



Between Two Clouds

Exploring a Polyglot Microservices Application on Oracle Cloud Infrastructure (OCI) And Microsoft Azure



Adao Oliveira Junior

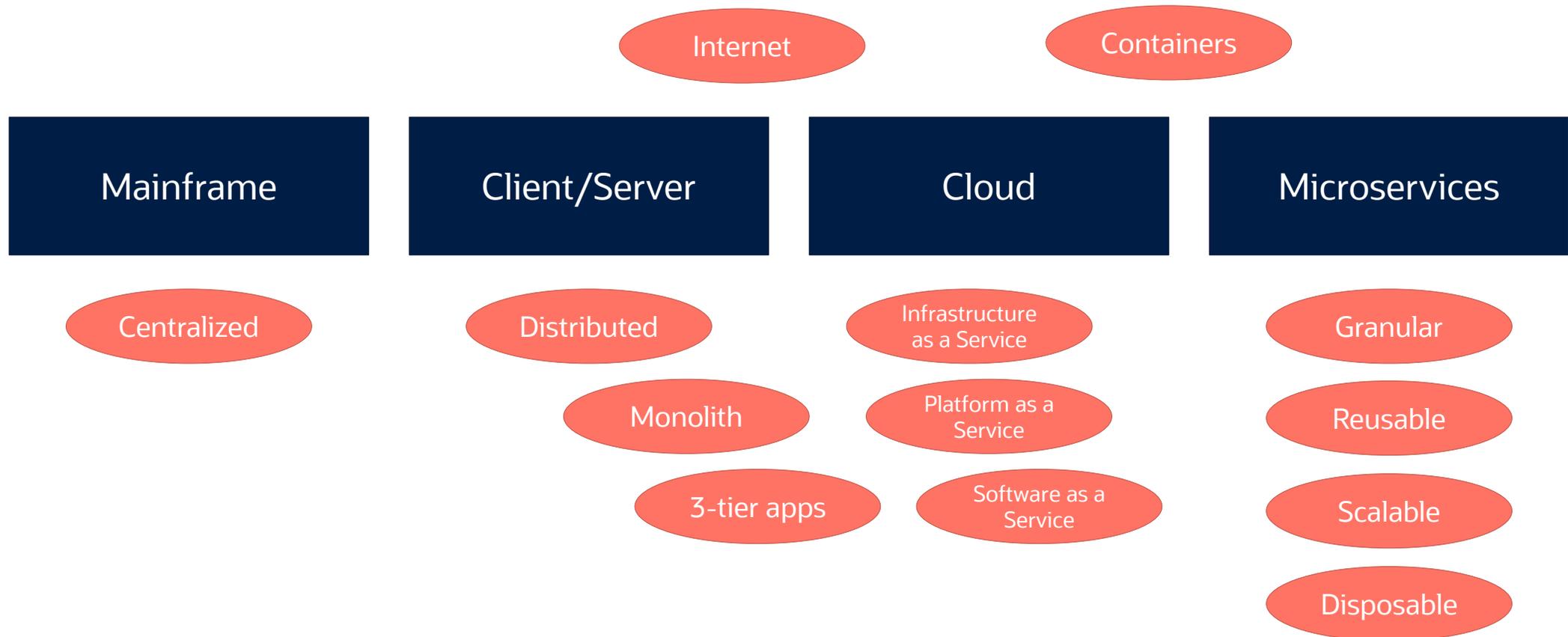
Cloud Solutions Architect

Safe Harbor Statement

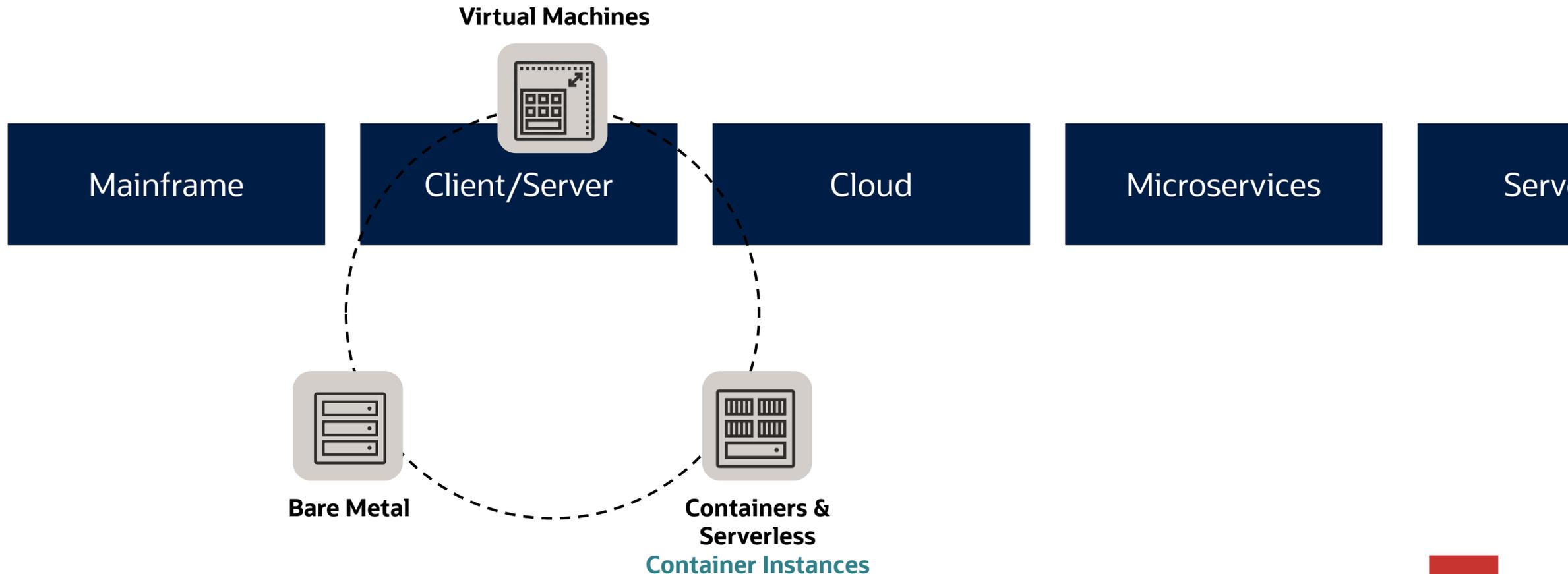
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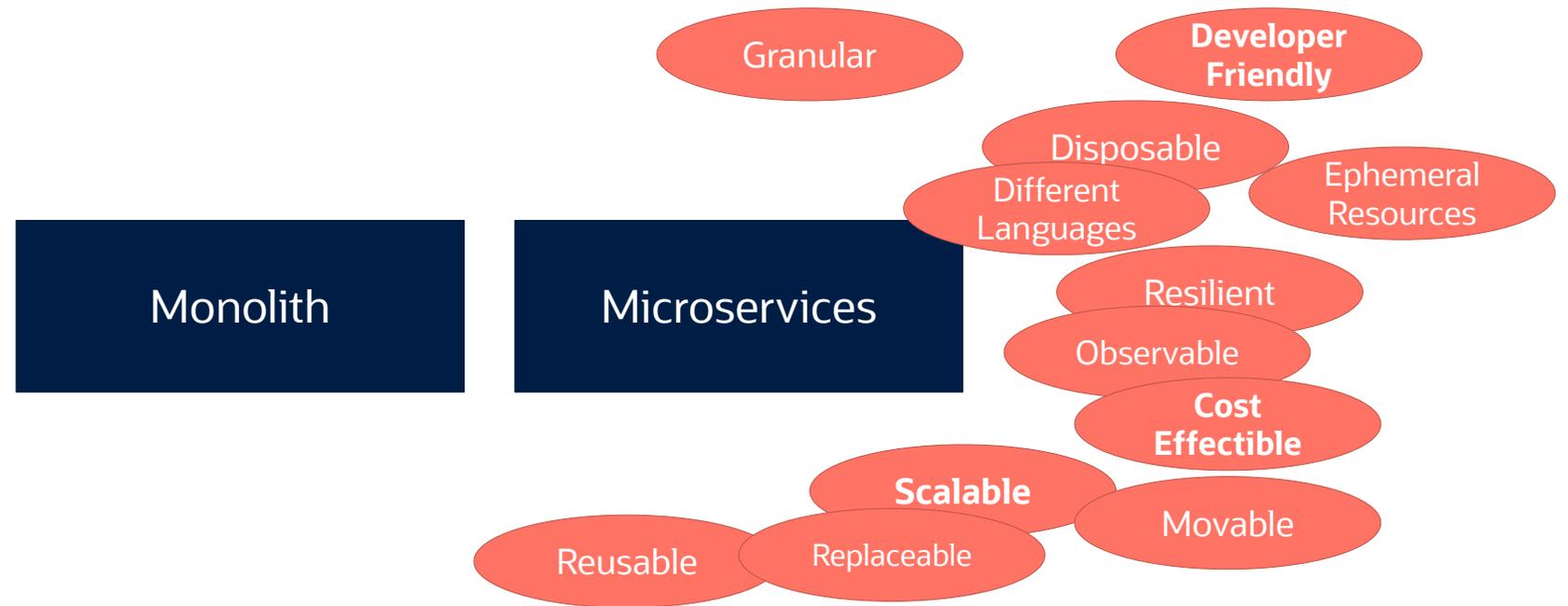
Application Architecture vs Infrastructure Evolution



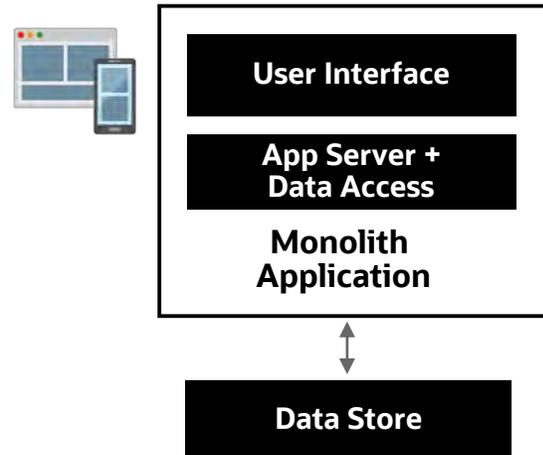
Application Architecture vs Infrastructure Evolution



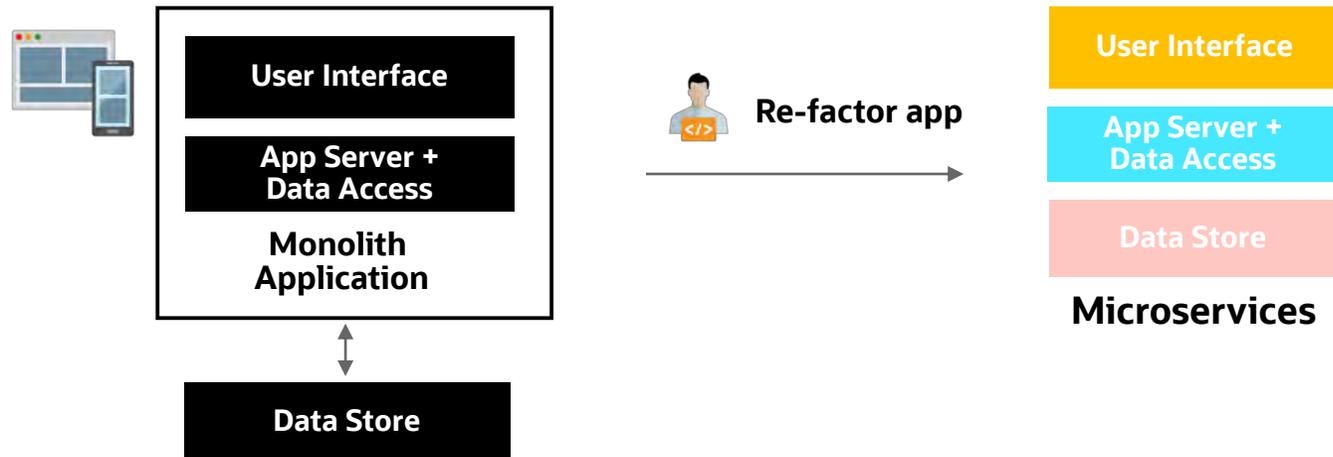
Challenges and Paradigms



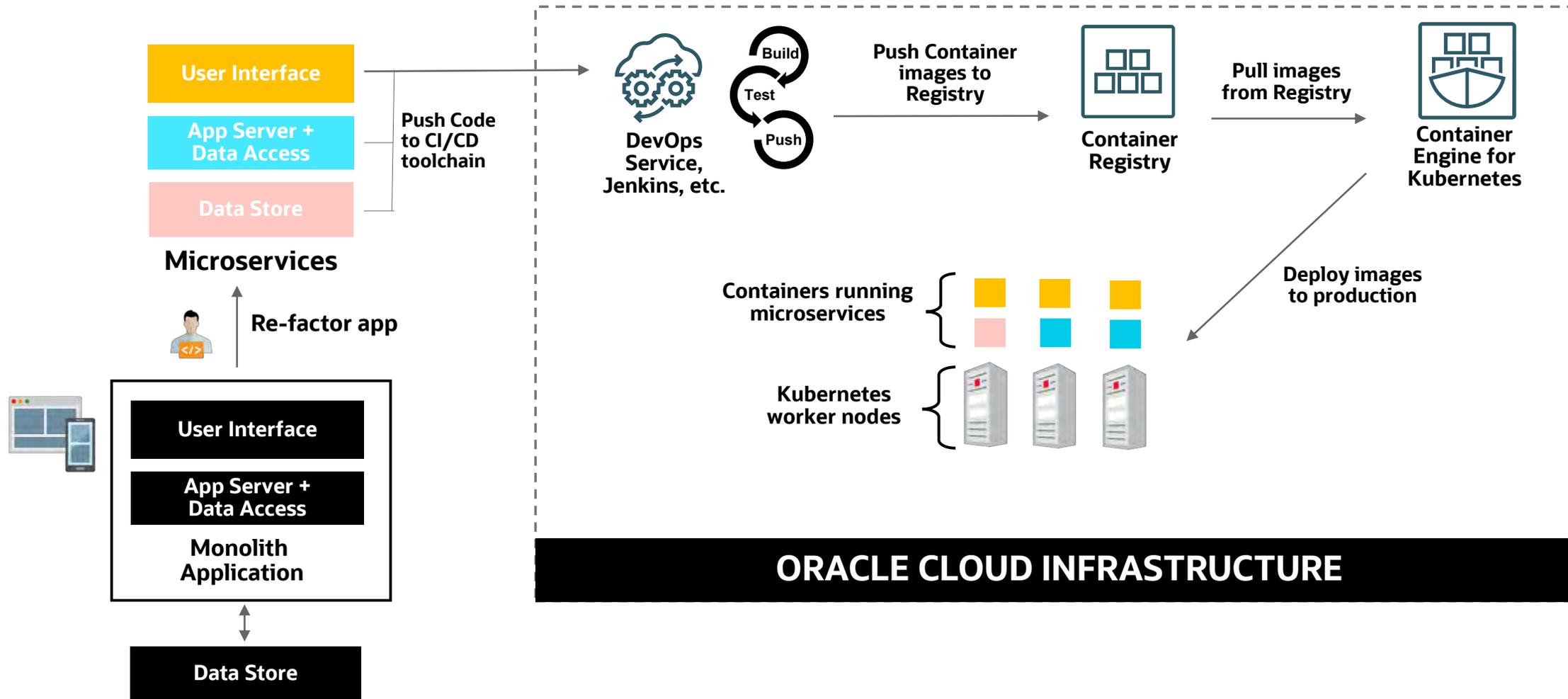
Modern Application Infrastructure Challenges



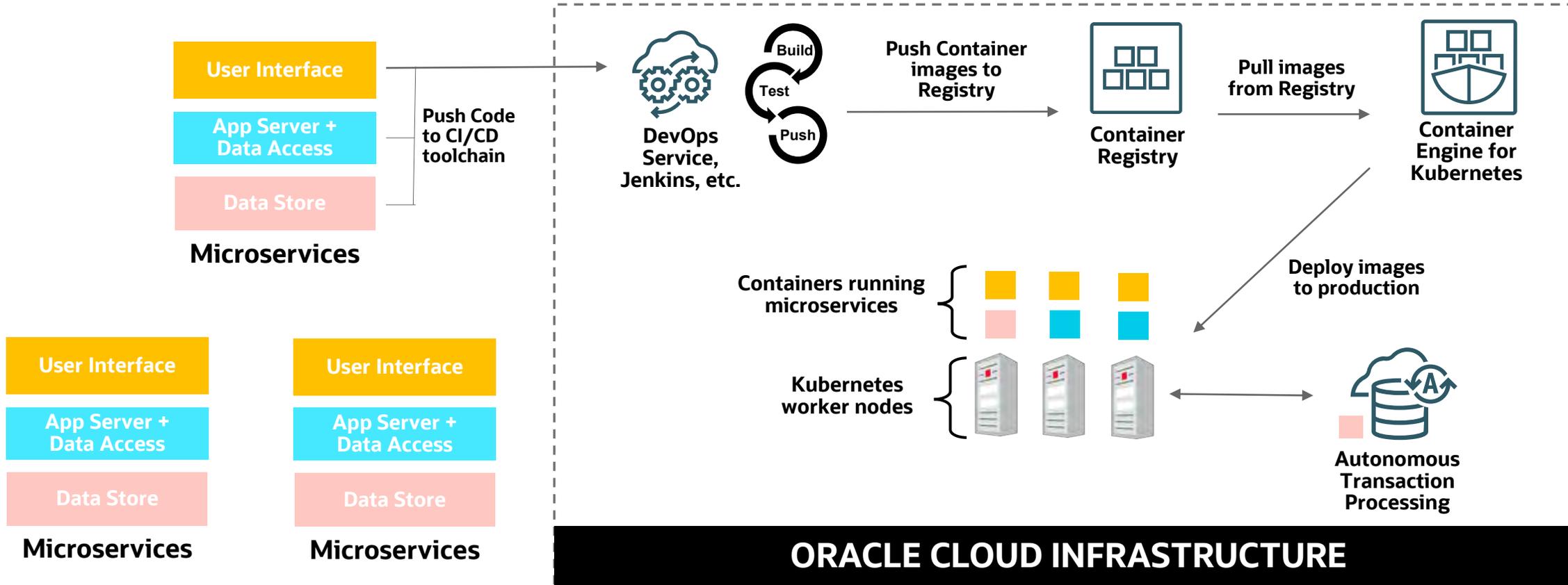
Modern Application Infrastructure Challenges



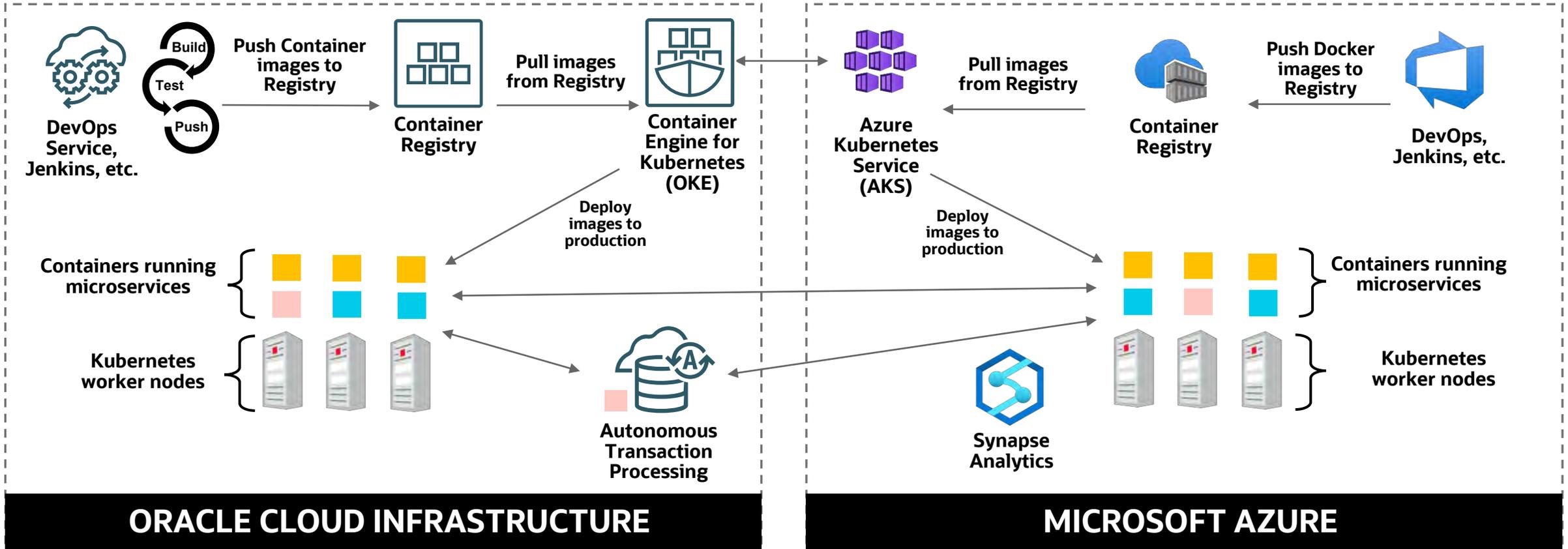
Modern Application Infrastructure Challenges



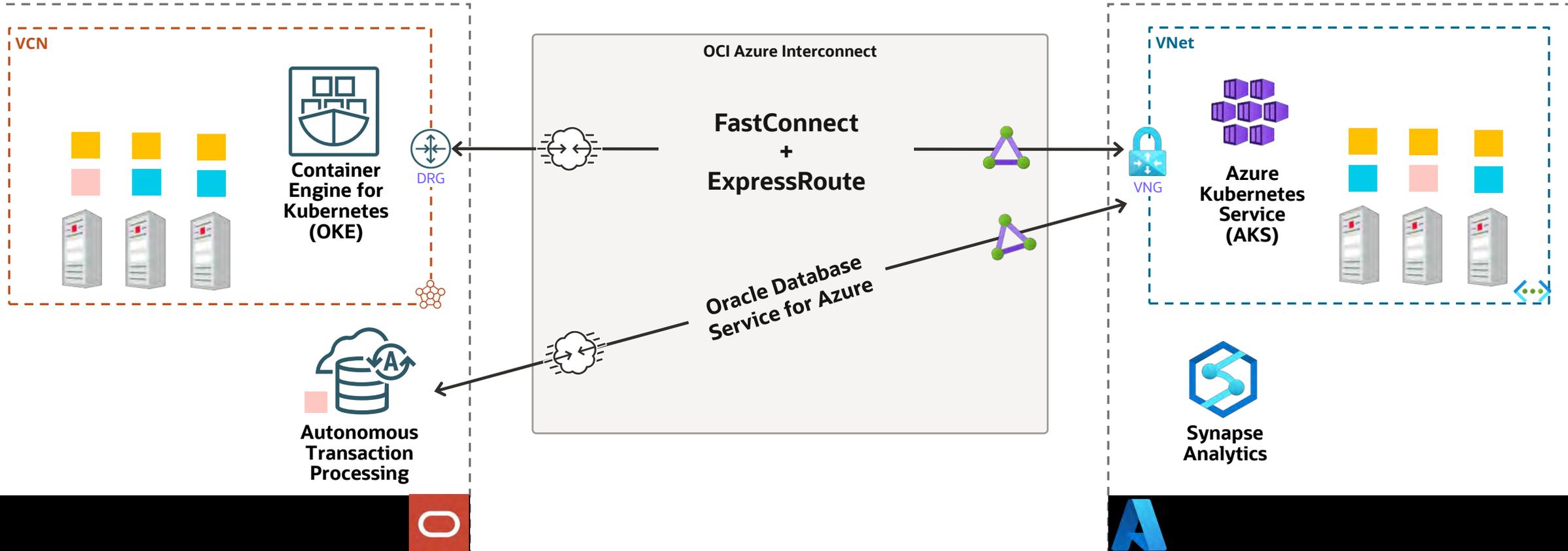
Modern Application Infrastructure Challenges



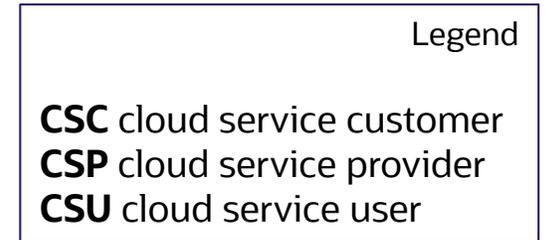
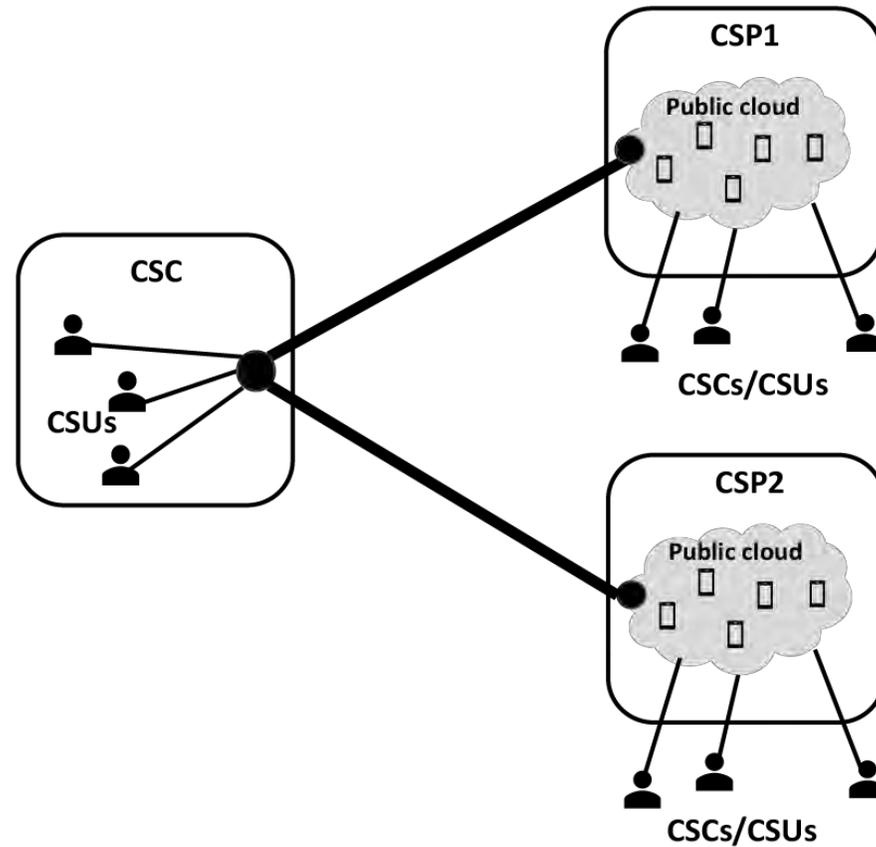
Modern Application Infrastructure Challenges



Modern Application Infrastructure Challenges



Multi-cloud patterns

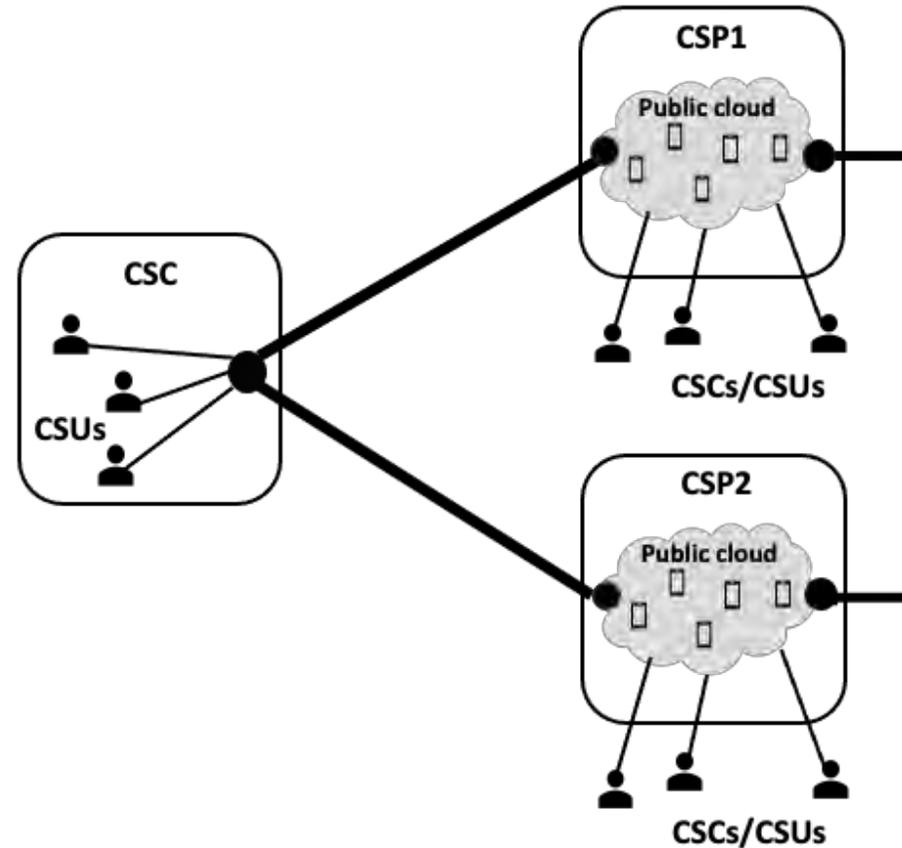


Basic multi-cloud example

Ref: ISO/IEC DIS 5140:2022(E) – 7.2.1 CSP-mediated multi-cloud



Multi-cloud patterns



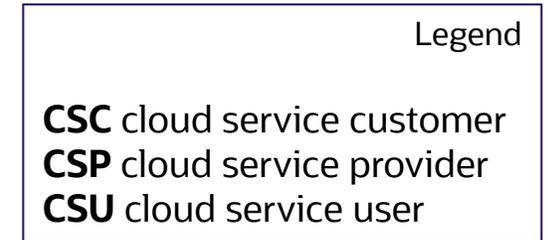
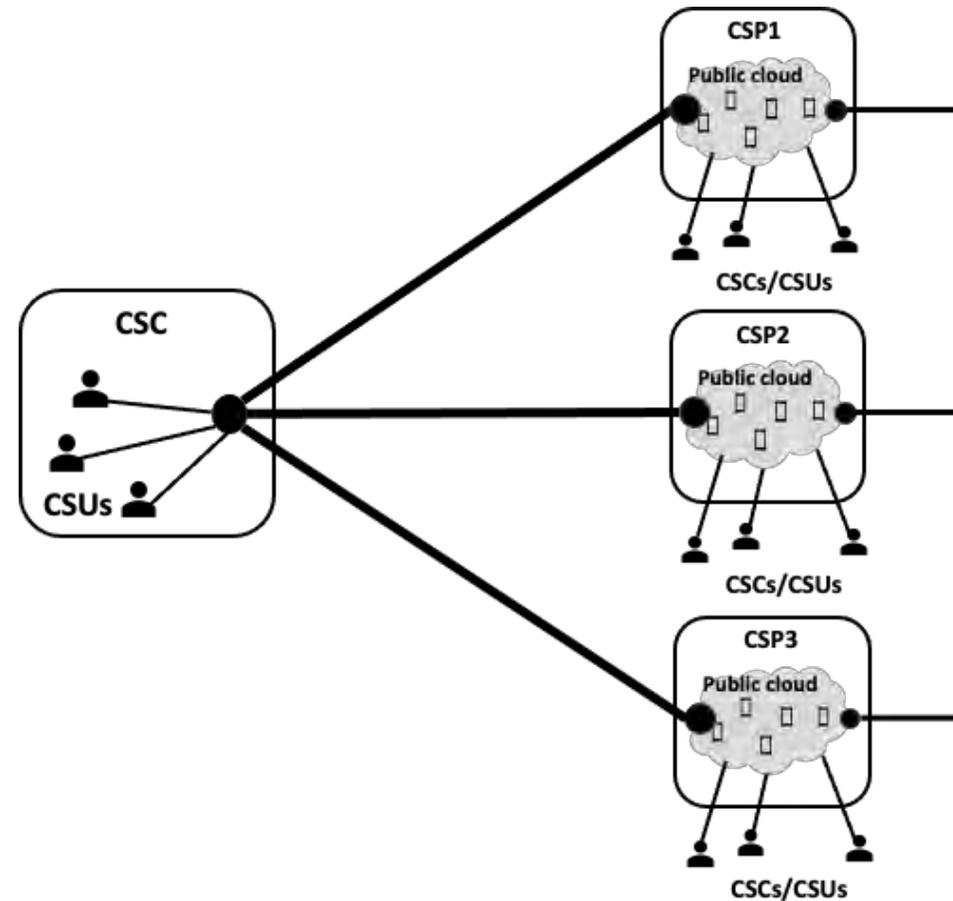
Legend

- CSC** cloud service customer
- CSP** cloud service provider
- CSU** cloud service user

Example of multi-cloud with inter-CSP link
Ref: ISO/IEC DIS 5140:2022(E) – 7.2.2 CSP-connected multi-cloud



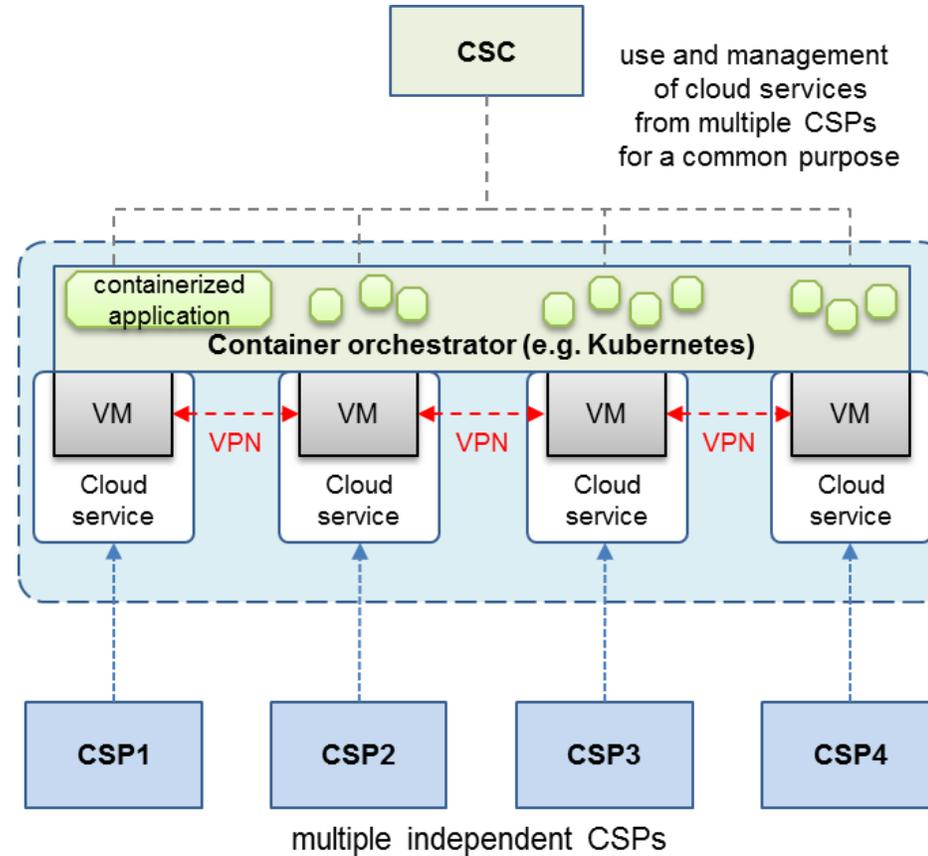
Multi-cloud patterns



Example of a more complex multi-cloud
Ref: ISO/IEC DIS 5140:2022(E) – 7.2.2 CSP-connected multi-cloud



Multi-cloud patterns



Legend

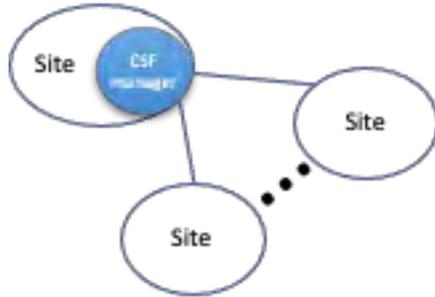
- CSC** cloud service customer
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Use case of container orchestration in multi-cloud

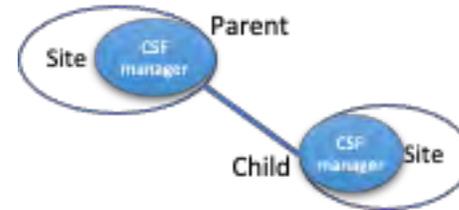
Ref: ISO/IEC DIS 5140:2022(E) – Annex A.2 Container orchestration in multi-cloud environment



Multi-cloud patterns



Centralized CSF manager topology
Ref: ISO/IEC DIS 5140:2022(E) – Annex B.1



Pair-wise hierarchical CSF manager topology
Ref: ISO/IEC DIS 5140:2022(E) – Annex B.2

Legend

CSF cloud service federation
P2P Peer-to-Peer



Pair-wise P2P CSF manager topology
Ref: ISO/IEC DIS 5140:2022(E) – Annex B.2

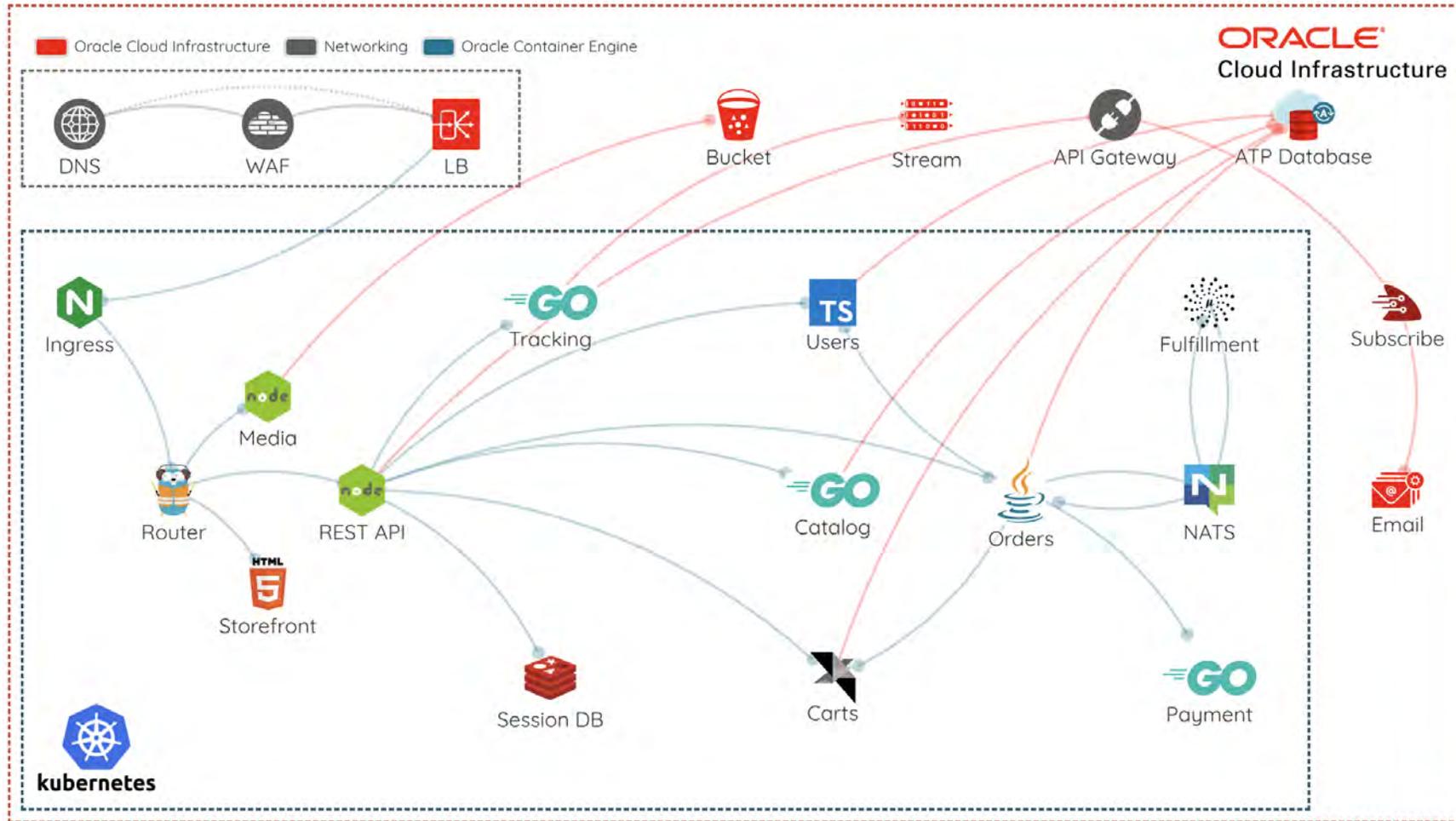


MuShop Sample App

What is MuShop?

MuShop is a polyglot microservices application purpose-built as a Cloud Native reference implementation and sample code for real-world development. Simulates an e-Commerce App

What is MuShop?



* Based on the classic Socks Shop Microservices demo

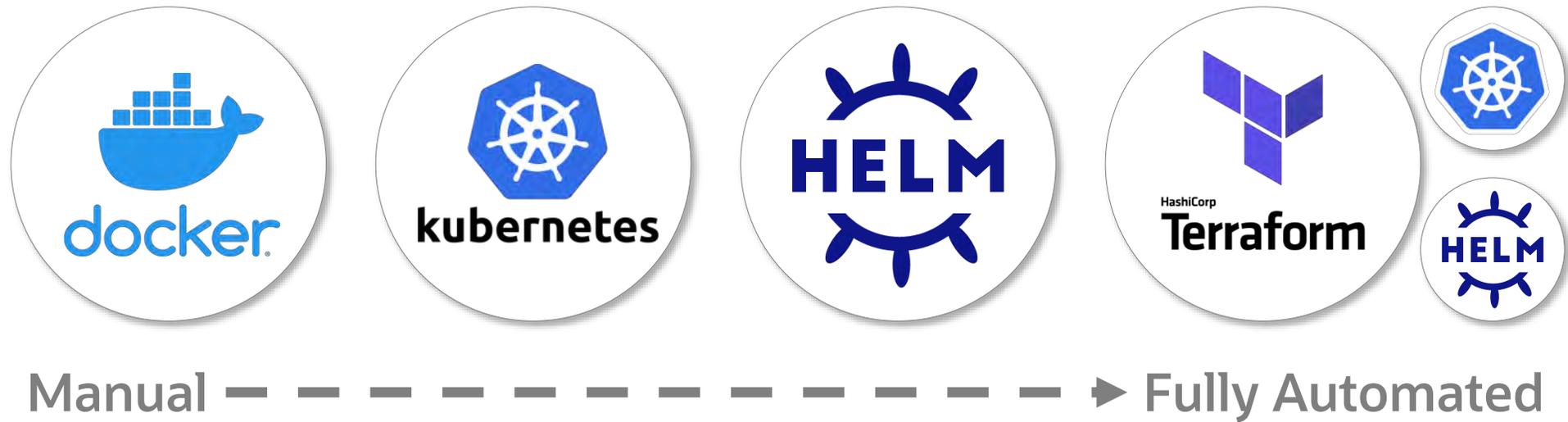


Why “MuShop”?

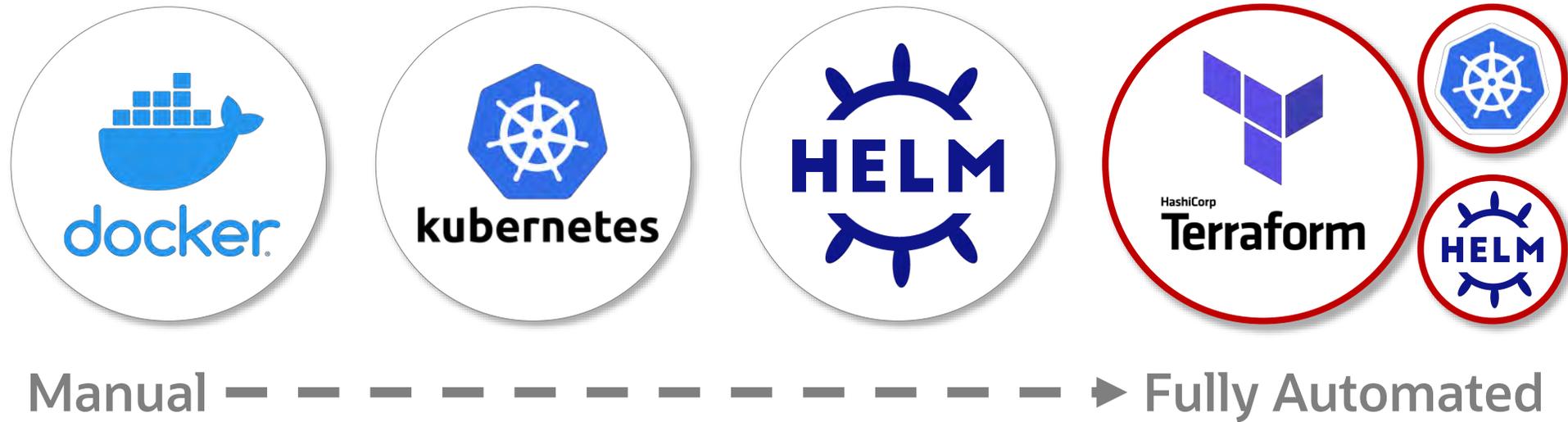
- More than just a hello world or limited “happy-path” app
- Have examples of running on monolith, simple container manager, customer-managed Kubernetes, Cloud Provider managed Kubernetes
- Has examples of deploying using Helm, Terraform, Oracle Resource Manager, Azure Resource Manager
- Made for Developers and DevOps



Deploying MuShop



Deploying MuShop





Oracle Quick Start

Automated deployments of enterprise software on OCI.

Seattle, WA joseph.poczatek@oracle.com

Pinned

[oci-quickstart](#) Public

Oracle Cloud Infrastructure Quick Start

Python 56 stars 24 forks

[oci-prerequisites](#) Public

Instructions to get your environment ready to deploy OCI Quick Start examples

PowerShell 34 stars 20 forks

[oci-h2o](#) Public

Terraform module to deploy H2O Driverless AI on Oracle Cloud Infrastructure (OCI)

Shell 7 stars 8 forks

[oci-cloudnative](#) Public

MuShop - Cloud Native microservices demo for Oracle Cloud Infrastructure

JavaScript 193 stars 145 forks

[oci-couchbase](#) Public

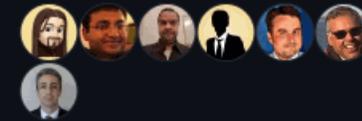
Terraform module to deploy Couchbase on Oracle Cloud Infrastructure (OCI)

[oci-cis-landingzone-quickstart](#) Public

Quickstart Terraform configuration for tenancy setup according to CIS OCI Foundations Benchmark.

<https://github.com/oracle-quickstart/oci-cloudnative>

People



Top languages

- HCL
- Shell
- Python
- Ruby
- Jinja

Most used topics

- oracle-led
- oci
- terraform
- oracle
- cloud



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References

MuShop

- GitHub Repo: <https://github.com/oracle-quickstart/oci-cloudnative>
- Documentation: <https://oracle-quickstart.github.io/oci-cloudnative>
- Architecture Pattern: <https://docs.oracle.com/en/solutions/cloud-native-ecommerce/index.html>
- Helm Install from OCI Console: <https://cloud.oracle.com/?tile=install-mushop-on-kubernetes>
- Live Demo: <https://mushop.ateam.cloud>

Kubernetes

- Kubernetes Multicluster Special Interest Group:
<https://github.com/kubernetes/community/tree/master/sig-multicluster>
- Verrazzano: <https://verrazano.io>
- Karmada: <https://karmada.io>



References

Multi-cloud

- ISO/IEC DIS 5140 – Concepts for multi-cloud and the use of multiple cloud services: <https://www.iso.org/standard/80910.html>
- NIST Cloud Federation Reference Architecture: <https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.500-332.pdf>
- Oracle Multicloud: <https://www.oracle.com/cloud/multicloud/>
- Azure Multicloud: <https://azure.microsoft.com/en-us/solutions/hybrid-cloud-app/>
- Azure and Oracle Cloud Infrastructure: <https://docs.microsoft.com/en-us/azure/virtual-machines/workloads/oracle/oracle-oci-overview>
- Oracle Database Service for Azure: <https://www.oracle.com/cloud/azure/oracle-database-for-azure/>
- Verrazzano Hybrid and Multicloud: <https://www.oracle.com/linux/verrazano/#rc30p3>



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