Oracle Databases in a Multicloud World

An Assessment of Viability

Kerry Osborne | February 2023 | #RMOUG2023

CLOUD

Uber goes multicloud, announcing big deals with Oracle and Google

Google Cloud

Agenda

Google Cloud

01

whoami

Kerry Osborne –
Database Black Belt Team Lead @ Google

➜ Dev->DBA->Biz->Tuning->Biz->Dev->Biz …

➜ Performance and Internals Focused

➜ ThinkSpark->PE Firm, Enkitec->Accenture, Gluent->Google

➜ Wrote a Couple of Books

➜ Never Worked for Oracle

➜ Started w/ Oracle V2 😮 (I was only 12 at the time)

02

Why are we talking about this?

In the News

Google, Deutsche Bank Agree to 10-Year Cloud Partnership

- Deal said to include joint technology investments, research
- Bank expects 1 billion-euro return on invesment in partnership

Deutsche Bank signs multi-year database deal with Oracle

24 June 2021

Uber goes multicloud, announcing big deals with Oracle and Google

Google Cloud

This Presentation is Based on a Whitepaper – Project Solomon

Use the best of both worlds

When you use Google Cloud and Oracle Cloud Infrastructure (OCI) together, you can build a multicloud solution that harnesses the unique capabilities of each platform. Our whitepaper explains how to connect these clouds together to create a robust, multicloud, Oracle environment.

Read the whitepaper

https://cloud.google.com/multicloud

https://services.google.com/fh/files/misc/google-cloud-oci-guide.pdf

Google Cloud

02

What do we mean by "multicloud"?

Multicloud

Ultimate Flexibility

Services, such as database engines, that can be seamlessly created and managed from a single UI, running on whichever platform you choose, and readily migrated to another.

Cross/Composite Multicloud

Components of a system running in different public clouds, e.g. an application tier running in one public cloud utilising a database in another public cloud.

03

What is Oracle Database Service for Azure?

What is Oracle Database Service for Azure?

Oracle Database in OCI

Application tier in Azure

04

What if Azure is not your **preferred public cloud**?

Network Infrastructure Components
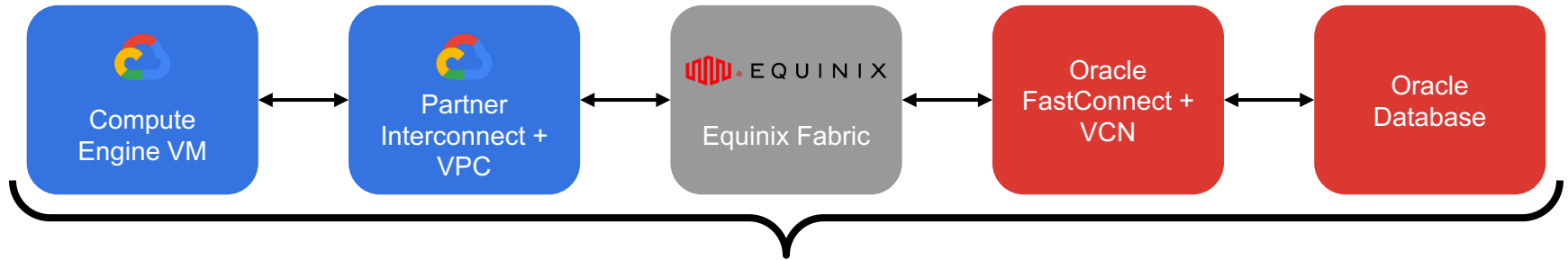
Multicloud Logical Network Interconnect in Ashburn, Virginia, USA
Data does not traverse the public internet ✅

Equinix Console

Google Cloud

Oracle Database Endpoint

Google Cloud

Redundant Connectivity
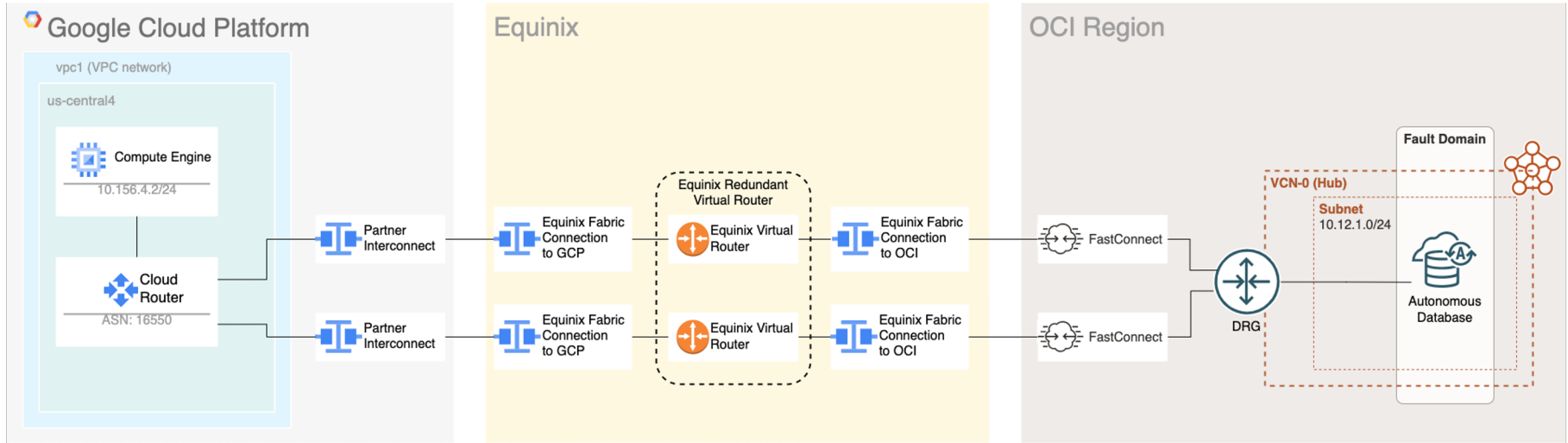
05

Testing performance using **Swingbench**

Test Method

Q: What's the best way to test the impact of network latency on an application?

A: Use the application or a realistic test application.

Test Method

Q: What type of application will feel the impact of network latency the most?

A: "Chatty" applications performing many short interactions with the database over the network.

Test Method

Q: What should we use for a comparison?

A: An all-OCI architecture.

Google Cloud

Results

Maximum think time	10 ms		100 ms	
Component deployment model	Single cloud	Composite multicloud	Single cloud	Composite multicloud
Total transactions	129,979	108,236	17,353	17,357
Average transactions per second	433.26	360.79	57.84	57.86
Average response time (ms)	31.30	49.88	37.10	51.94
Minimum response time (ms)	2	4	2	4
Maximum response time (ms)	1499	467	619	349

Where is this possible?

Oregon
Salt Lake City
Las Vegas
Los Angeles
Dallas
Iowa*
Toronto
Montréal
Columbus
N Virginia
S Carolina

London
Netherlands
Berlin
Warsaw
Belgium
Frankfurt
Paris
Zurich
Turin
Milan
Madrid
Finland

Tel Aviv
Dammam
Doha
Delhi
Mumbai

Seoul
Tokyo
Osaka
Hong Kong
Taiwan
Singapore
Jakarta

São Paulo
Santiago

Sydney
Melbourne

🔴 Metros with Google Cloud, OCI, & Equinix

🔵 Google Cloud Regions without OCI & Equinix in the same metro

Google Cloud

(as of Sep. 2022)

Conclusions

CIO, ❝Is multicloud viable?❞

Engineer, ❝It depends.❞

CIO, 🤔

Test, test, test, and test some more!

06

Monitoring in a **multicloud** environment

OCI Monitoring API

Basic Python to fetch the
average CPU utilization for the
previous minute

```python
monitoring_client.summarize_metrics_data(
    compartment_id="<compartment_id>",
    summarize_metrics_data_details=oci.monitoring.models.SummarizeMetricsDataDetails(
        namespace="oci_autonomous_database",
        query="CpuUtilization[1m].mean()",
        start_time=datetime.now() - timedelta(minutes=2),
        end_time=datetime.now() - timedelta(minutes=1),
        resolution="1m",
    ),
    retry_strategy=oci.retry.DEFAULT_RETRY_STRATEGY,
)
```

now-24h to now-16h

Database Details

Assigned Cores

1 vOCPU

CPU Utilization

	Mean	Range
CPU	36.18%	97.28%

AAS

	Mean	Range	Max
AAS	1.46	48.11	48.11

07

Opening up
new opportunities

Before questions

What have we seen?

1. Secure traffic between clouds is possible via private interconnect

2. Impact of network latency is highly dependent on the nature of the application, specifically transaction "think time"

3. Metrics for OCI services, including Autonomous Databases, are available via published APIs

4. Streaming data from OCI to Google Cloud is possible

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Questions?

Kerry Osborne

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Thank you.

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