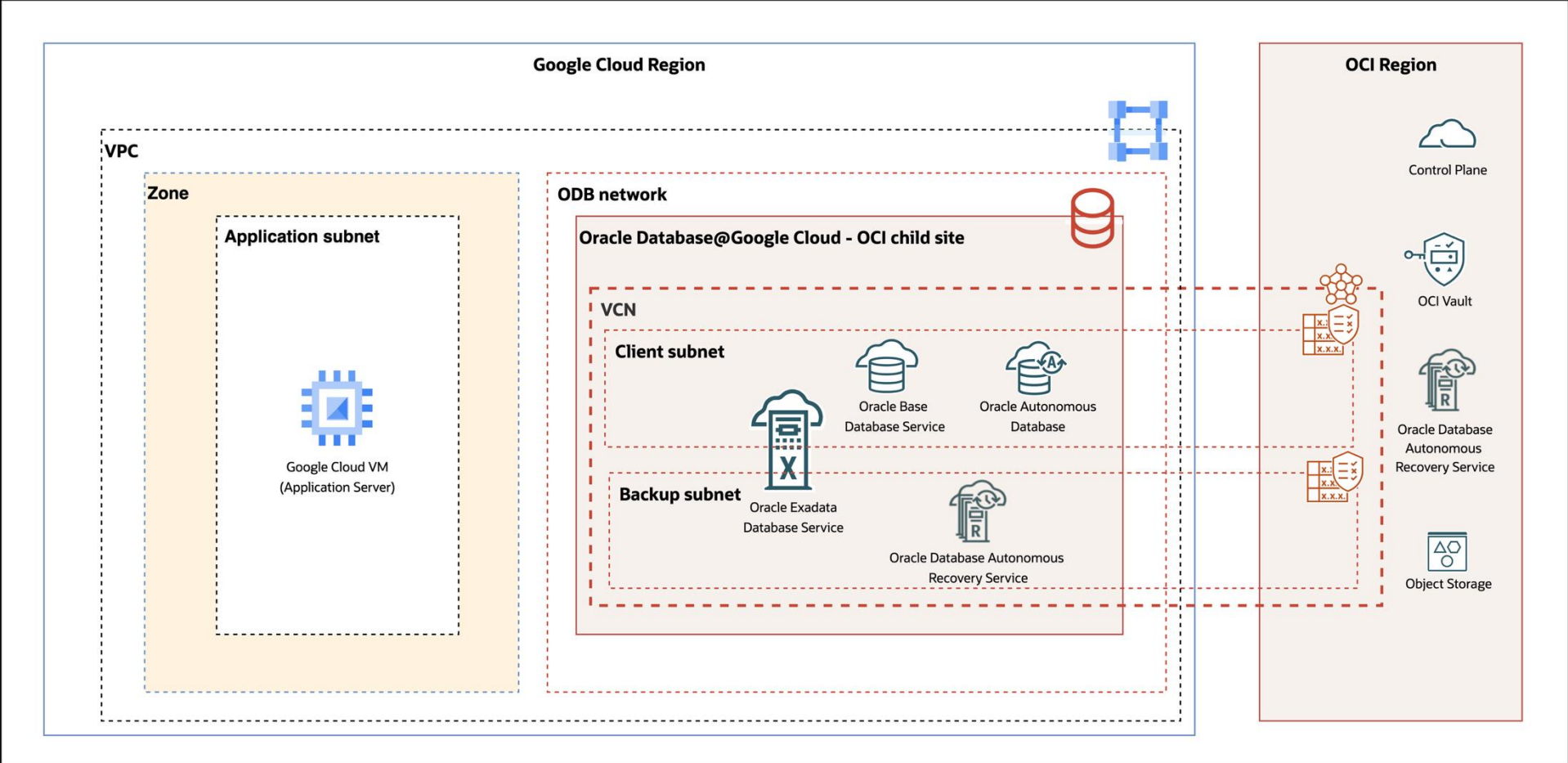
### Provision OCI database services using the Google Cloud management console, CLI/API, Terraform

- Manage access with Google Cloud IAM
- Monitor Oracle database with Google Cloud Monitor

### Manage OCI database services using the OCI console, CLI/API, Terraform

- Create and manage container and pluggable databases
- Manage backup and restore, Data Guard, OCI integrations

# Oracle Database@Google Cloud - Architecture



## 2. Create Oracle Database Network to connect your Google Cloud services and applications

```
gcloud oracle-database odb-networks create aiworld01 \  
  --project=aiworld \  
  --location=us-east4 \  
  --network=projects/aiworld/global/networks/default
```

```
gcloud oracle-database odb-networks odb-subnets create client \  
  --project=aiworld \  
  --location=us-east4 \  
  --odb-network=aiworld01 \  
  --cidr-range=10.10.15.0/24 \  
  --purpose=client_subnet
```

- ✓ Create ODB network, select your VPC
- ✓ Define your private subnet
- ✓ Follow Google Cloud network topologies : Standalone VPC, Peered VPC, or Shared-VPC



## 2. Deploy Exadata Infrastructure

```
gcloud oracle-database cloud-exadata-infrastructures  
create demo01 --location=us-east4 --display-  
name=demo01 --properties-shape="Exadata.X11M" --  
properties-compute-count=2 --properties-storage-  
count=3
```

## 2. Create VM Clusters on Exadata Infrastructure

```
gcloud oracle-database cloud-vm-clusters create
cluster1 \
--exadata-
infrastructure=projects/aiworld/locations/us-
east3/cloudExadataInfrastructures/demo01 \
--project=aiworld \
--location=us-east3 \
--display-name="cluster1" \
--odb-subnet=projects/aiworld01/locations/us-
east3/odbNetworks/aiworld01/odbSubnets/client \
--backup-odb-subnet=projects/aiworld01/locations/us-
east3/odbNetworks/aiworld01/odbSubnets/backup \
--properties-license-type=license-included \
--properties-ssh-public-
keys="VtTxz1PJtIivthmLOmWdRDFy5127pKUTwLp02" \
--properties-gi-version=23.0.0.0 \
--properties-hostname-prefix=custer1 \
--properties-cpu-core-count=8
```

## 2. Create Autonomous Database

```
gcloud oracle-database autonomous-databases create  
jsdemo --location=us-east4 --display-name="jsdmeo" --  
database=jsdemo --admin-password=123Abpassdord --  
properties-compute-count=2 --properties-db-  
version=23ai --properties-license-  
type=LICENSE_INCLUDED --properties-db-workload=oltp -  
-odb-network=projects/network-project/locations/us-  
east4/odbNetworks/my-odbnetwork --odb-  
subnet=projects/network-project/locations/us-  
east4/odbNetworks/my-odbnetwork/odbSubnets/my-  
odbsubnet
```

### 3. Combine the capabilities of Oracle Database 23ai with Google Cloud Vertex AI

#### Oracle Database 23ai

- AI Vector Search
  - Vector data type for storing vector embeddings
  - SQL syntax and functions express similarity search with ease
  - Approximate search indexes packaged and tuned for high performance and quality
  - No need to move and synchronize data or manage multiple products



# Oracle AI Vector Search



An AI Vector is a sequence of numbers, called dimensions, that represent the semantic content of a document, image, or video

Developers create a vector for an object by just passing the object to a built-in vectorization function

Oracle 23ai natively stores vectors and compares vectors to find objects with similar semantic content



## Combine relational and AI search directly in SQL

```
SELECT cyclist_id, title, image_url  
FROM race  
WHERE image_url is not null  
ORDER BY VECTOR_DISTANCE(title_vr, :search_vr)  
FETCH FIRST 10 ROWS ONLY;
```

**Visit our booth in the Oracle AI World Hub to see the full demo**



# Learn more about Oracle Database@Google Cloud

<https://www.oracle.com/cloud/google/oracle-database-at-google-cloud/>

Find solutions, pricing, video demos, documentation, or connect with a specialist and sign up

## **Visit our booth in the Oracle AI World Hub**

Chat with product experts and explore Oracle Cloud Infrastructure and our Multicloud offerings

**See the full Empower Your Data demo**

## **Visit the Google Cloud booth in the Oracle AI World Hub**

Connect with our Google Cloud partners and learn more



# Thank you

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