Container in Production : Openshift 구축사례로 이해하는 PaaS

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Agenda

- Why Containers?
- Solution : Red Hat Openshift Container Platform
- Enterprise Reference

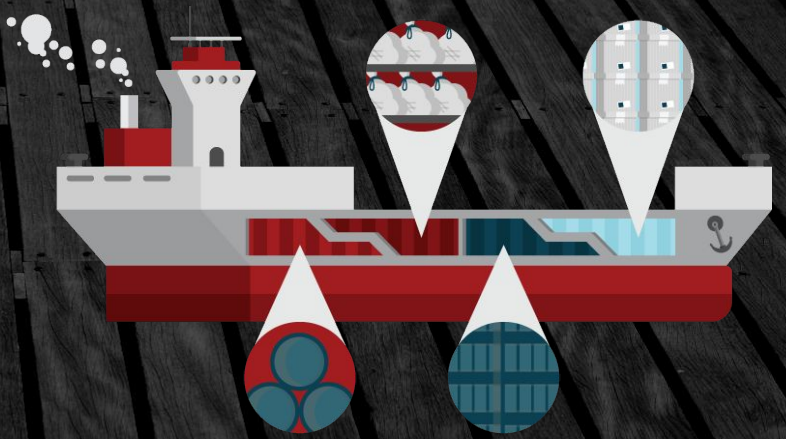
The Problem

Applications require complicated collaboration during installation and integration every time they are deployed.

Image: Manually Loading Ships 1921

What About Virtualization?

Cargo holds help, but you still have to load the ship manually

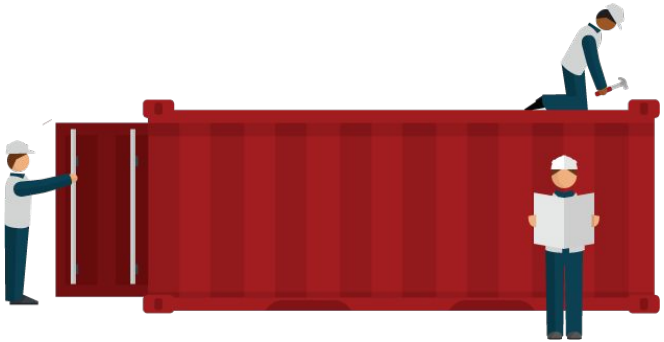


What about Configuration Management

Alone, it’s just, better boxes, bags, barrels, crates and forklifts

The solution

Containerize



Adopting a container strategy will allow applications to be easily shared and deployed.

What Are Containers?

It Depends on Who You Ask

Sys-Admins / Ops

- Sandboxed application processes on a shared Linux OS kernel
- Simpler, lighter, and denser than virtual machines
- Portable across different environments

Developers

- Package my application and all of its dependencies
- Deploy to any environment in seconds and enable CI/CD
- Easily access and share containerized components

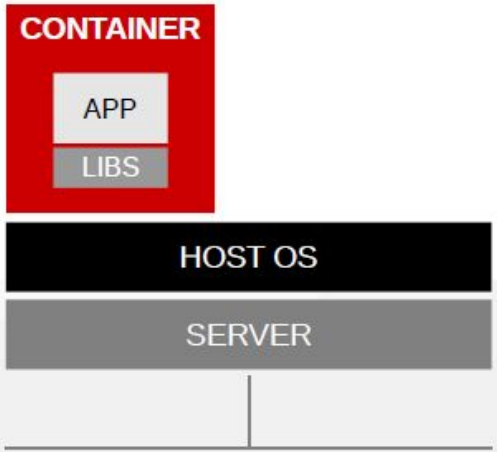
Containers - An Evolution in Application Deployment

- Enable efficiency and automation for microservices, but also support traditional applications
- Enable faster and more consistent deployments from Development to Production
- Enable application portability across 4 infrastructure footprints: Physical, Virtual, Private & Public Cloud

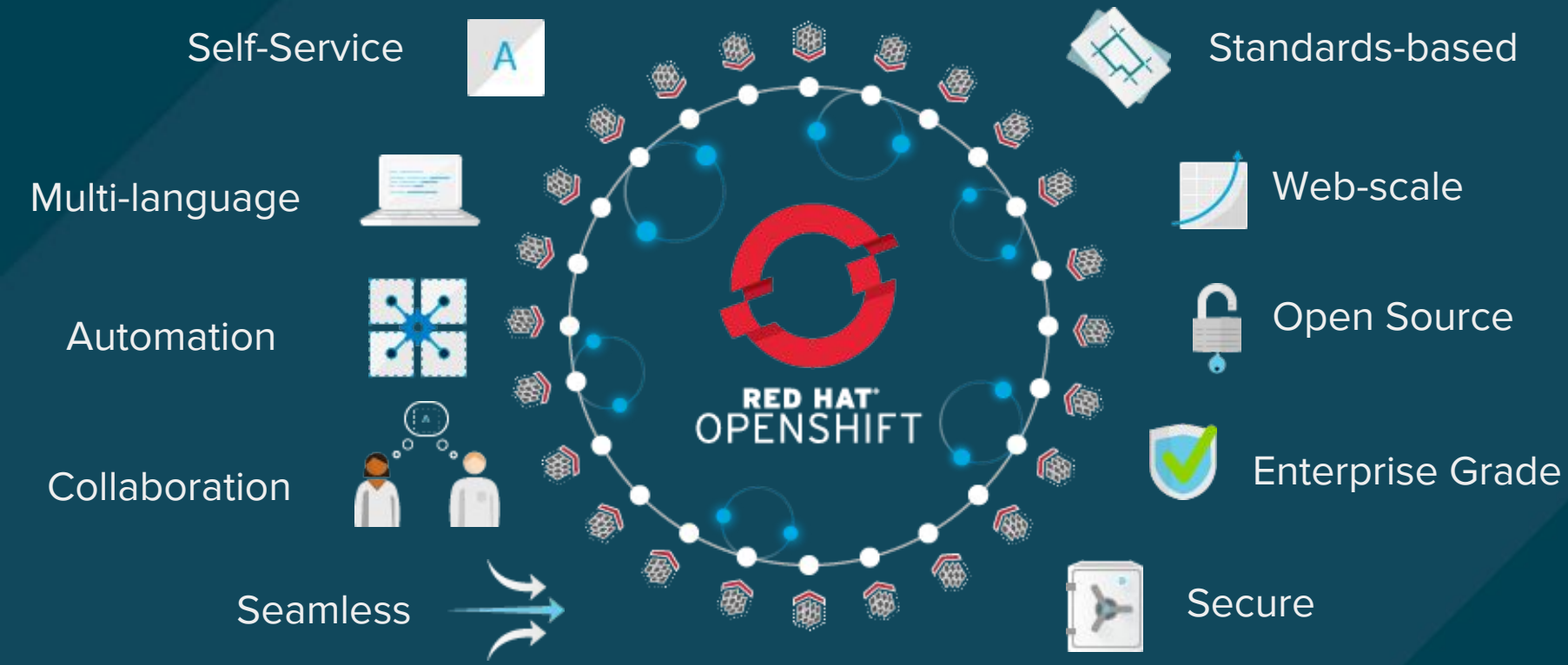
What are Linux Containers?

Software packaging concept that typically includes an application and all of its runtime dependencies

- Easy to deploy and portable across host systems
- Isolates applications on a host operating system
- In RHEL, this is done through:
  - Control Groups (cgroups)
  - Kernel namespaces
  - SELinux, sVirt, iptables
  - Docker



Critical features for both Dev and Ops



Trusted Container OS

Enterprise Container Host

Container Runtime & Packaging
(Docker)

Atomic Host | Red Hat Enterprise Linux

Trusted by Fortune Global 500 companies

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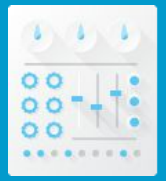
Enterprise Kubernetes



Container Orchestration & Cluster Management (kubernetes)

Networking	Storage	Registry	Logs & Metrics	Security

Infrastructure Automation & Mg

Enterprise Container Host

Container Runtime & Packaging (Docker)

Atomic Host | Red Hat Enterprise Linux

kubernetes

Cloudforms

Red Hat Storage

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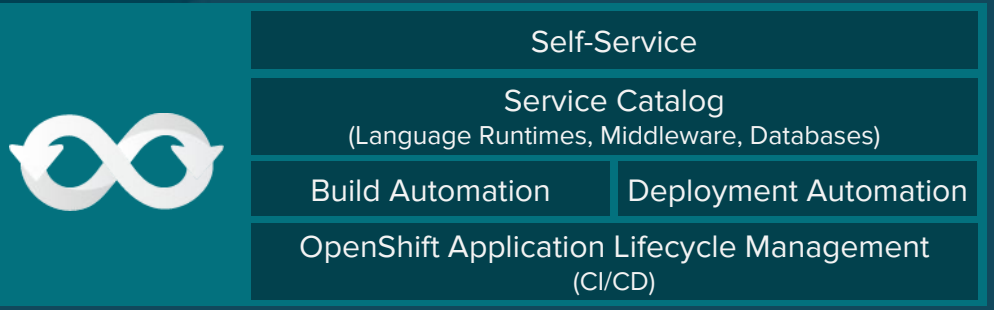
Enterprise Container Platform



Source-2-Image
Application Pipelines
Dev Tools

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Traditional, Stateful, and Microservices-based Apps

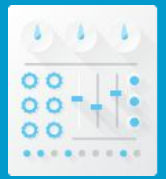
Business Automation	Integration	Data & Storage	Web & Mobile
Container	Container	Container	Container

Self-Service

Service Catalog
(Language Runtimes, Middleware, Databases)

Build Automation | Deployment Automation

OpenShift Application Lifecycle Management
(CI/CD)



Container Orchestration & Cluster Management
(kubernetes)

Networking | Storage | Registry | Logs & Metrics | Security

Infrastructure Automation & Cockpit

Enterprise Container Host

Container Runtime & Packaging
(Docker)

Atomic Host | Red Hat Enterprise Linux

JBOSS EAP
JBOSS DATA GRID
JBOSS DATA VIRTUALIZATION
JBOSS AM-Q
JBOSS BRMS
JBOSS BPM
JBOSS FUSE
RED HAT MOBILE
3 Scale

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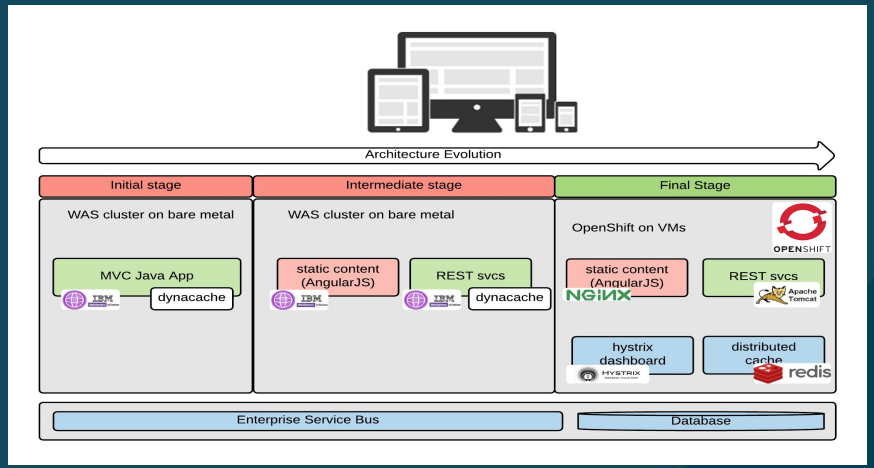
Application Architecture

- Shift from monolithic applications to microservices
- Independently deployable and updatable, limited dependencies
- Optimized for agility & accelerated time to market



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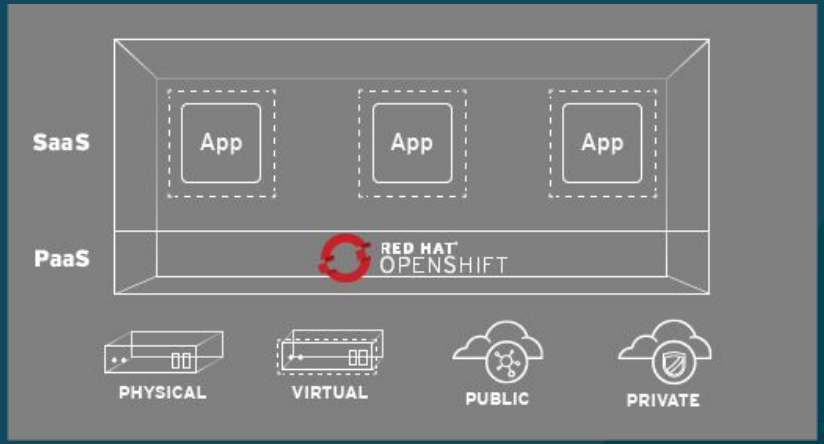
Datacenter

Hosted

Hybrid

Platform Infrastructure

- Shift from virtualization to scale-out cloud infrastructure
- Rapid growth in public cloud usage for enterprises
- Hybrid cloud deployments span private & multiple public clouds



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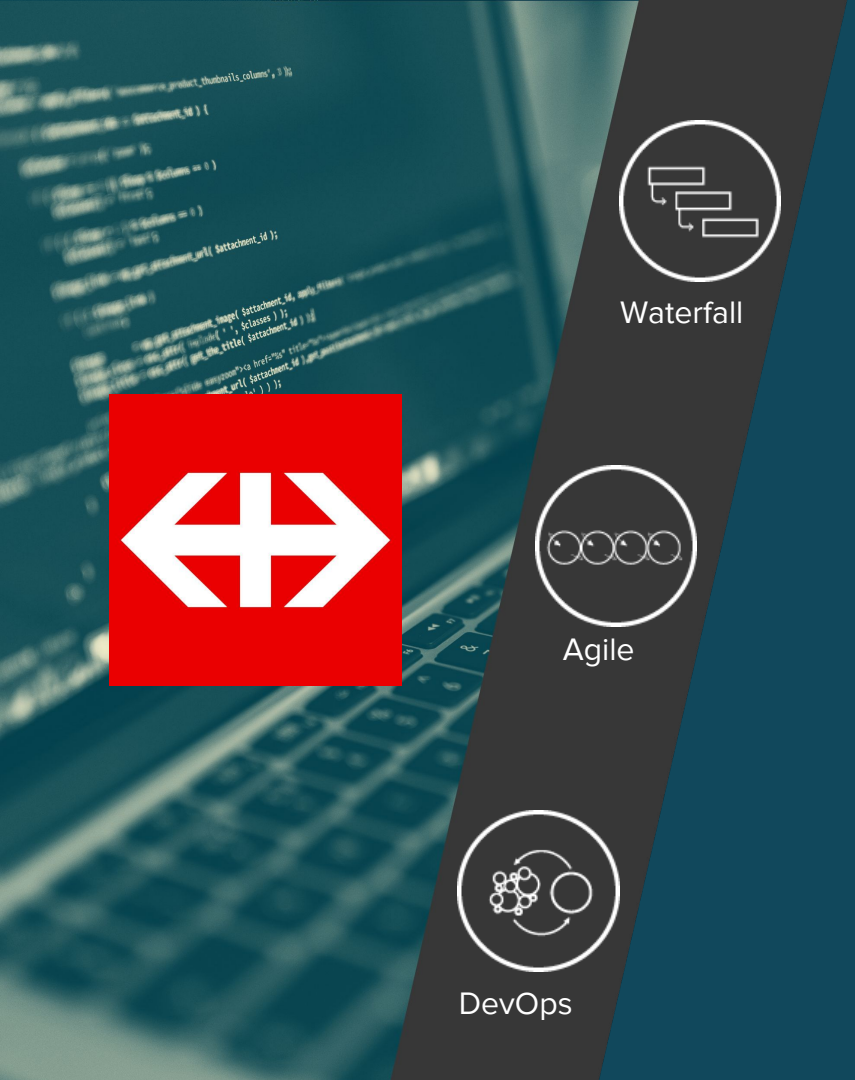


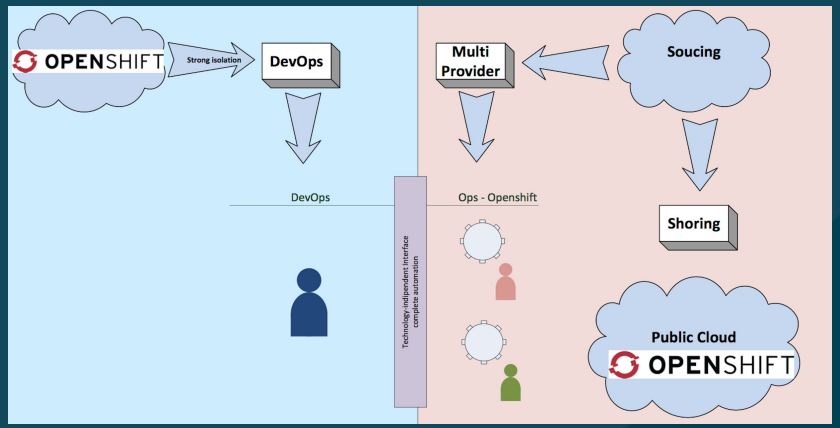
Waterfall

Agile

DevOps

Development Process

- Shift to more agile development and deployment processes
- Increased collaboration between Development & Operations
- Move from Continuous Integration to Continuous Deployment



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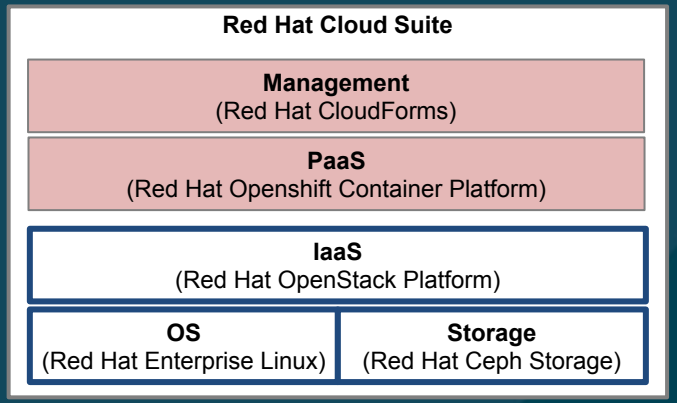
Hybrid

Microservices

DevOps

Transform to Next-Gen

- Implement full-stack Cloud(using Red hat Cloud Suite)
- Establish standard migration process Monolithic to MSA
- Prepare 4th Industrial Revolution Platforms



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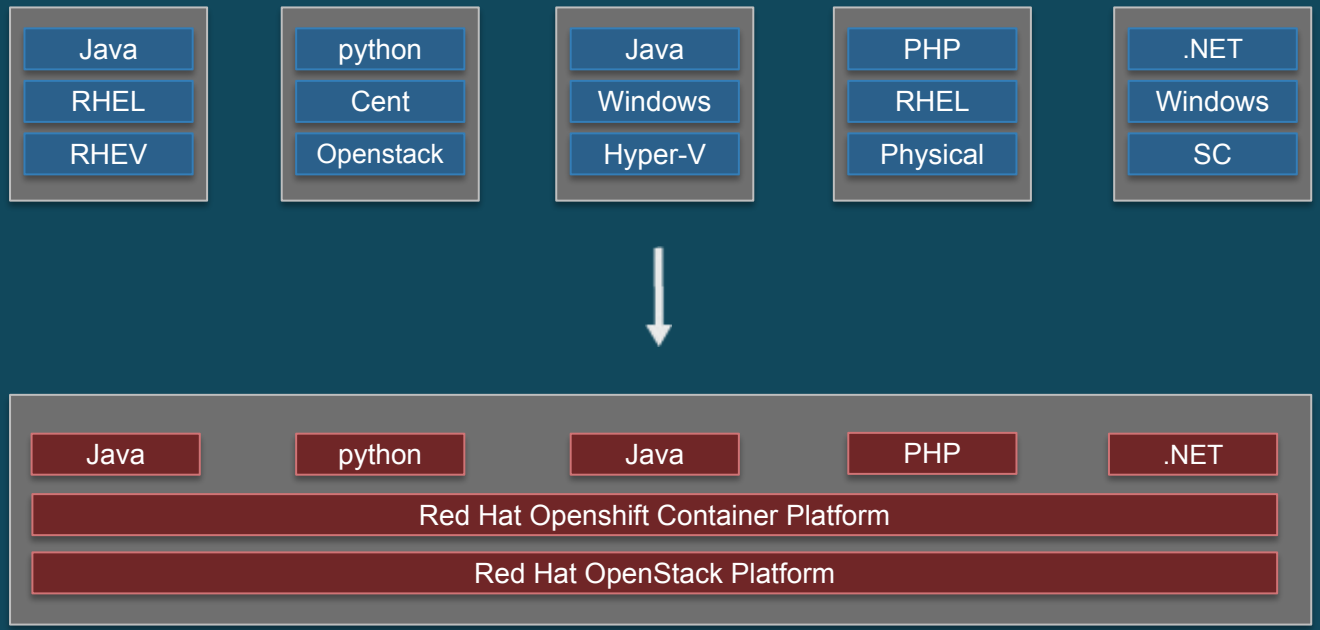
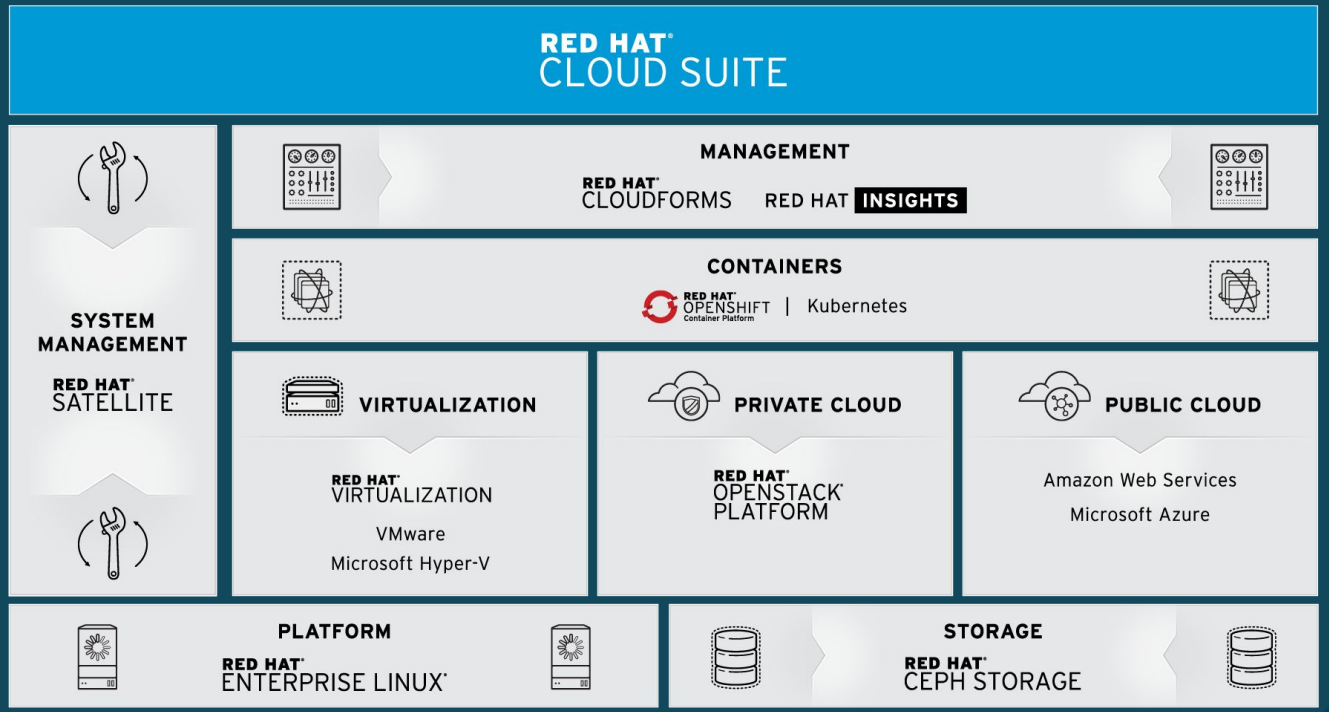
Customer Wins - Purpose



Customer Wins - Overview



10 People **6 months**

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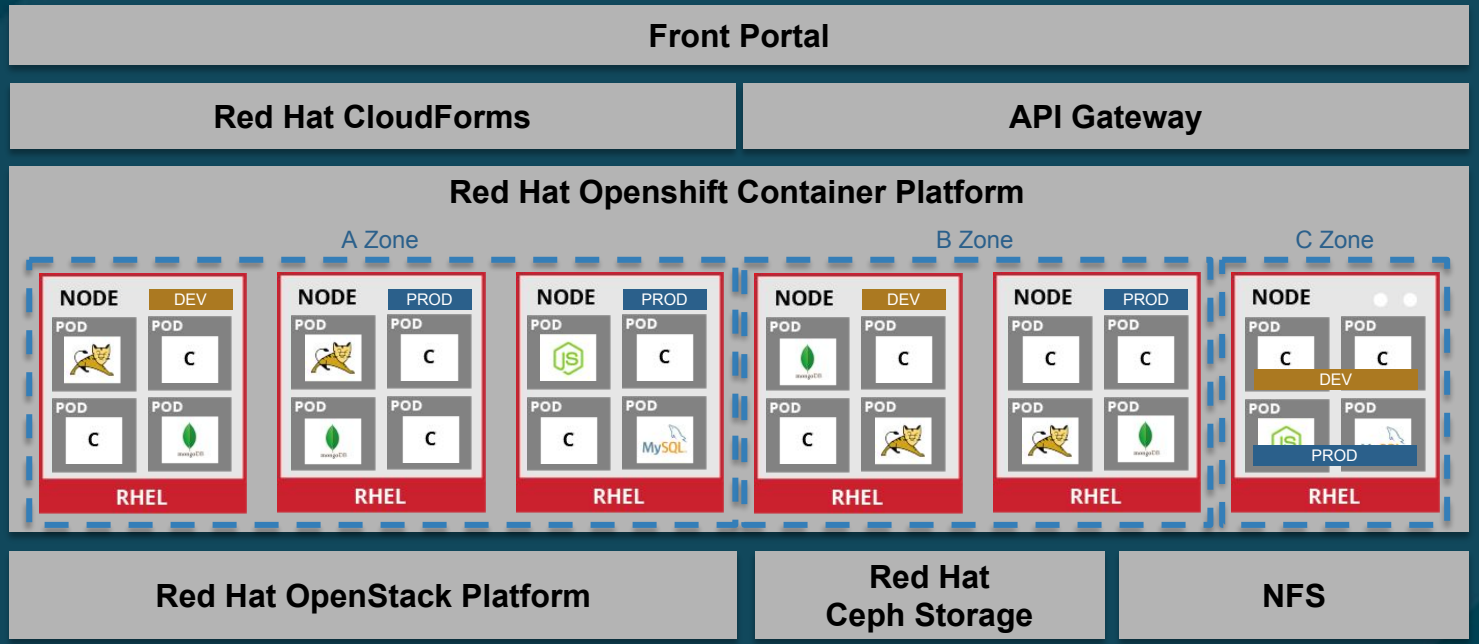
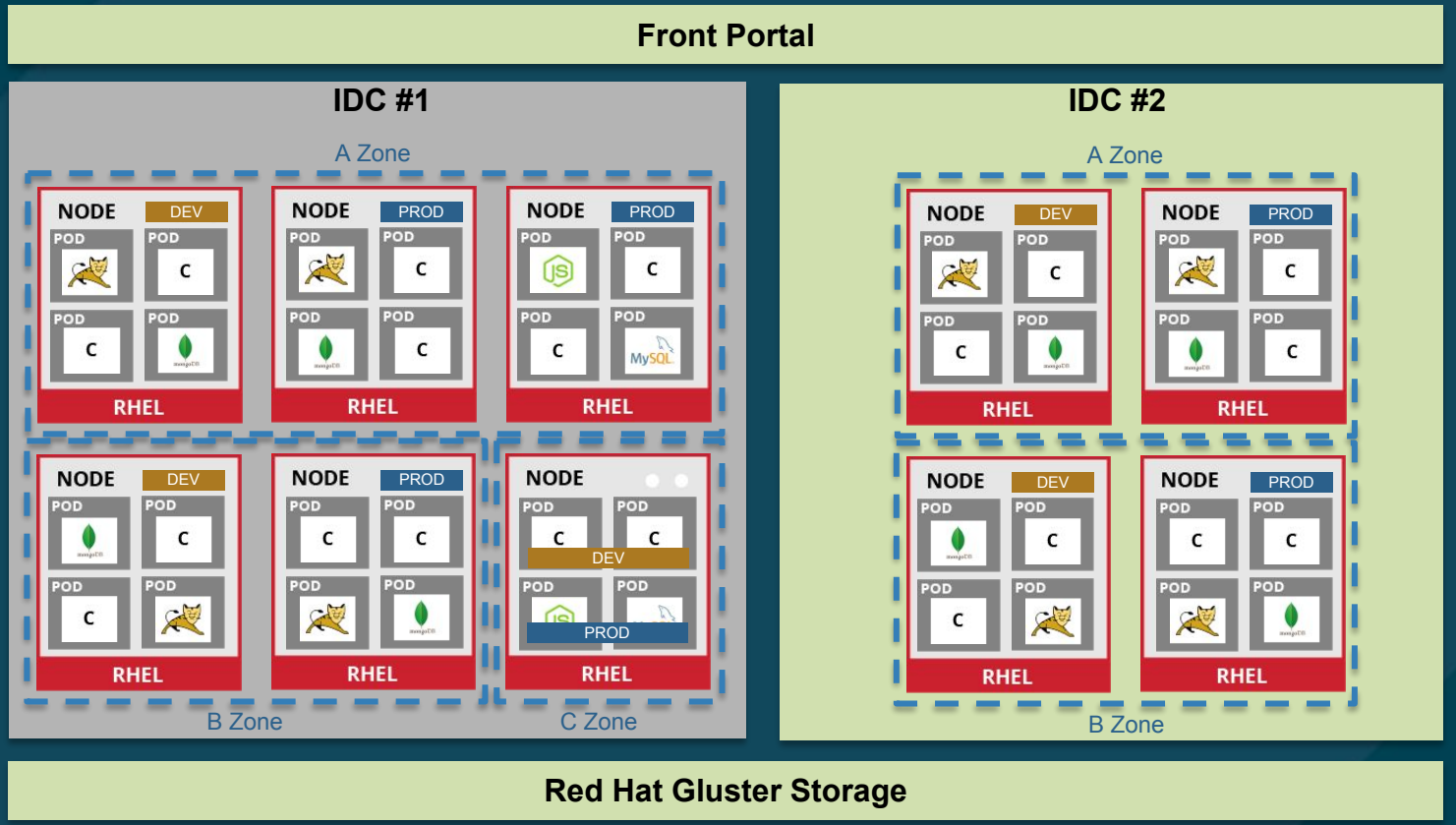
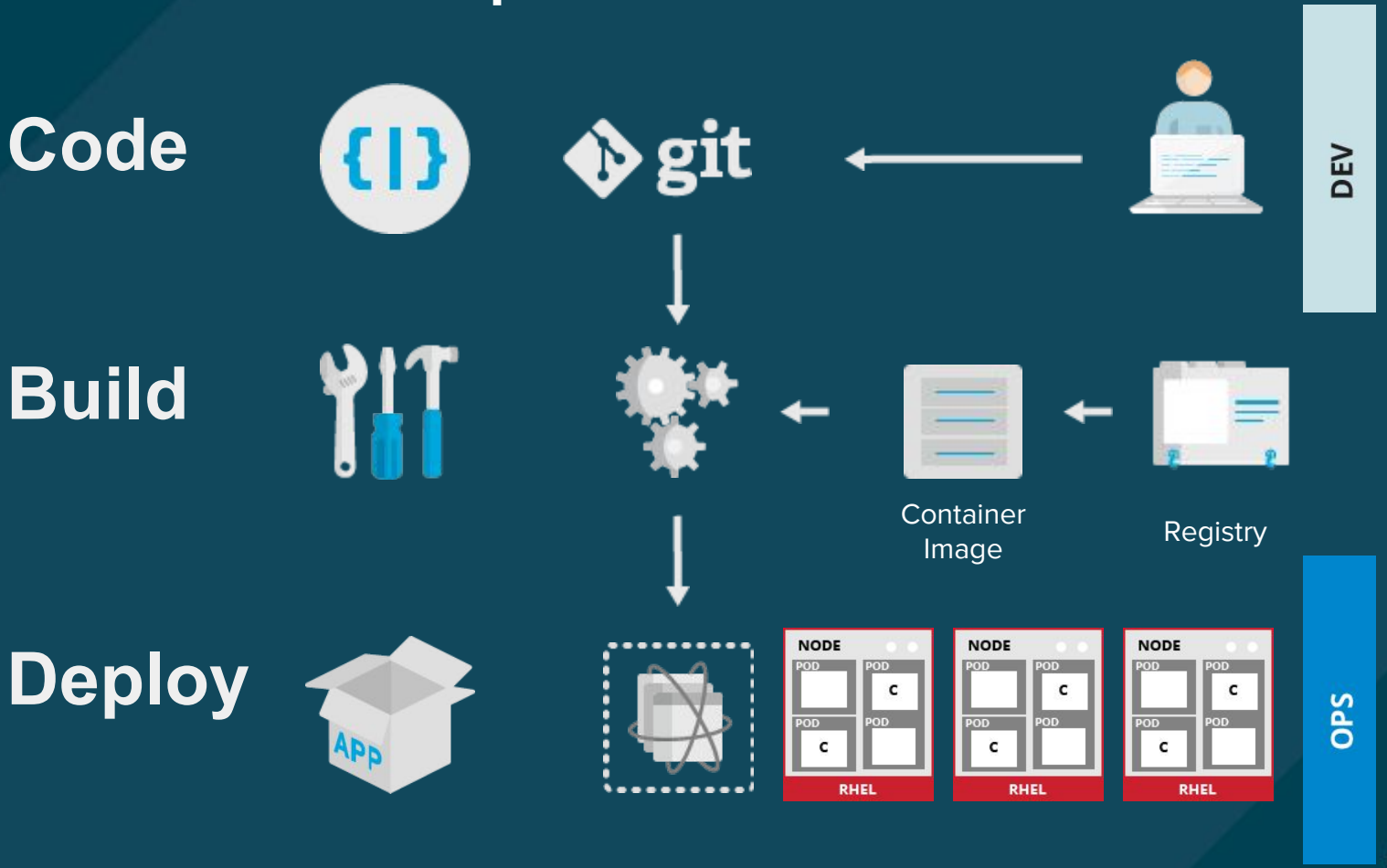
Customer Wins - Architecture



Customer Wins – Next Architecture



Customer Wins – DevOps



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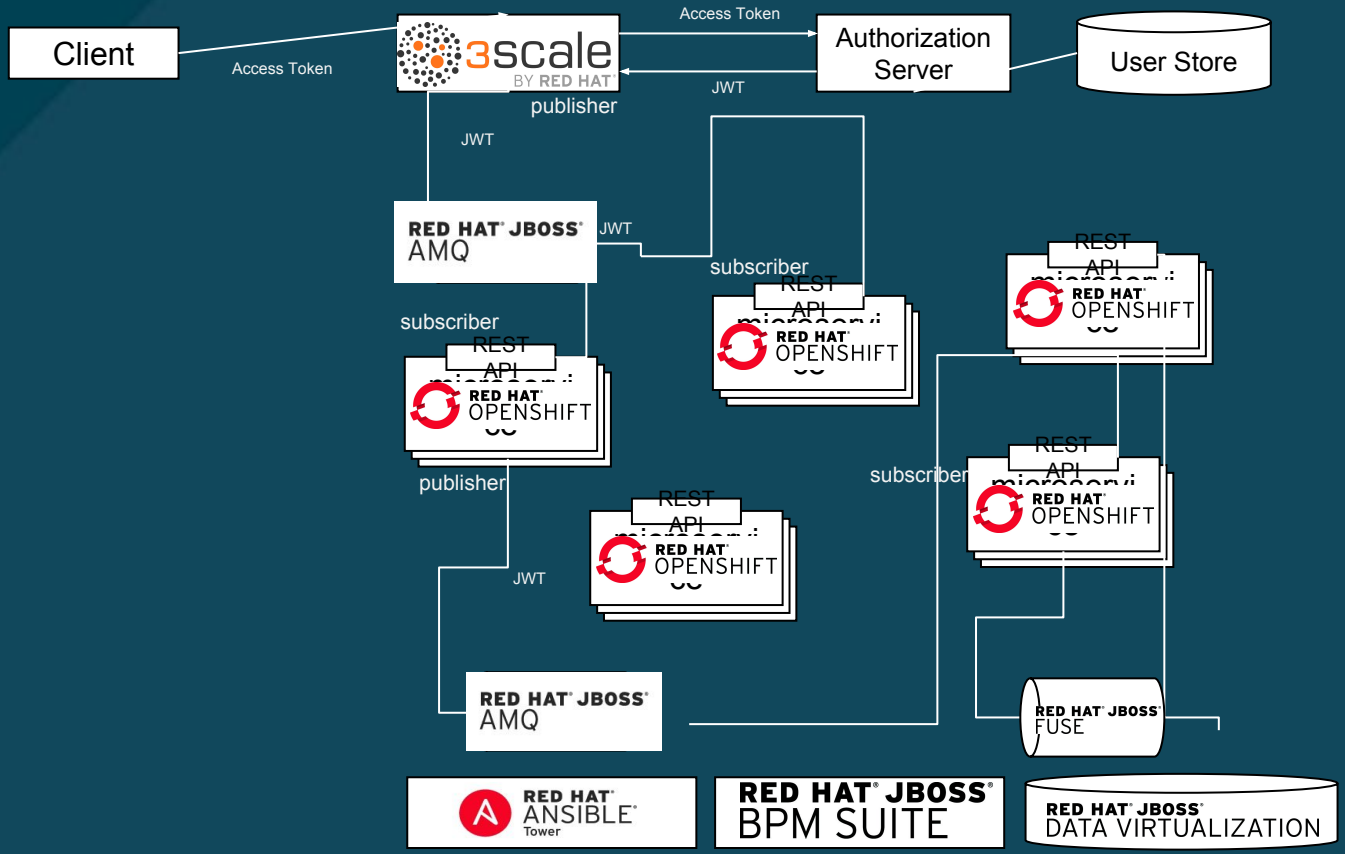
Customer Wins – Micro Service Architecture



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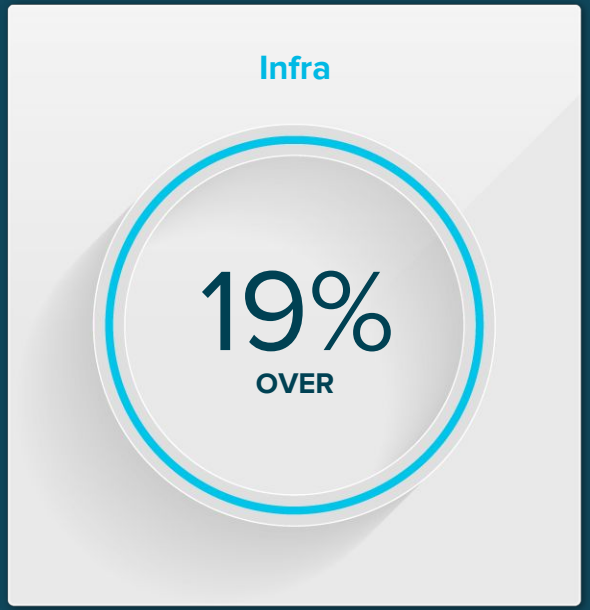
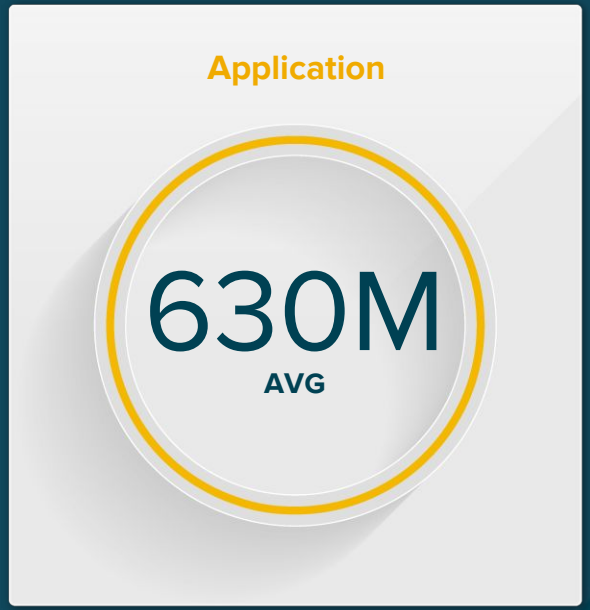
Customer Wins – Cost Reduction





Customer Wins – Agility

Real Auto-Scaling

https://www.youtube.com/watch?time_continue=308&v=HjYNNiW-f7A

SUMMARY

Container

Red Hat Openshift
Container Platform

MSA + DevOps

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