Red Hat Summit

Connect

Virtual Application Network: interconnettere applicazioni e servizi in ambienti ibridi

Abilitare e semplificare l'interazione tra applicazioni e servizi distribuiti su infrastrutture eterogenee con Red Hat Service Interconnect

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Organizations today rely on Distributed Applications

Each application resides in different environments

Applications reside in a diverse mix of environments

Either On-Premises, in the Public Cloud, or at the Edge

Red Hat OpenShift

Multiple versions

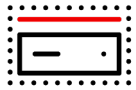
OpenShift 4.x,

ARO, ROSA

aws Microsoft Azure Google Cloud

Other Kubernetes Offerings

Kubernetes from hypervisors
(AWS EKS, AzurAKE, EKE)
Vanilla Kubernetes



Bare metal and VMs

Variety of bare metal and VM environments running existing existing services

Legacy Systems

Old unixes, Mainframes

Drivers for Hybrid Cloud

Security & Compliance

Regional regulations, internal company wide policy enforcement. Industry specific rules. National supervisory requirements.

GeoLocation

Closer to business. Closer to Help-center establishment. Map workload. Expand geographical coverage.

IT Agility

Choose right cloud for your workload. Keep options open. Better when cross-cloud resilience applied.

Data Gravity

Data close to where it's heavily used. Less ingress/egress traffic. Data Lake access offering choices.

Flexibility

Avoid vendor lock-in, deploy close to development center. Backup and contingency plan. Exit strategy. Optimize limited budgets.

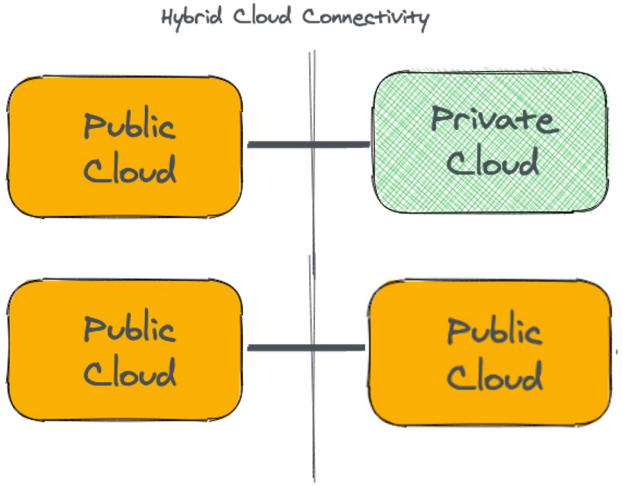
Better Solution Offerings

Cloud vendors offer better service on certain areas.

Connectivity Challenges

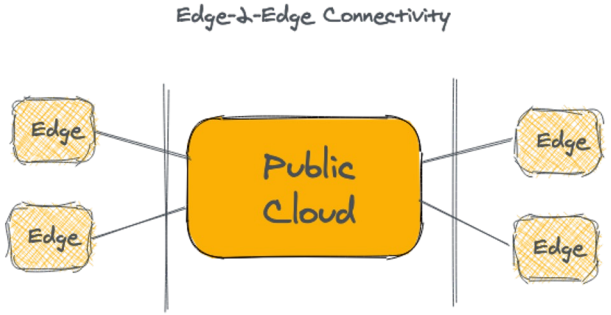
Distributed applications need connectivity

Distributed applications across the hybrid cloud are artificially converted into independent applications because of topology restrictions



Hybrid Cloud Connectivity

Services running on the cloud need to access on premise resources



Edge-to-edge Connectivity

Traffic between edge applications needs to access other edge sites

Connectivity Options/Choices

Public IP Networks

No network isolation

No connectivity to sites behind NAT or Firewalls

Each IP is a co$t

Set up your own VPN network

Network isolation

Complexity (iptables and firewall rules)

Hub-n-spoke topology

Requires administrator privileges

Larger Provider Networks(Eg: Azure/AWS PrivateLink)

Network isolation

Vendor lock in

Requires cluster privileges

Each connection is a co$t

Overlay Network (VAN)

Fine-grained network isolation

Low complexity

Developer controlled

Very low cost for additional resource

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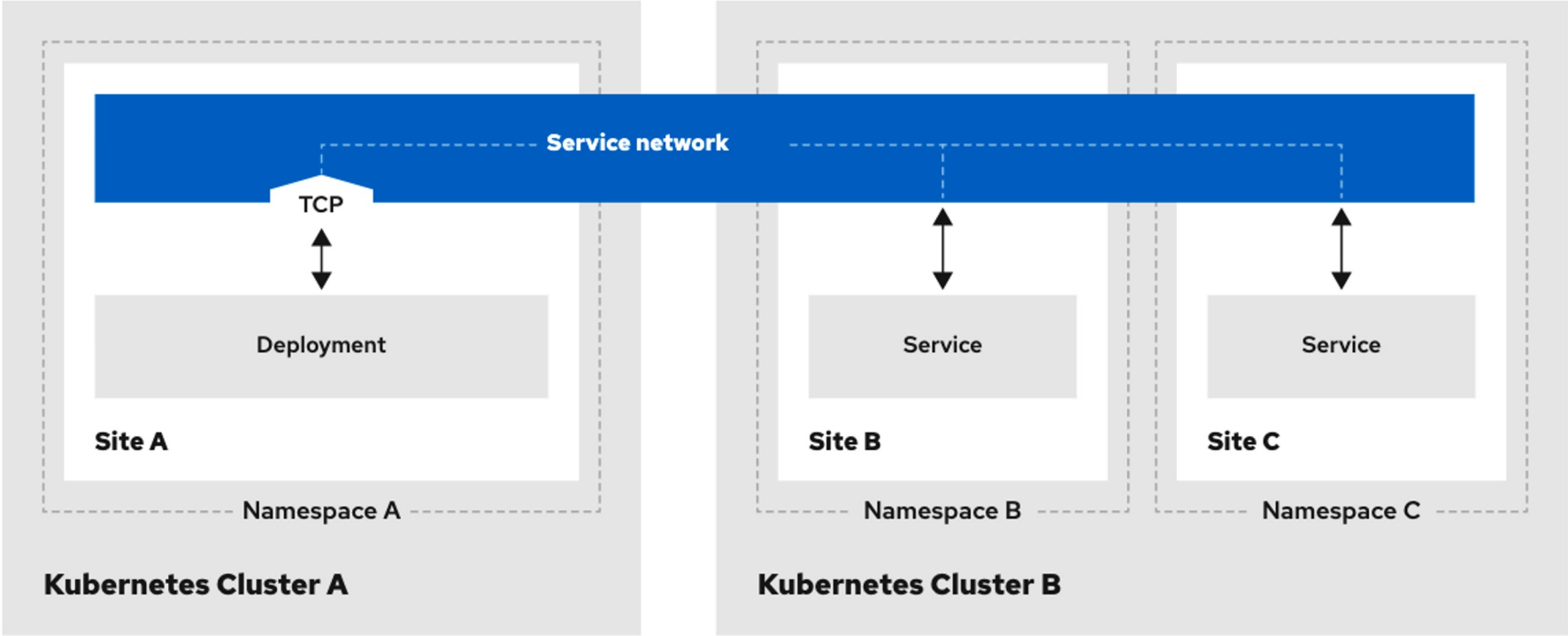
Application Connectivity

Using Red Hat Service Interconnect to create a service network



Red Hat Service Interconnect

Powered by open source

Apache Qpid™

Apache Qpid develops tools for AMQP 1.0 messaging under the Apache Foundation

Apache Qpid Dispatch is an AMQP 1.0 message router for wide-area messaging

Started: 2014
Releases: 27
Committers: 51

qpid.apache.org
github.com/apache/qpid-dispatch

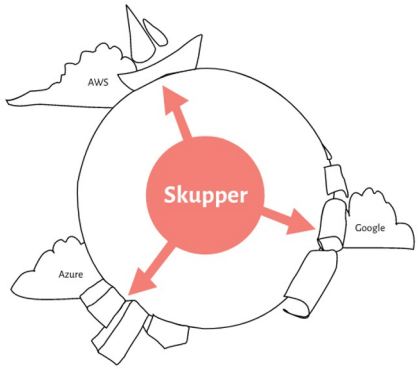
Skupper

Skupper is a cloud service interconnect. It enables secure communication across clusters.

Skupper uses Apache Qpid Dispatch for its communication backbone

Started: June 2019
Releases: 13
Committers: 17

skupper.io
github.com/skupperproject



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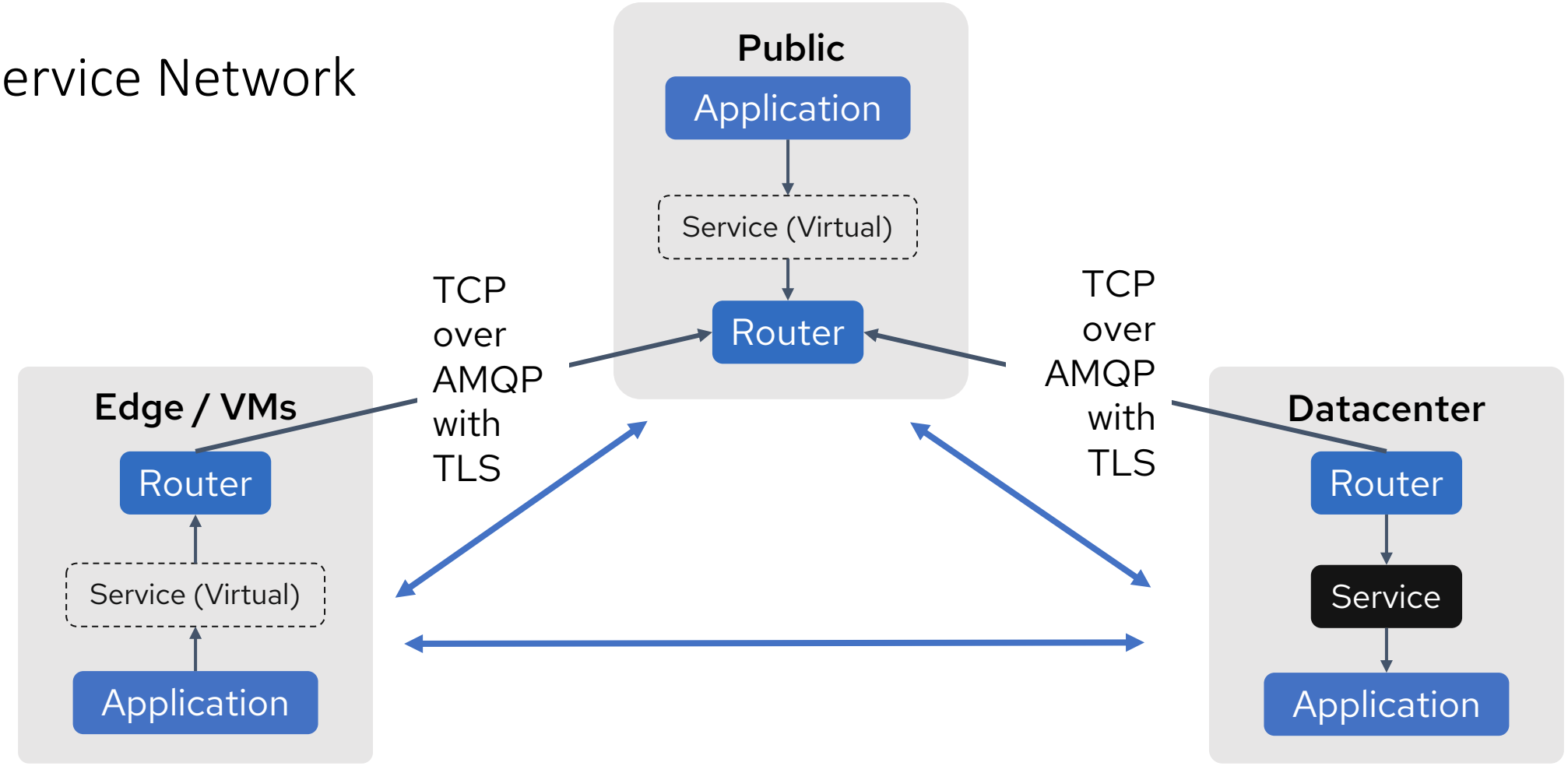
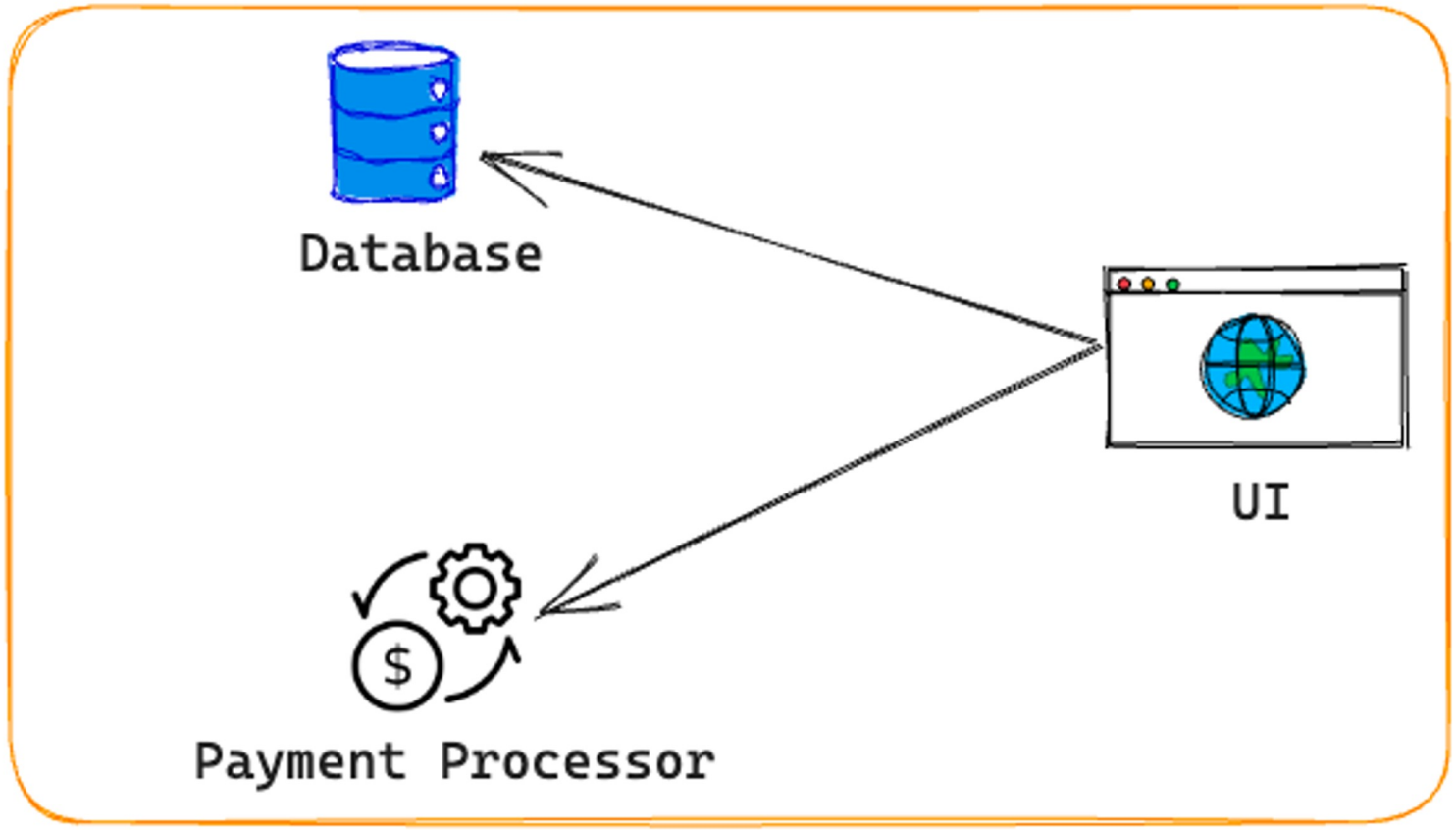
Service Network



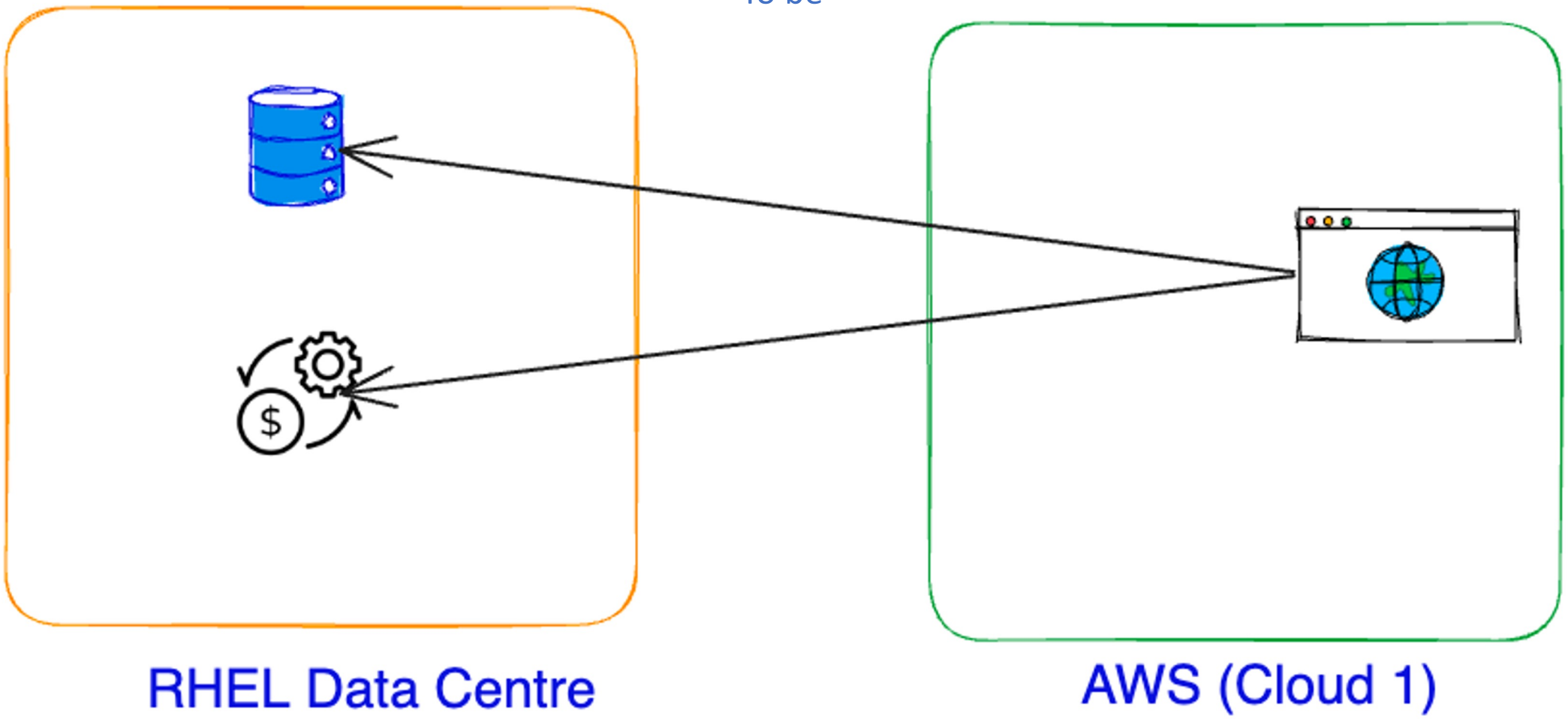
Demo Scenario

As-is



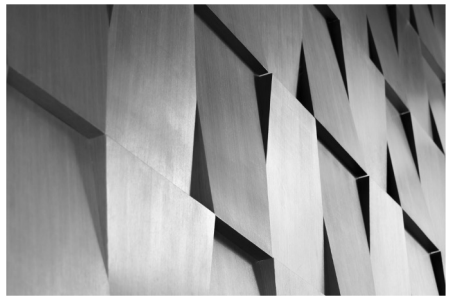
Demo Scenario

To be



Red Hat Service Interconnect

Simple and secure application connectivity across platforms, clusters, and clouds



Application Focused Integration

Individual Apps running on virtually any platform can make native TCP calls locally to any other app running on any other platform securely without special VPNs.

Mutual TLS Encryption

Interconnections use Mutual TLS in order to prevent unauthorized interconnections.

Application Layer Abstraction

Agnostic of the environment and IP versions (such as IPv4 and IPv6) Enables portability for both applications and its associated networking. Migrations can be easily done without recreating the networking.

Layer 7 Addressing

Instead of routing IP packets between network endpoints, Layer 7 application routers route messages between application addresses

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