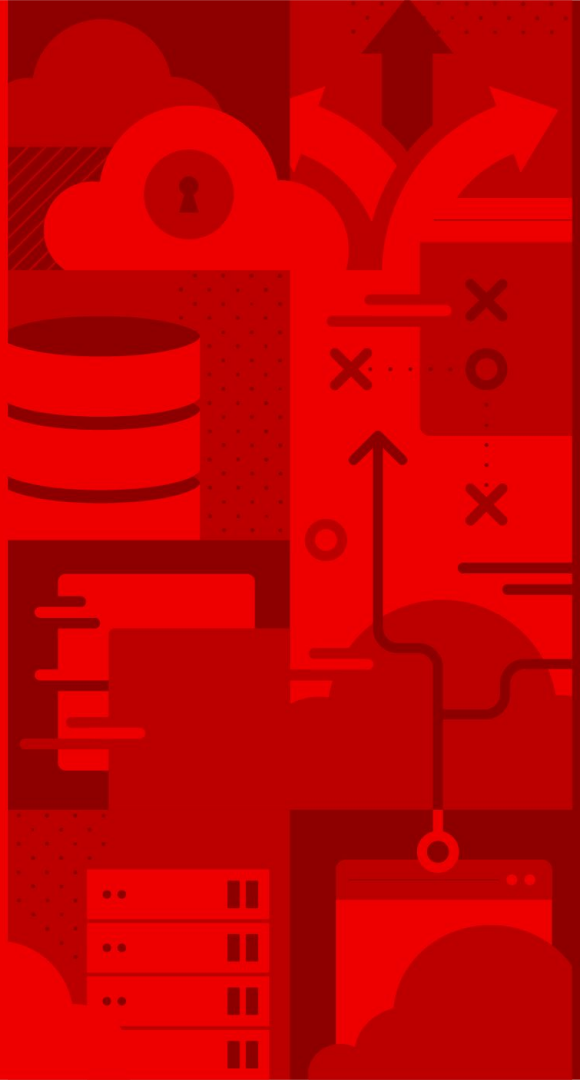
Red Hat OpenShift: 2021 Outlook

4th February 2021

Mike Barrett, Senior Director Cloud BU

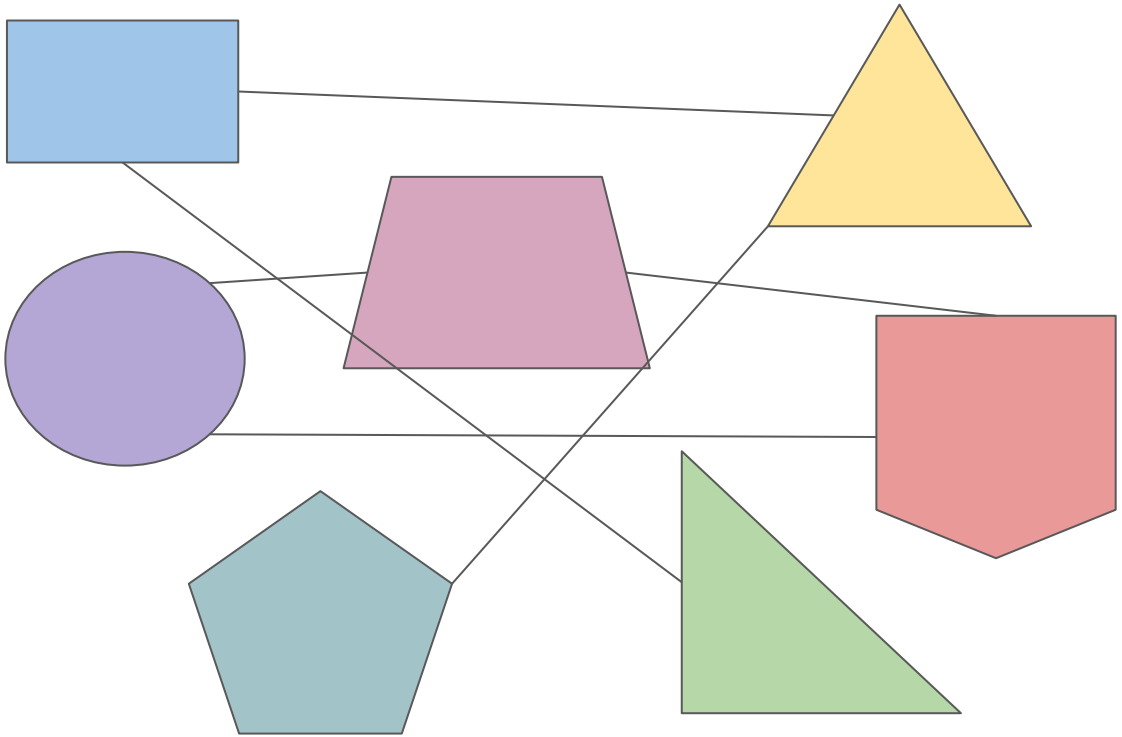
Red Hat



Driving Forces

Red Hat

The Story of the Distributed....well...~~Monolith~~ Monster

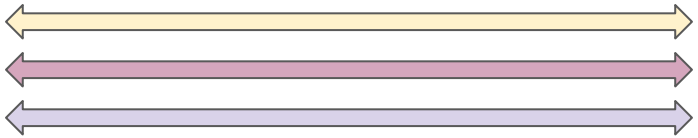


Normal Day

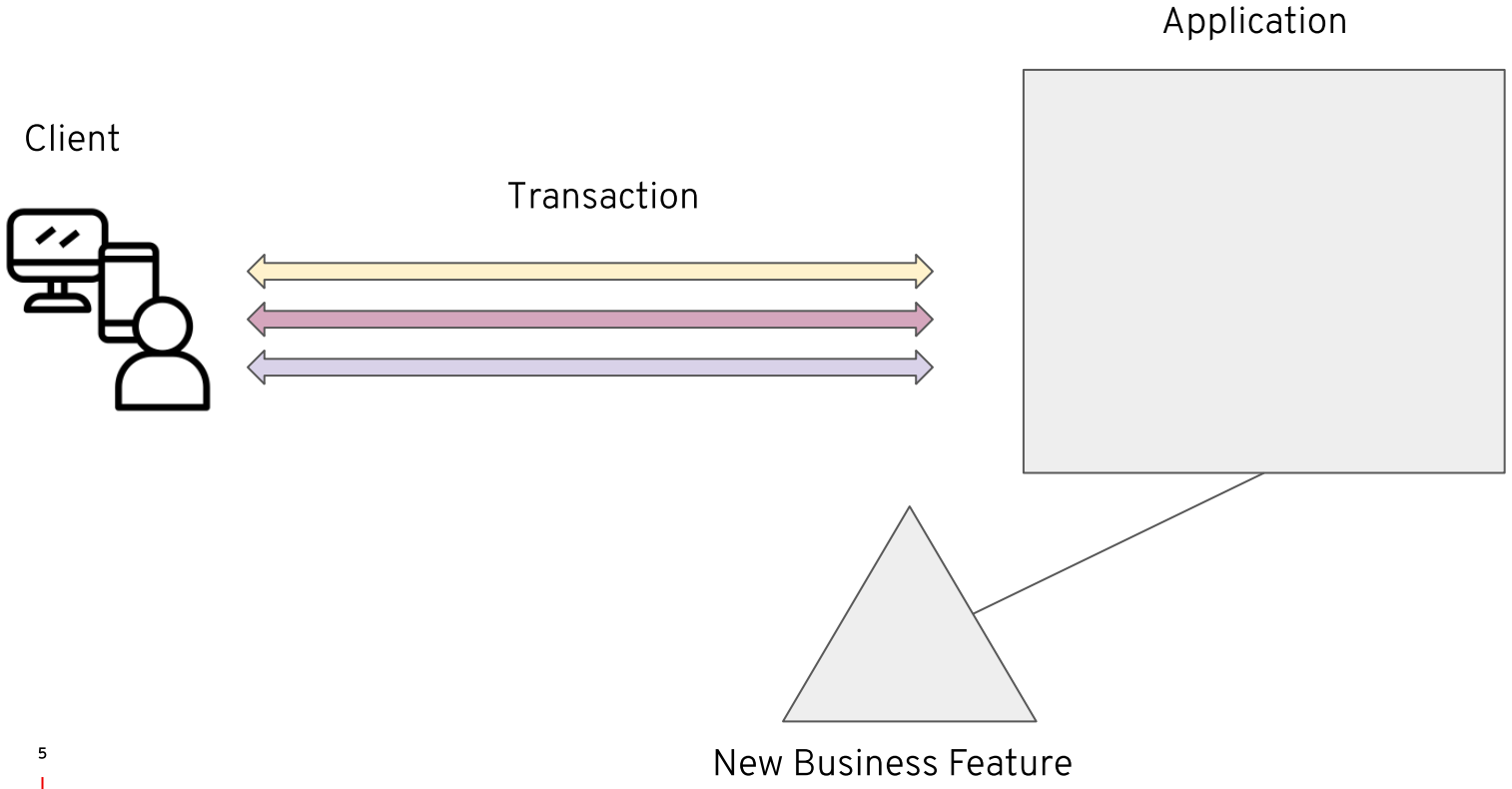
Application

Client

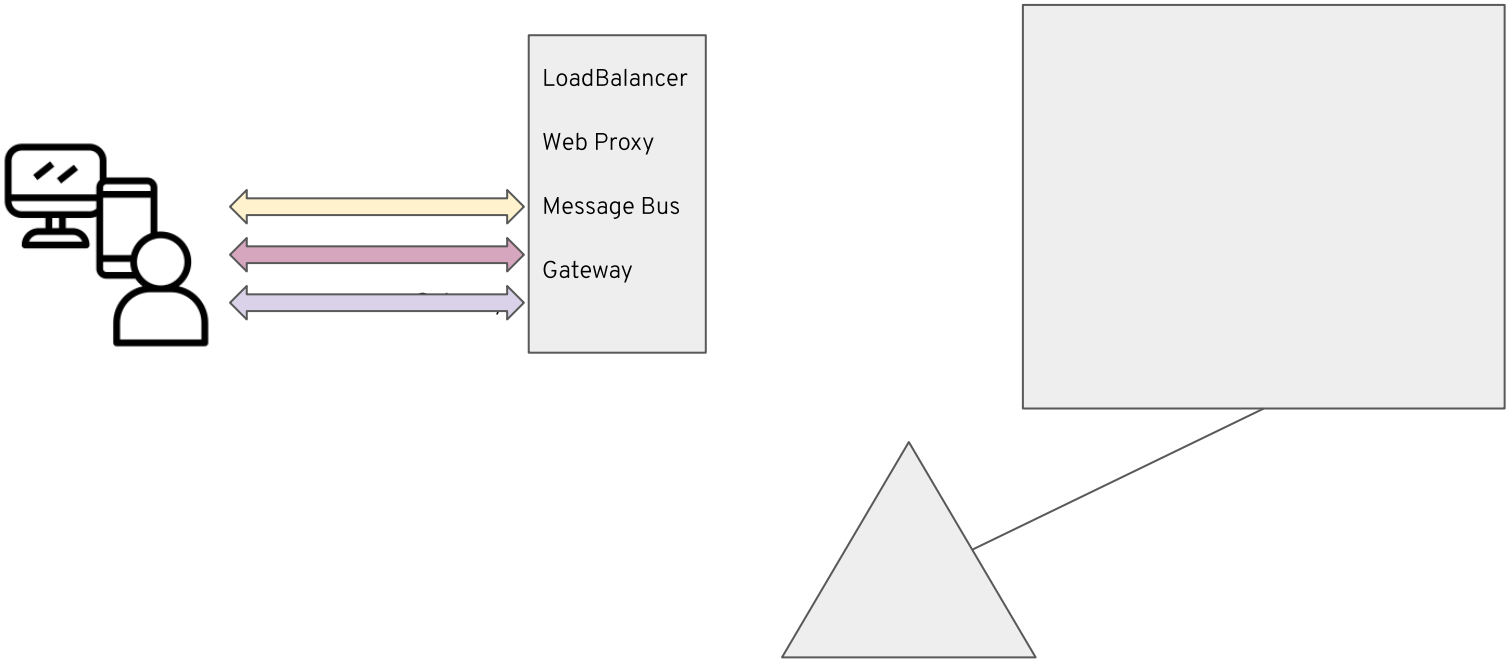
Transaction



Speed of Business



We Can Do More With What We Have!



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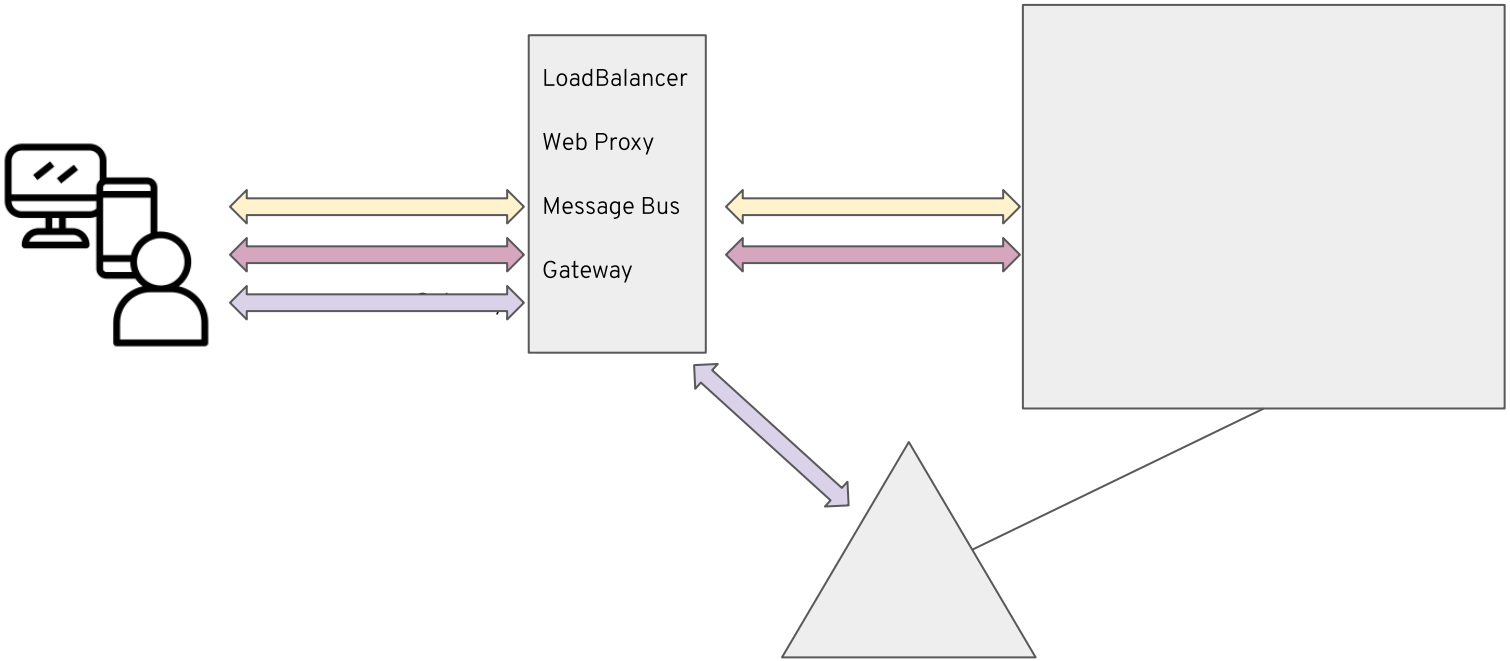
More Money!



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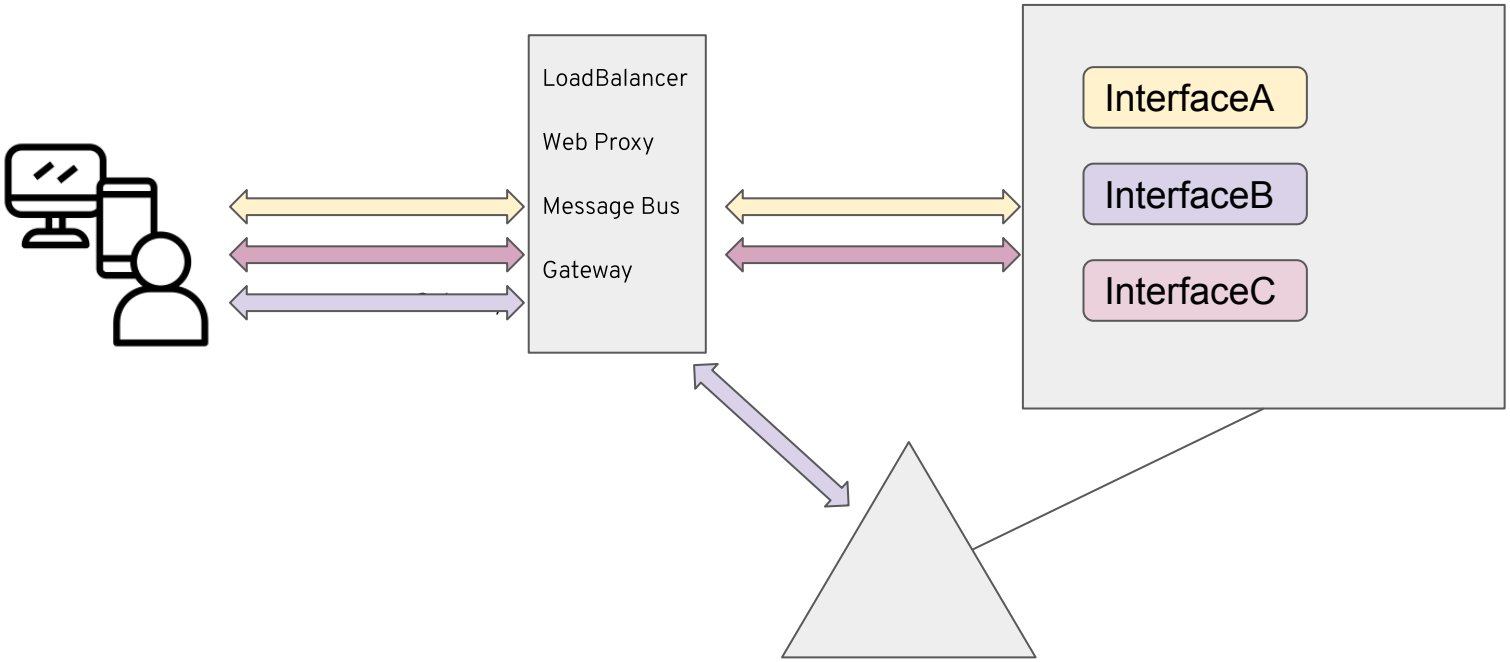
More Choices



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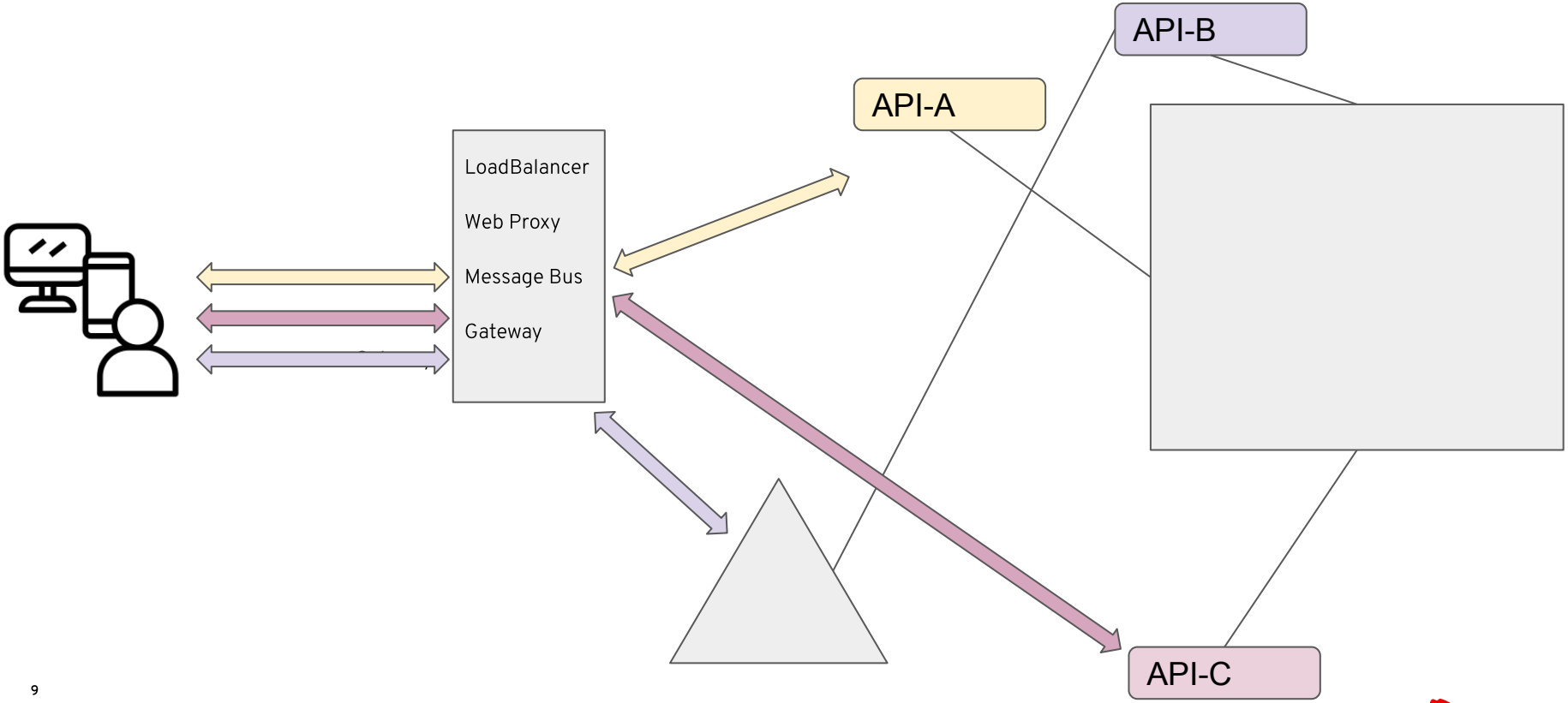
Move Faster



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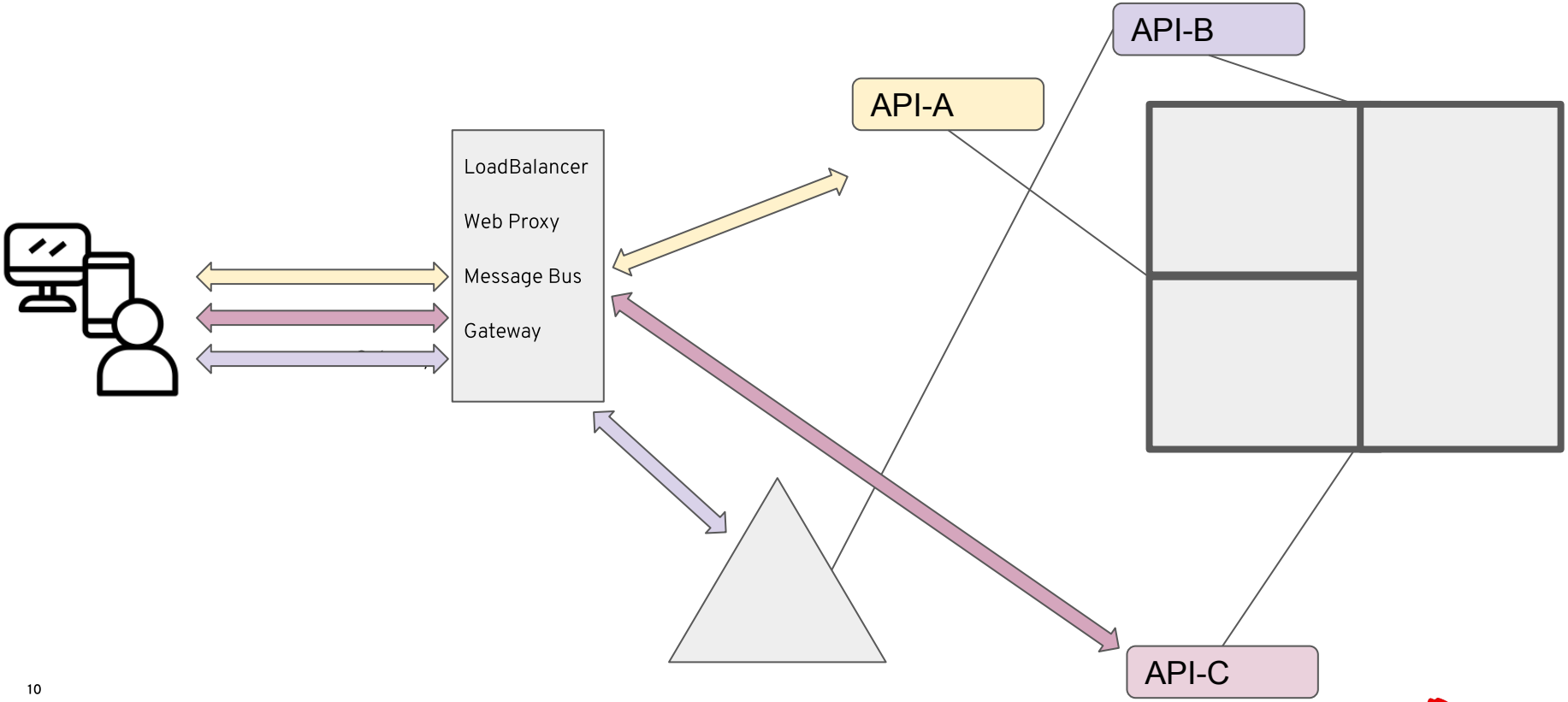
Work Independently



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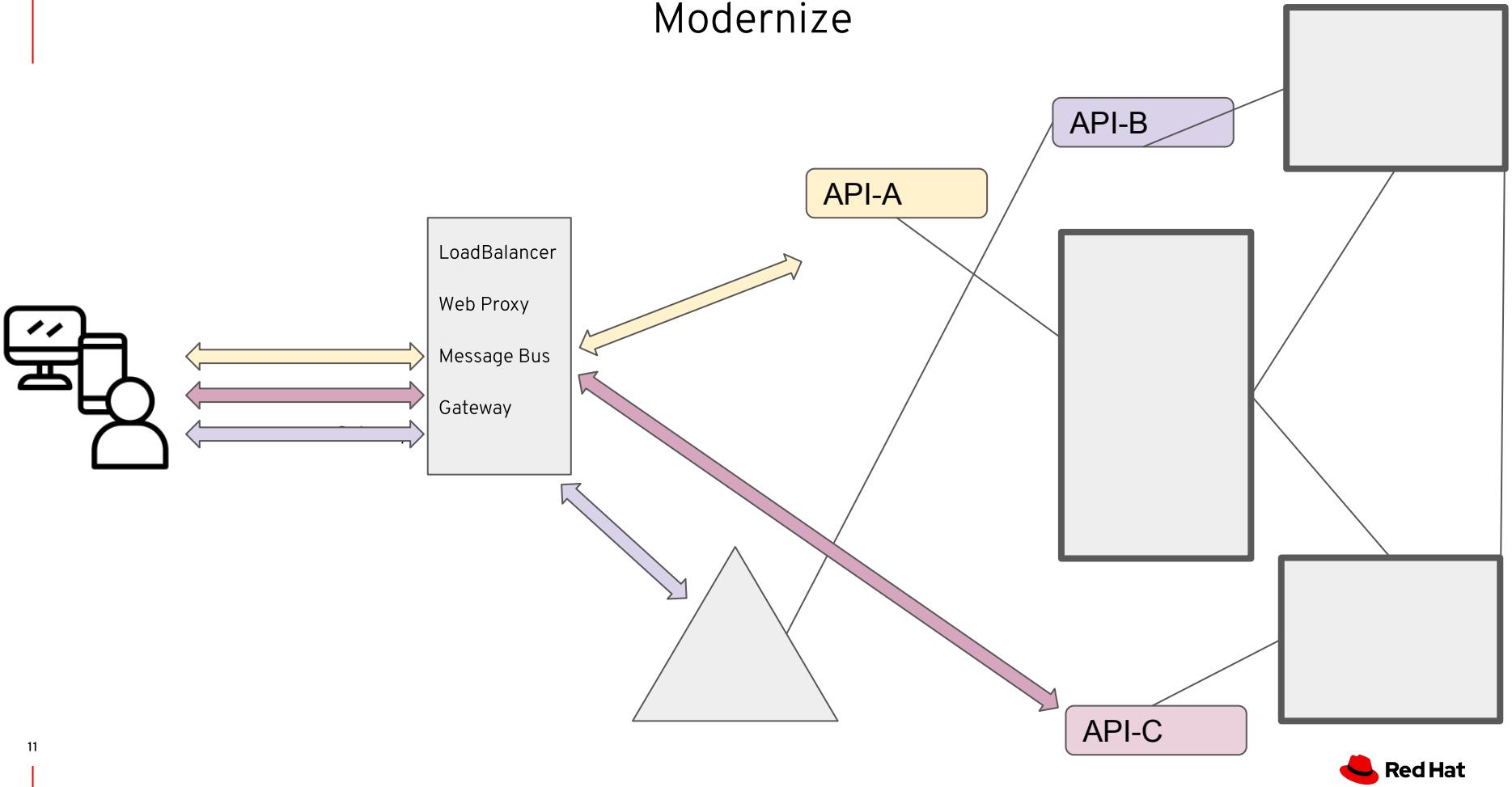
Modernize



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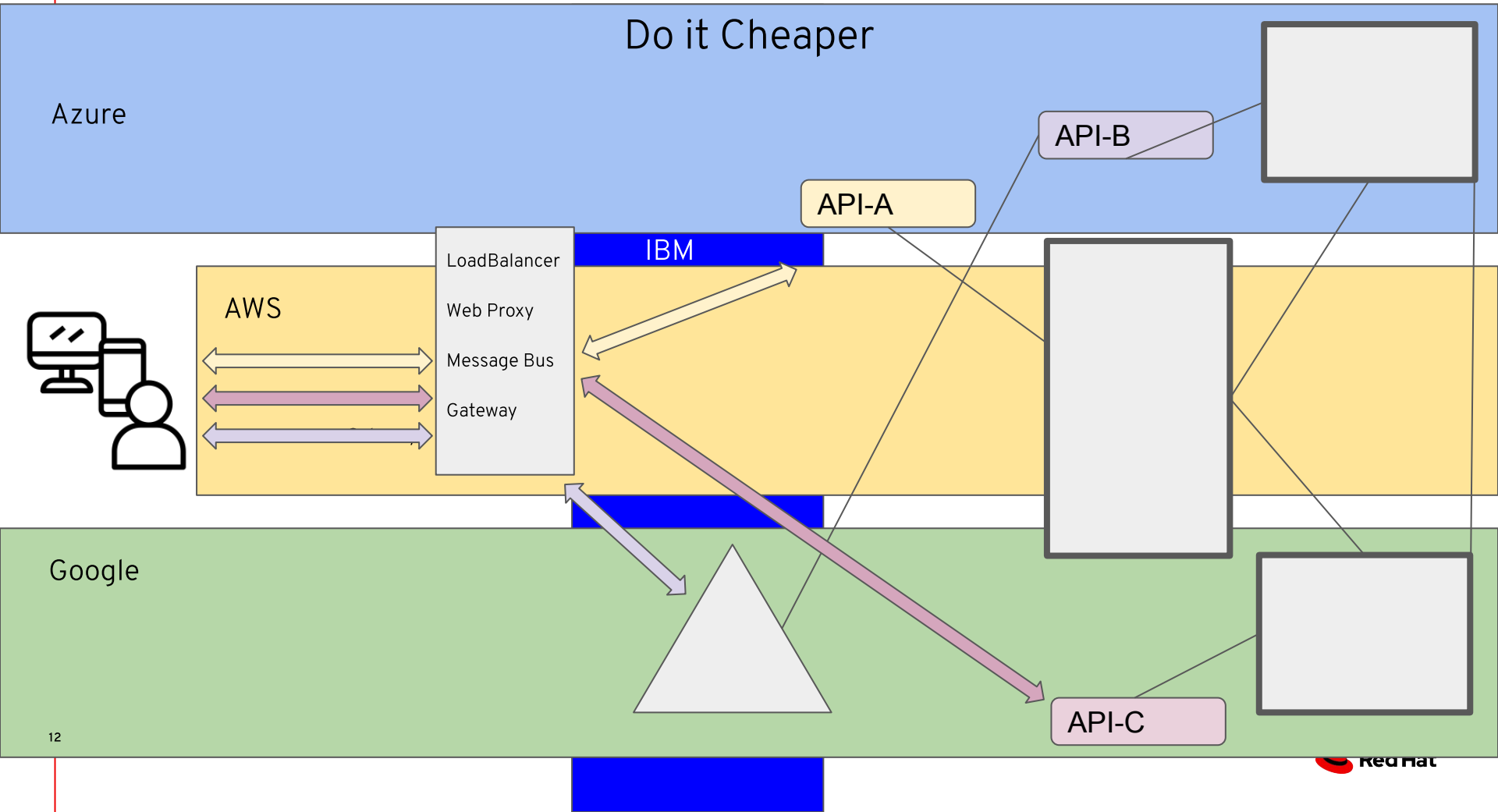
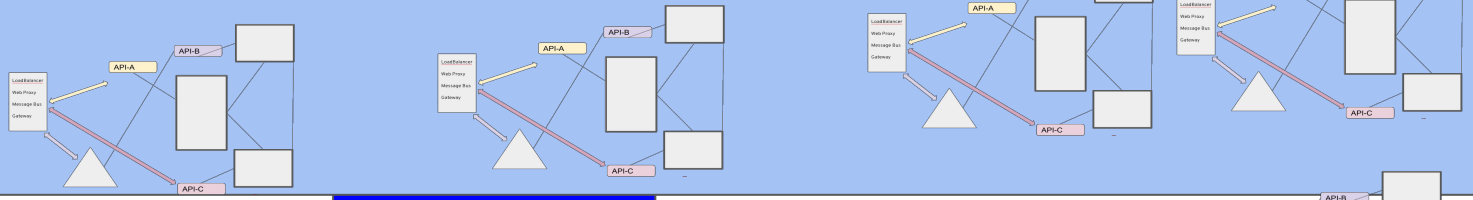
Do it Cheaper



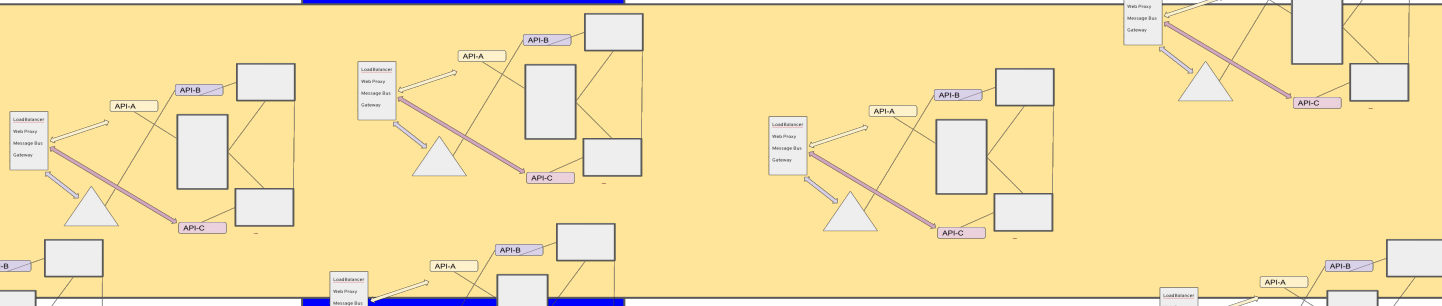
Do it Again

Azure

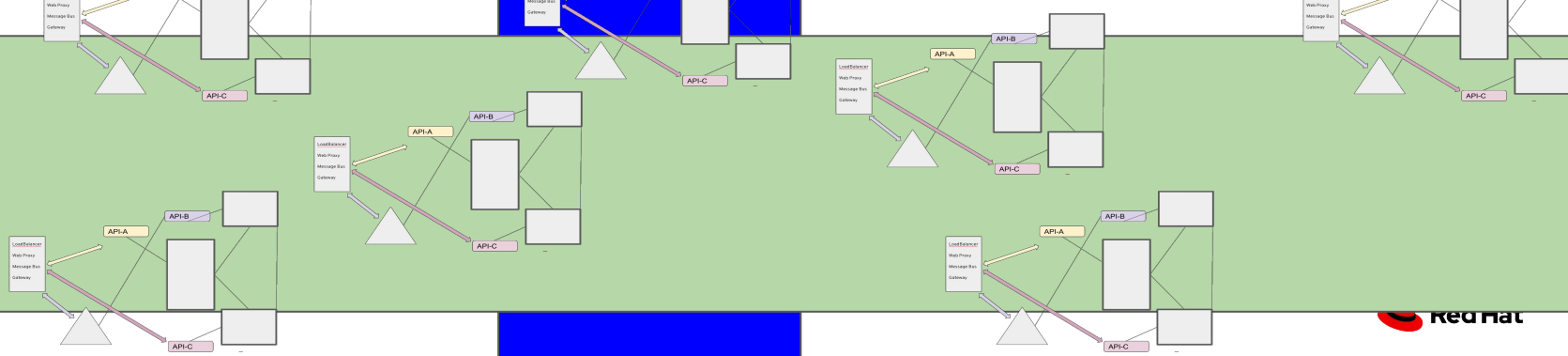


IBM

AWS



Google



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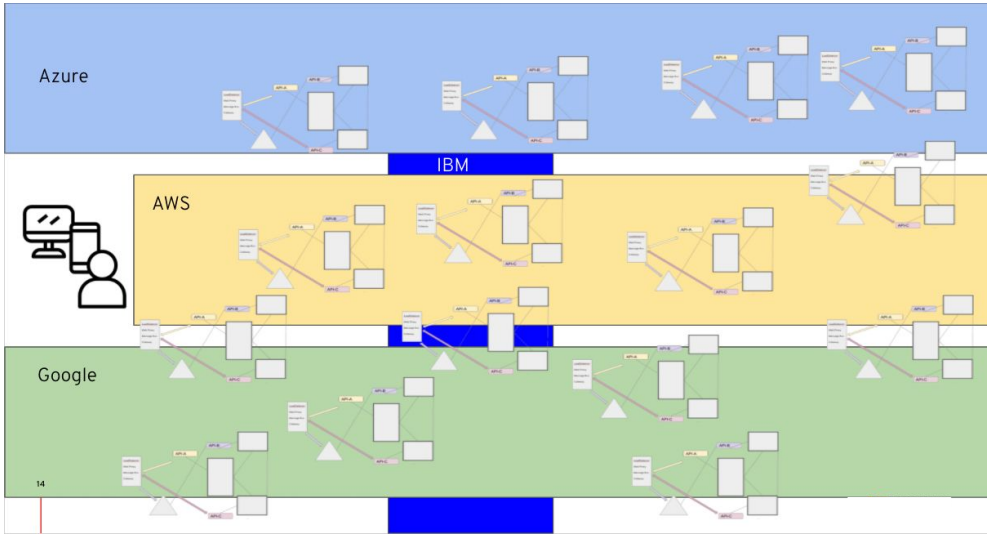
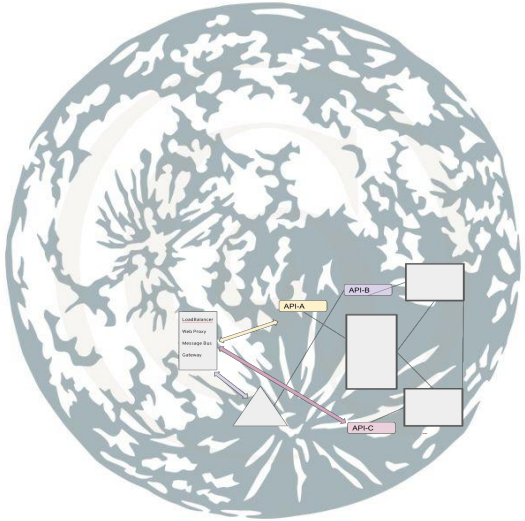
Do it Everywhere



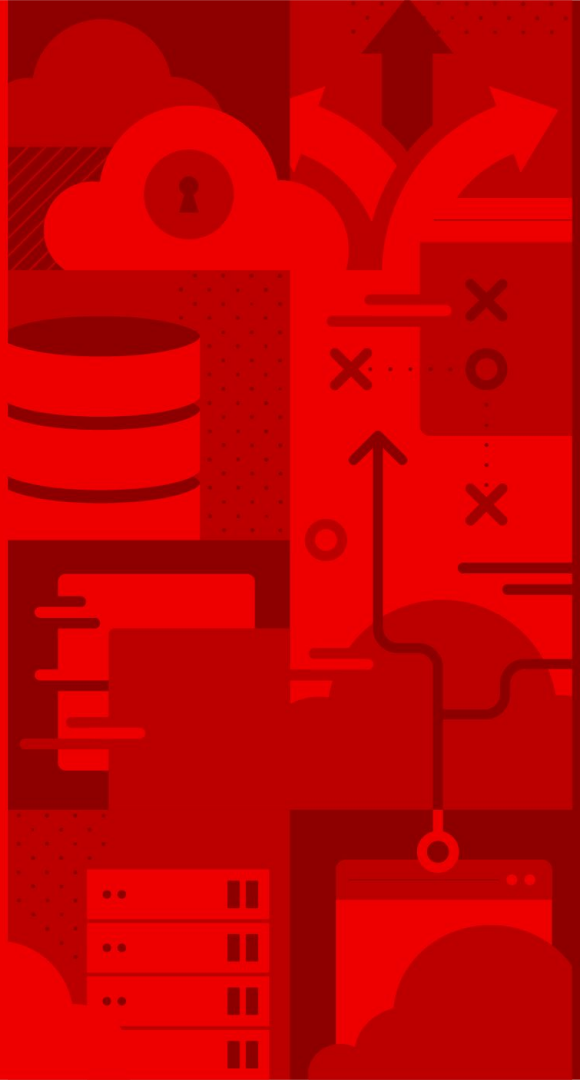
Moon



Red Hat

How Do You Survive?

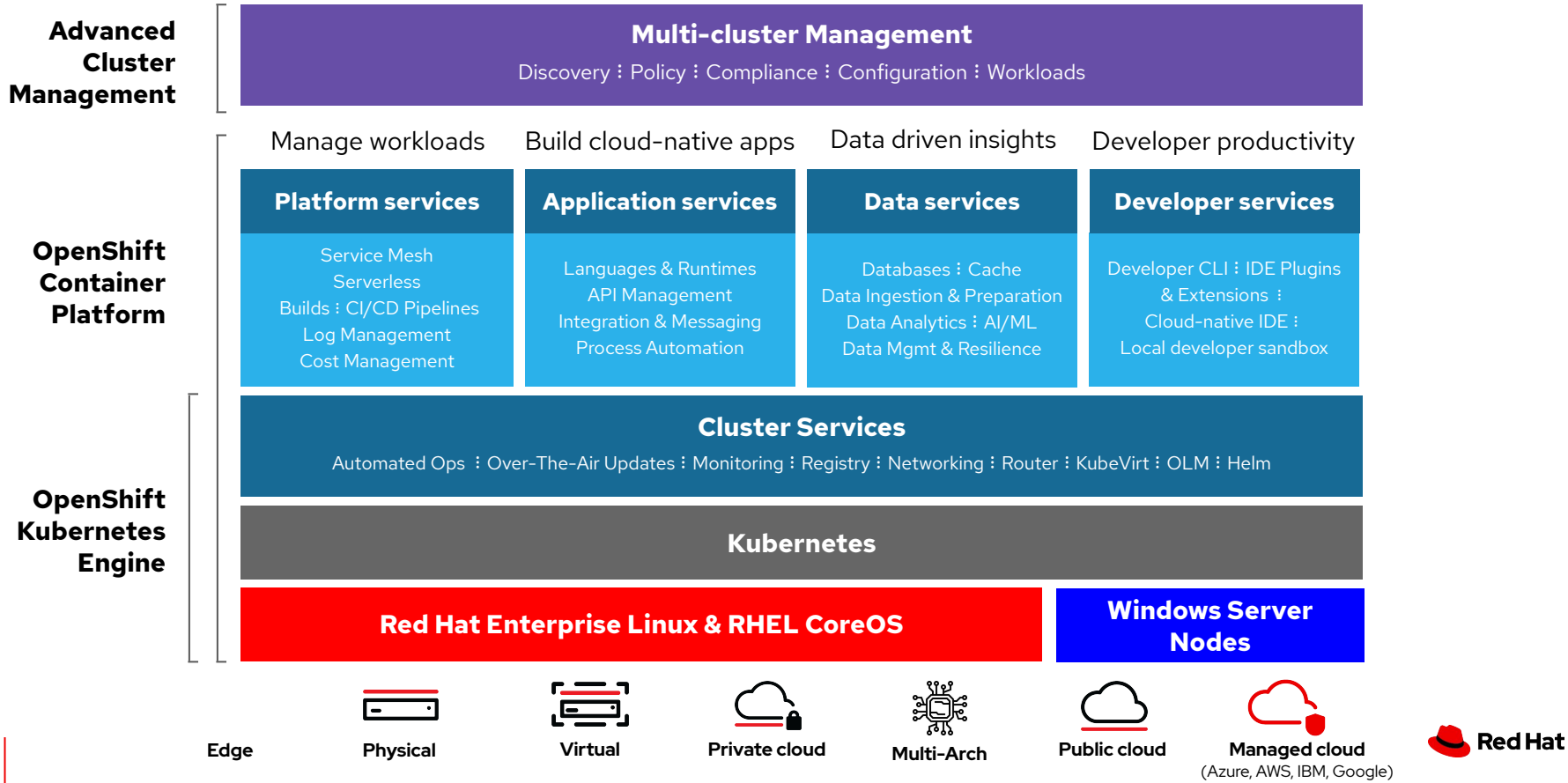
- Commodity Platform
- Infrastructure As Code
- Polyglot
- More than REST
- Lightweight Telemetry
- Modern CI
- Automated Canary CD
- Test Automation
- Version Switching
- CAP Theorem Business Logic



Solution

Red Hat

OpenShift Container Platform



Red Hat OpenShift Strategy

Enabling Hybrid Cloud

Focused on delivering on the vision of hybrid-cloud application development and lifecycle management in private and public clouds and all the way to the edge

Workloads, Stability and Security

Offering support for virtual, container, and bare metal workloads on a feature rich, stable architecture with multiple layers of security. Driving to a modern Data Services platform with recovery and performance for stateful apps.

Application and Developer Experience

Cloud Native, Functions, AI/ML application development and deployment experiences

Observability, Management and Automation

Declarative, policy driven management and automation of multiple self-healing clusters, including automatically deployment of applications and services to multiple clusters

Red Hat

More than 1,700 Red Hat OpenShift Customers

Our Product is Shaped by Them

MODERNIZE APPS

WEB APPS

CLOUD NATIVE DEV

MULTI-CLOUD

MOBILE

BIG DATA | ANALYTICS

AI | ML

IOT

Red Hat

Anywhere; Anyway; Anytime

Developer Efficiency **Business Productivity** **Enterprise Ready**

Red Hat OpenShift

Amazon Red Hat OpenShift	Azure Red Hat OpenShift	Red Hat OpenShift on IBM Cloud	Red Hat OpenShift Dedicated	OpenShift Container Platform
Joint offerings with Cloud Provider			Red Hat Managed	OCP Customer Managed

Offered as a Native Console offering on equal parity with cloud provider Kubernetes service

or

OCP Customer Managed

Red Hat

Platform Meets Infrastructure

Hybrid Cloud

- Deploy OpenShift to even more platforms

Alibaba Cloud

aws | Outposts

Azure Stack Hub

EQUINIX | METAL

Microsoft Hyper-V

IBM Cloud

Provider Enhancements

- Improvements to reliability, scalability, and high availability
- Support for more regions and cloud instances in the public cloud

C2S

aws | China

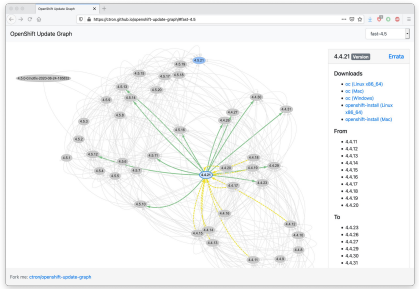
光环新网 SINNET

NWCD 西云数据

Microsoft Azure China

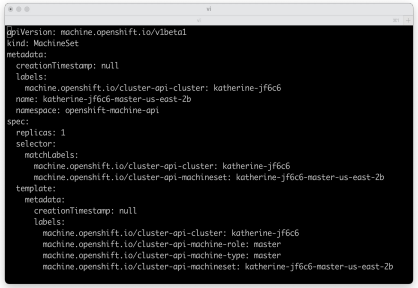
世纪互联 www.21vianet.com

Restricted Networks



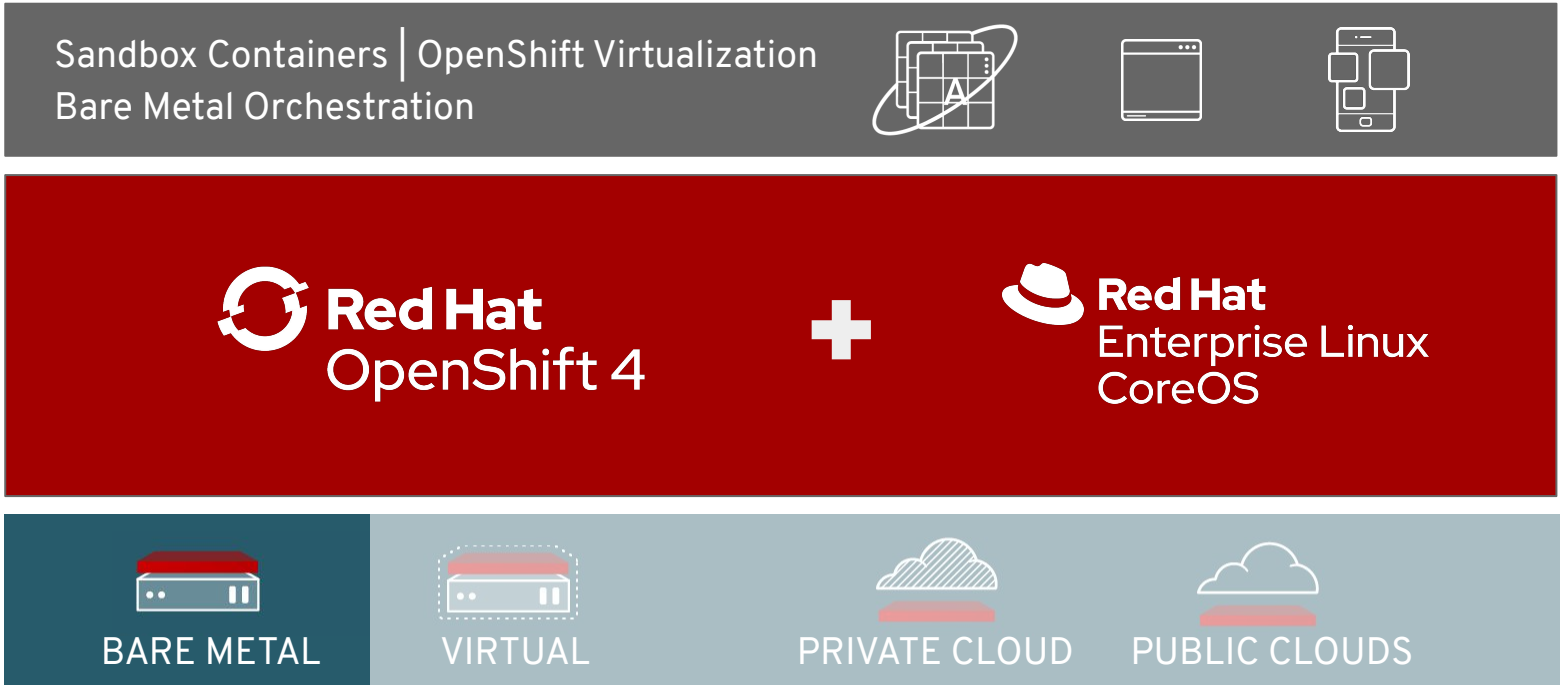
Deployment Experience

- Better documenting of credential permissions for Day 1 & Day 2
- Customer-managed disk encryption keys
- Managed control plane allow for node recovery



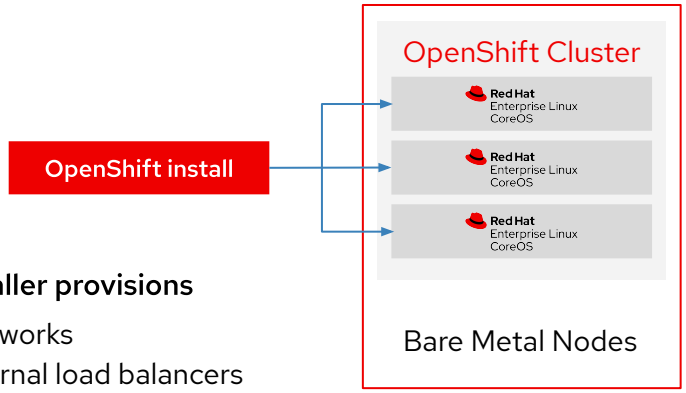
Red Hat

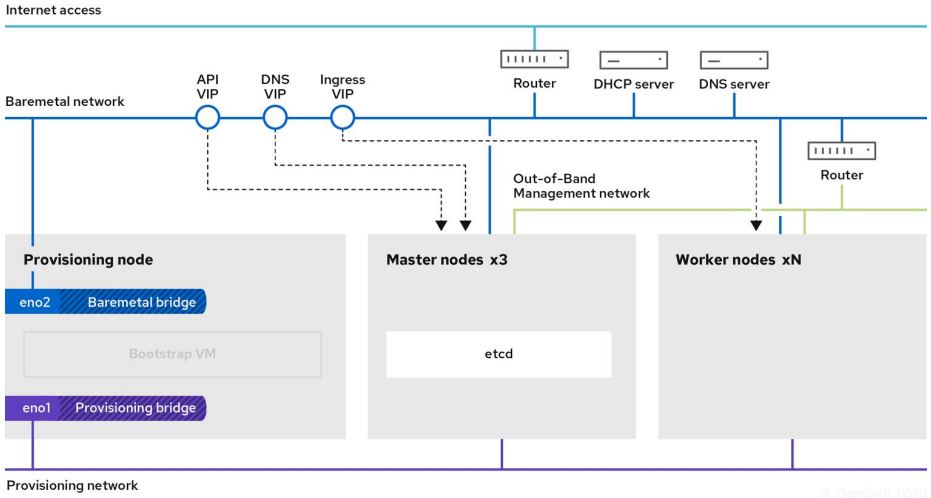
Kubernetes-Native Infrastructure concept focus



Full stack automation installation on bare-metal

Deploying Red Hat OpenShift on Bare Metal with installer-provisioned infrastructure

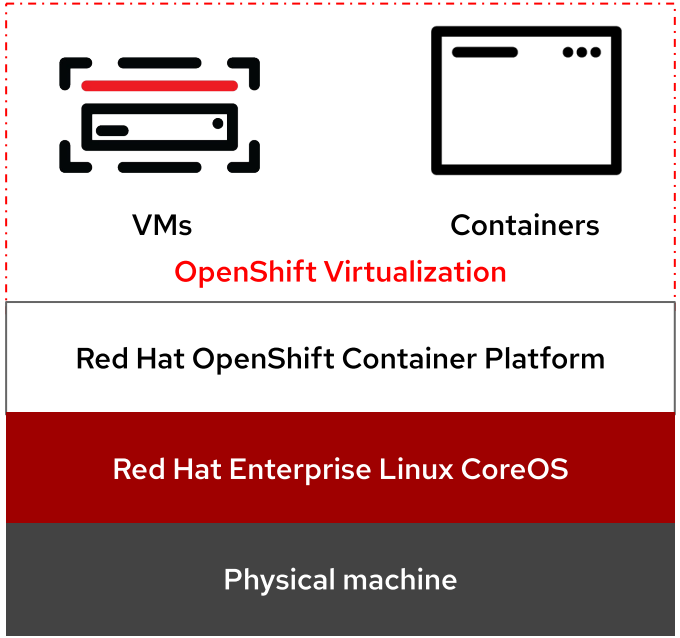




- **Installer provisions**
  - Networks
  - Internal load balancers
  - Internal DNS
  - Red Hat CoreOS installation
  - CoreOS ignition config
  - OpenShift nodes
  - OpenShift cluster resources

OpenShift Virtualization

Modernize workloads and support hybrid applications consisting of VMs, containers, and serverless



- What's New in OpenShift Virtualization in OpenShift 4.6

- Accelerates application delivery on a single platform managing hybrid applications with the same tools and teams
- Add VMs to new and existing applications
- Modernize legacy VM based applications over time, or maintain them as VMs
  - SAP's open source project "Gardener" leveraged Red Hat OpenShift Virtualization
  - Goldman Sachs Revamps Virtualization Infrastructure

Alternative Container Runtimes

Operator

Install & Uninstall with OLM

Availability in RH content Catalog

Updates & upgrades

3-node cluster installations

OS Extensions

Core

Integration with Openshift & CRI-O CIs

Katacontainers v2.0

Downsizing QEMU (kiwi)

Basic Integrations with Openshift UI

Observability Enablement (Data-collection + metrics)

Networking / Deploy

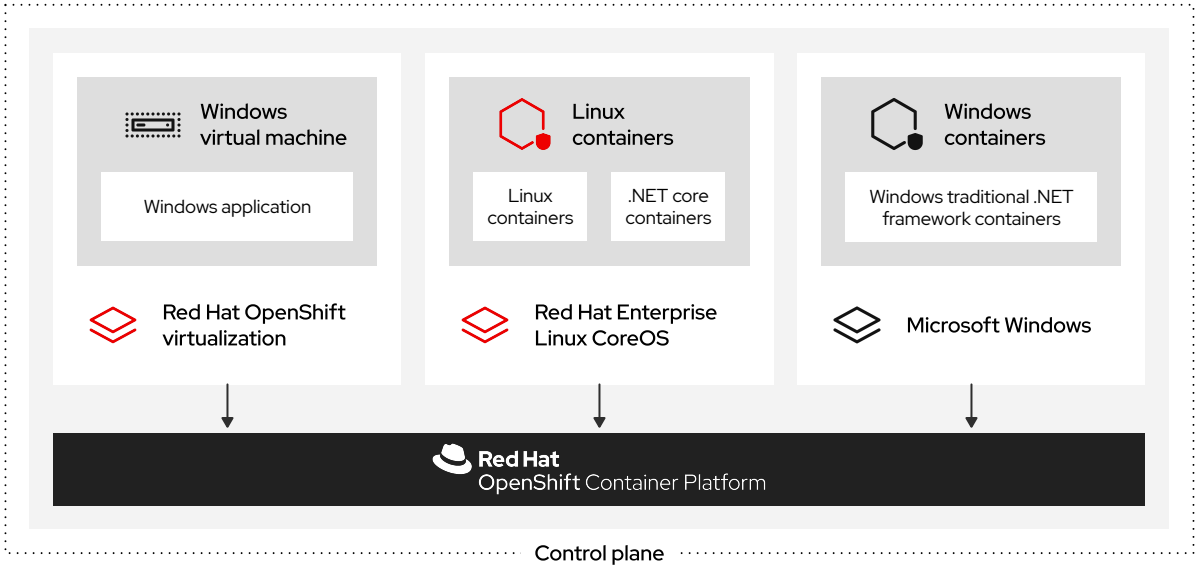
IPv6 dual-stack

SR-IOV + DPDK + Performance Analysis

Deployment on Bare-metal

OpenShift Windows Containers

Mixed Windows and Linux workloads



- $100/vCPU for using Windows Server nodes in OpenShift.
- MW01465 Red Hat OpenShift Windows Containers, Standard (2 Cores or 4 vCPUs) USD $400.00

Mixed Windows and Linux workloads

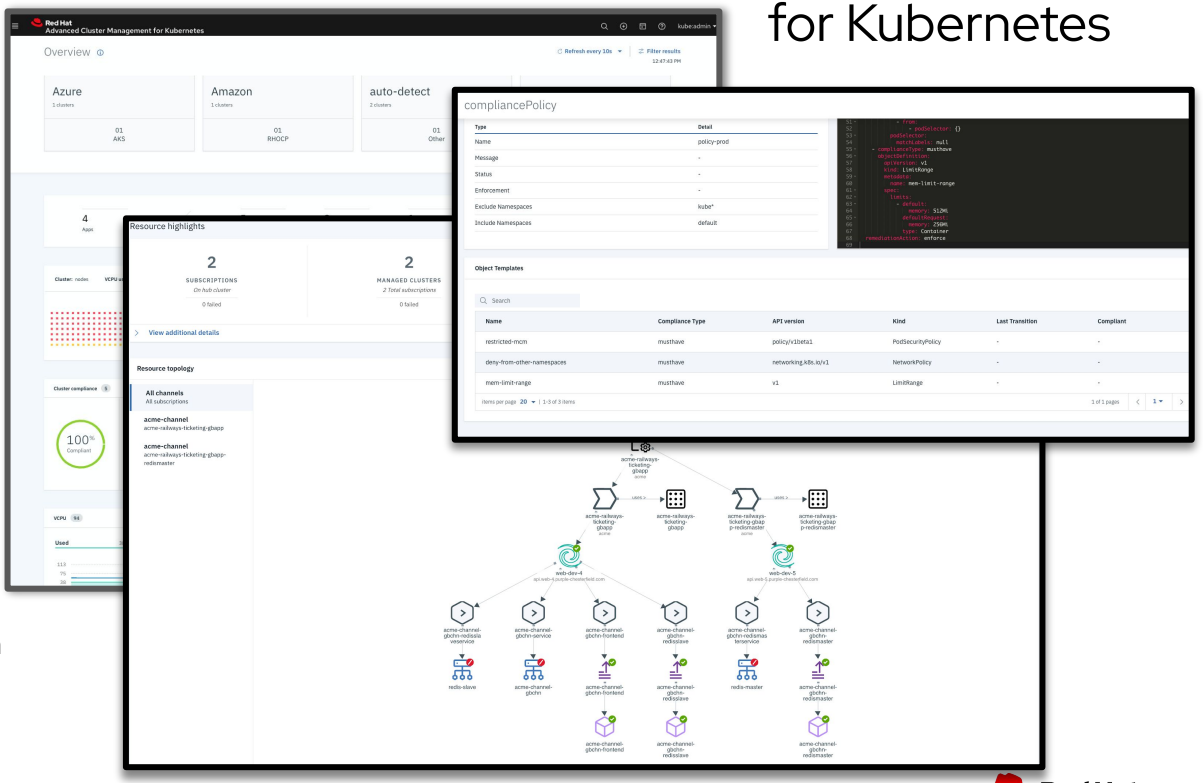
- Run Linux containers on RHEL
- Run .NET core containers on RHEL
- Run traditional **.NET framework containers on Windows**
- Run **Windows VMs with CNV** (Container Native Virtualization)
- All scheduled and managed by Red Hat OpenShift

Red Hat

Red Hat
Advanced Cluster Management
for Kubernetes

Unified Cluster Management

- Multicluster lifecycle management
- Policy driven governance, risk, and compliance
- Advanced application lifecycle management
- Multicluster observability for health and optimization



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Empowering Developers

Building a Kubernetes Cloud Native DevOps Services Stack

OpenShift Service Mesh with Istio to connect, secure and observe services

OpenShift Serverless with Knative to enable hybrid Serverless, FaaS & EDA

OpenShift Pipelines with Tekton to provide Kubernetes-Native CI/CD pipelines

GitHub Actions to automate container build and deployments to OpenShift

OpenShift Builds with Shipwright to build images from code using S2I, Buildpacks, and buildah

OpenShift GitOps with ArgoCD to enable declarative GitOps based continuous delivery

Building World Class Developer Tools & Developer Experience in OpenShift

Helm Charts for packaging and distributing applications on OpenShift

OpenShift Developer Console & CLI enhancements to improve dev experience

CodeReady Workspaces with Eclipse Che for cloud native development & collaboration

Complete IDE plugin integrations to meet the developer where they are

OpenShift developer sandbox and local cluster enhancements to improve access

Observability that enables app monitoring for developers on OpenShift

Red Hat

DevOps Toolchain

GIT COMMIT

RELEASE

Code / Debug — Build and Package — Run → CI Build — Deploy →

DEVELOPMENT

CONTINUOUS DELIVERY

Simple and Opinionated

"I just want to code"

Powerful and Flexible

"Get out of my way"

Kube-Native IDE
CodeReady Workspaces
Up and coding quickly

Dev-focused CLI
odo Kube support and flexible stacks with devfiles
Web Terminal – browser access to CLIs

Any IDE + OpenShift Plugins

`kubectl / oc / kustomize` **CLIs**
Powerful Kube control

Build CRD

Provide container build capability with OpenShift S2I, buildah, buildpacks

Operator Framework provide full automated operational support
Helm - packaging format for simple install handling

OpenShift Serverless
Knative Serverless, Eventing and Functions

OpenShift Service Mesh
Istio, Kiali, Jaeger with automatic mutual TLS

Health Checks
Easily enable k8s probes and monitor in webui

CodeReady Containers
Dev and run apps locally

Kube-Native CI
OpenShift Pipelines
Tekton - webhooks, persistent workspaces and cred management for Git & image repos, VS Code and Tekton Hub

CI Plugins
- GitHub Actions
- Microsoft Azure DevOps
- GitLab Runner
- Jenkins

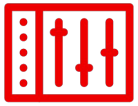
GitOps and Continuous Delivery
Kubernetes leading GitOps / CD open source project ArgoCD
Provide opinionated E2E flows

Edge — Physical — Virtual — Private cloud — Multi-Arch — Public cloud — Managed cloud (Azure, AWS, IBM, Google)

Red Hat

What's next for Serverless and Service Mesh

SERVERLESS

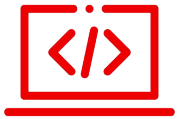


Day 2

Powerful monitoring capabilities with configuration and automation for GitOps and modern CI/CD practices.

Integrations and Ecosystem

Eventing capabilities enabling a rich ecosystem Event Sources from Red Hat and Partner products.



Developer Experience

Intuitive developer experience through the Developer Console and CLI/IDE with Functions support.

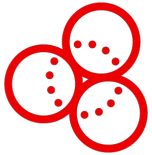
SERVICE MESH

Scaling Service Mesh

Support scaled mesh use cases: Multiple meshes, multiple clusters and services outside of the mesh.

Navigating Service Mesh

Help users get the most out of Service Mesh through improved documentation and user experience.



Better Together

Smooth integration with related OpenShift components, including API management, CI/CD workflows, cluster management and more.

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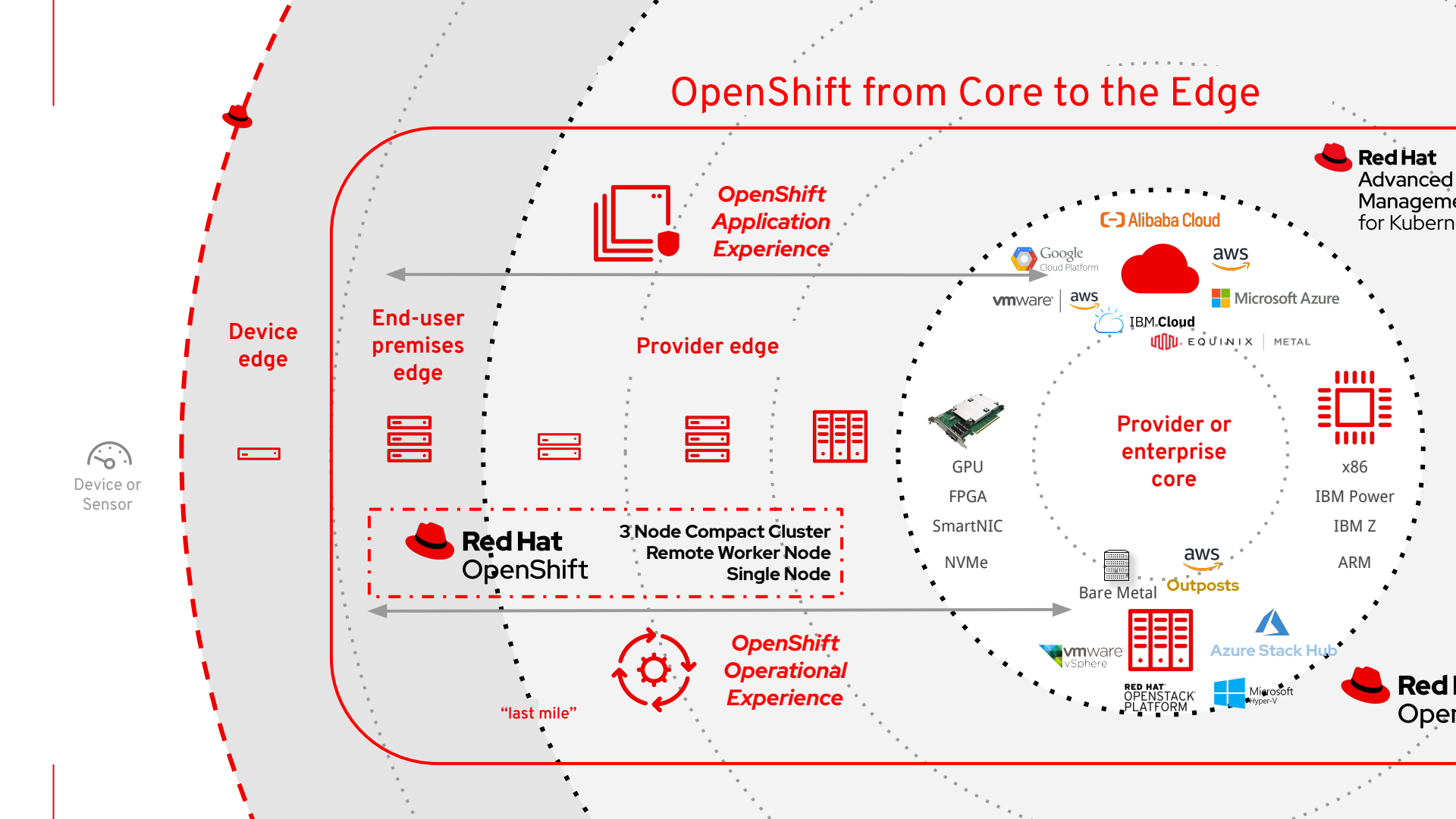
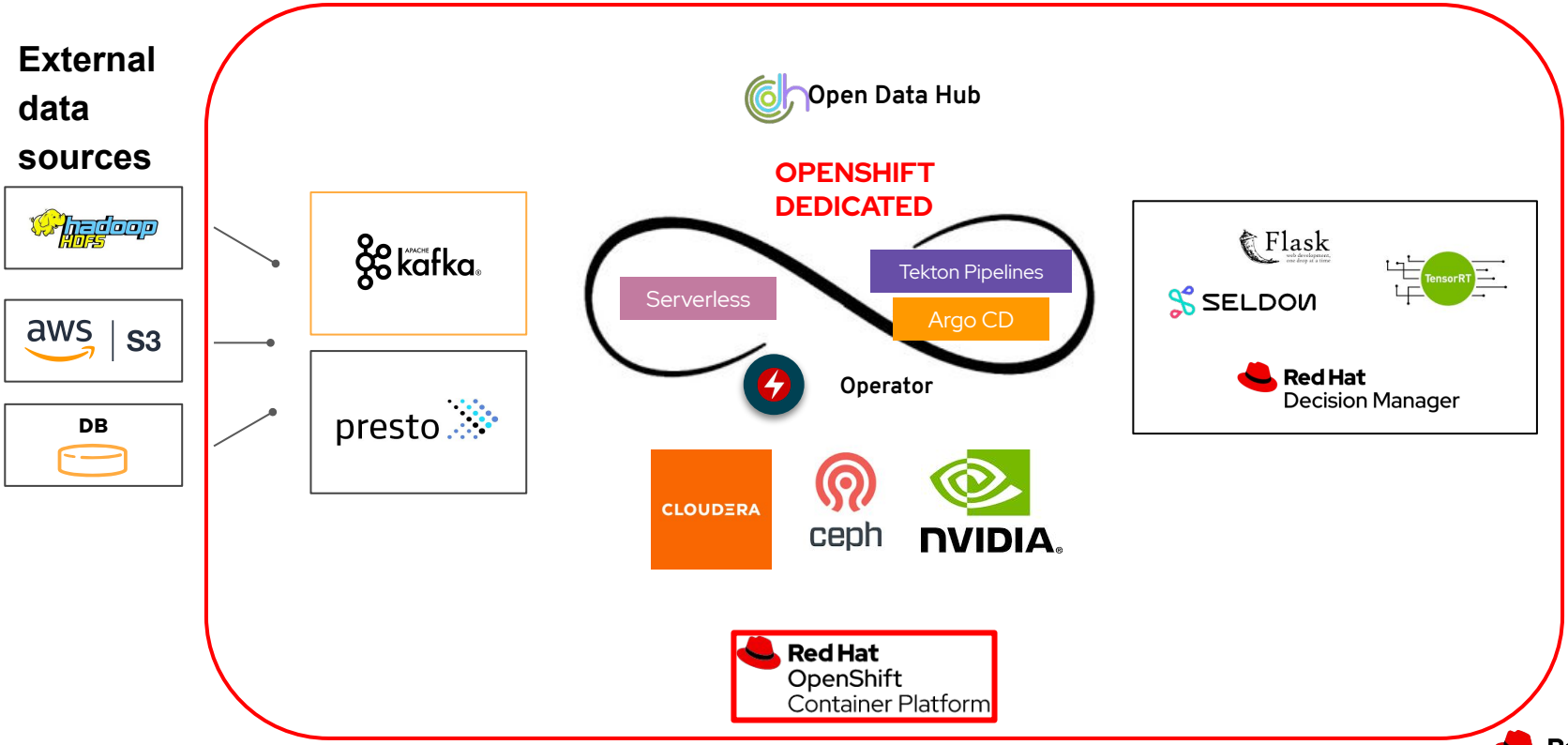
OpenShift from Core to the Edge



Data Analytics and Artificial Intelligence with DevSecOps



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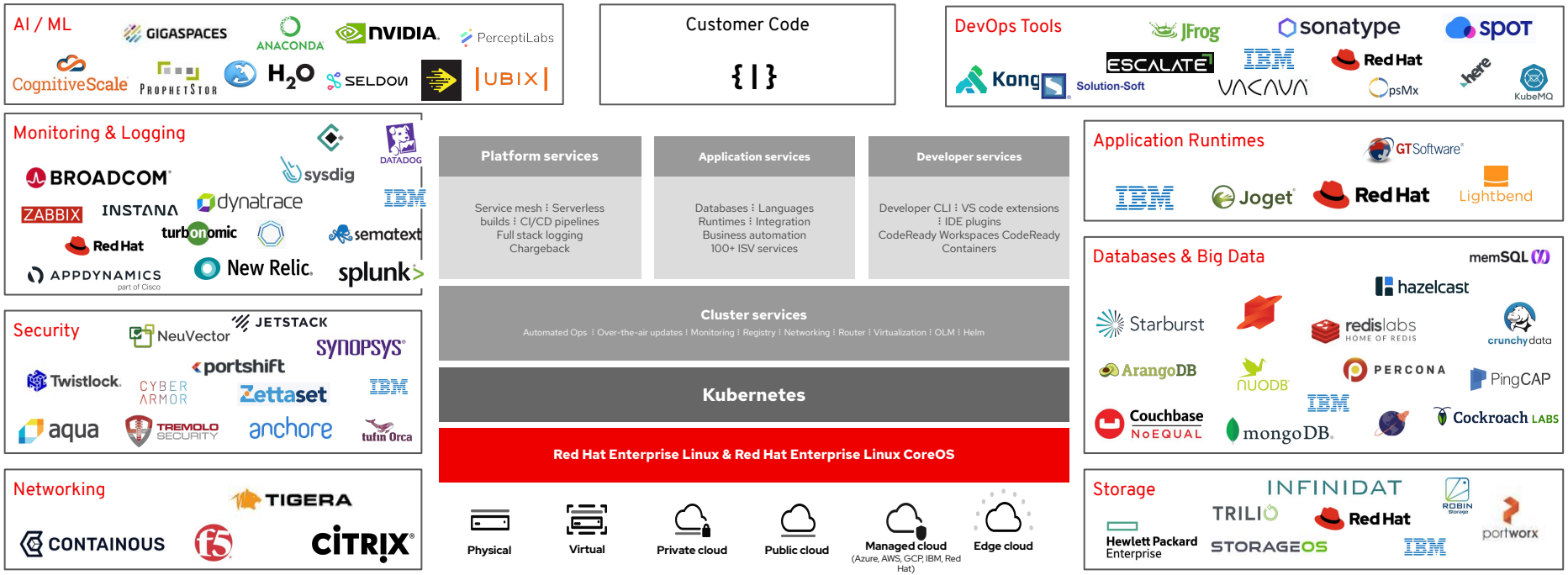
New Application Services and the Red Hat Marketplace

150+ Red Hat OpenShift certified operators



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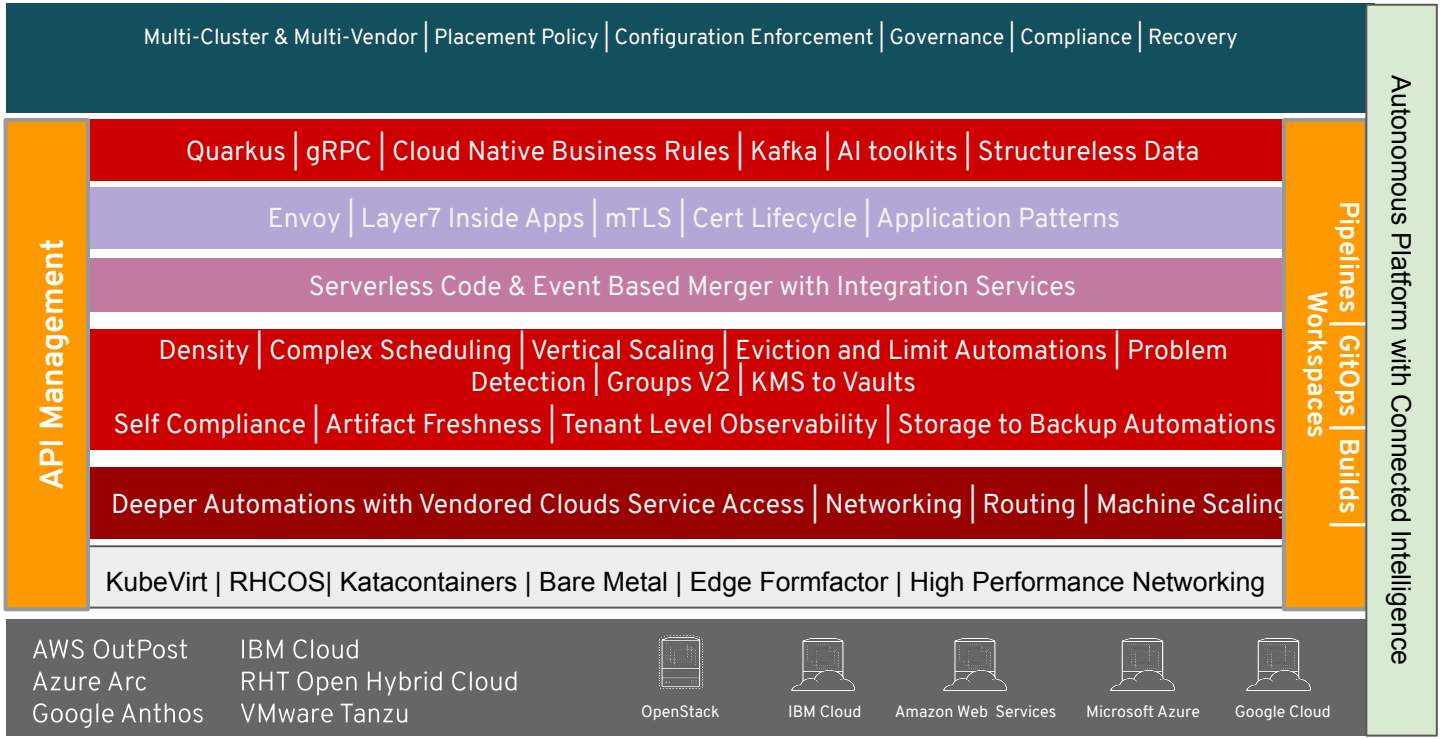
The Next 24 Months



Extending IaaS via Network and Remote Control Points

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Thank you

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