

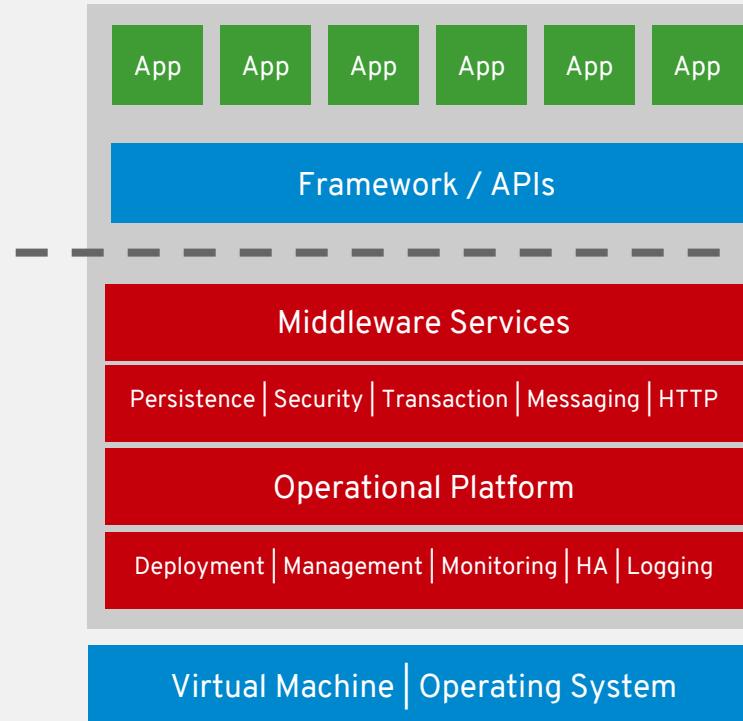


@ OCP Trilogy  
1/11/2017

# OpenShift Trilogy: API strikes back

Jiří Kolář  
Solution Architect CZ/SK/CEE  
[jkolar@redhat.com](mailto:jkolar@redhat.com)

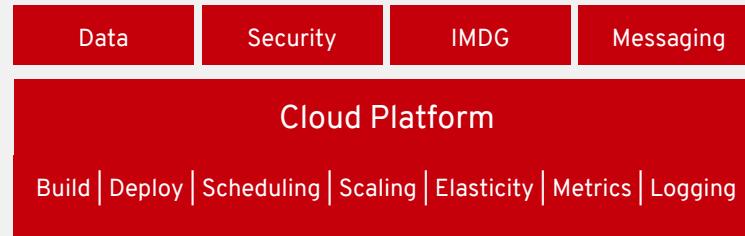
# THE APPSERVER 2000-2014



ORACLE®

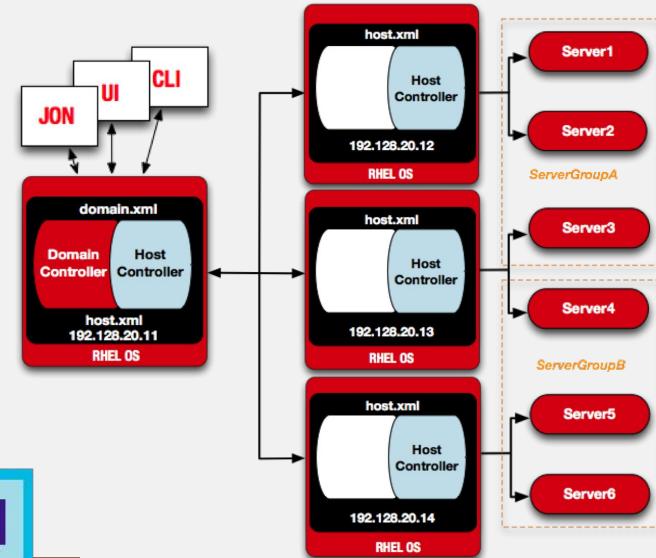
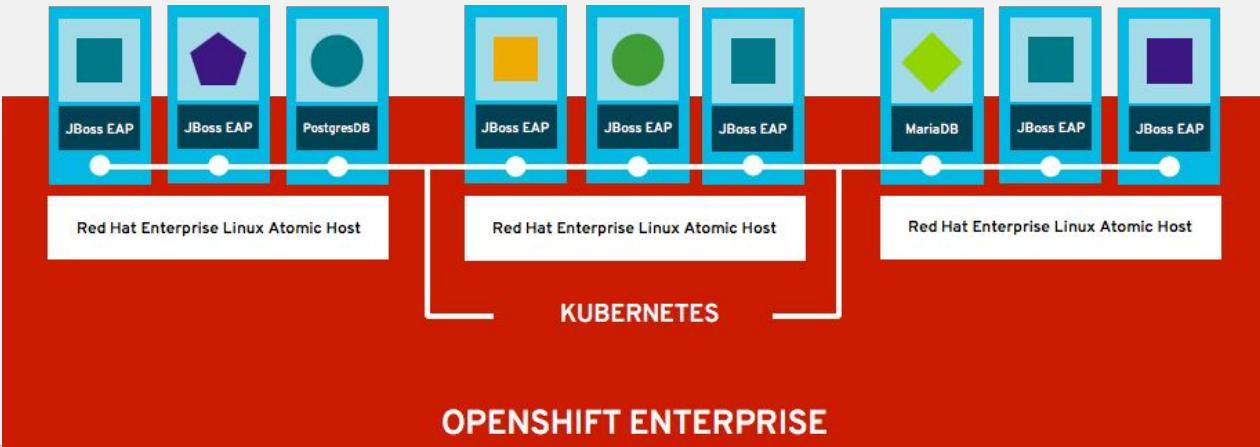
WebSphere® software

# THE APPSERVER 2014 - ...



# EAP in Cloud (PaaS)

- xPaaS subscription – OpenShift v3.\*
  - Standalone only – cluster managed by Openshift
    - Configuration baked into container image
    - Kill and build a new one
- Microservices out of the box

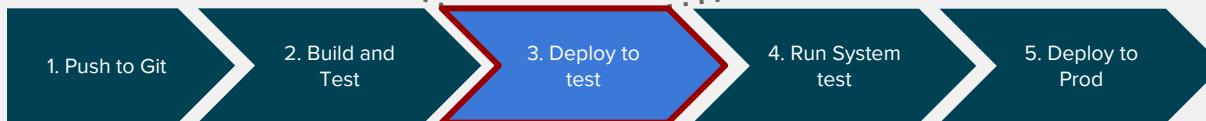


# AUTOMATE CI/CD INFRASTRUCTURE

Example of provisioning part of a CD pipeline:



Example of a CD pipeline:



# AUTOMATE CI/CD INFRASTRUCTURE WITH OPENSHIFT

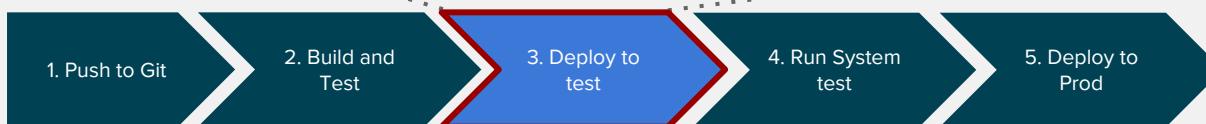
Suggested Tools:



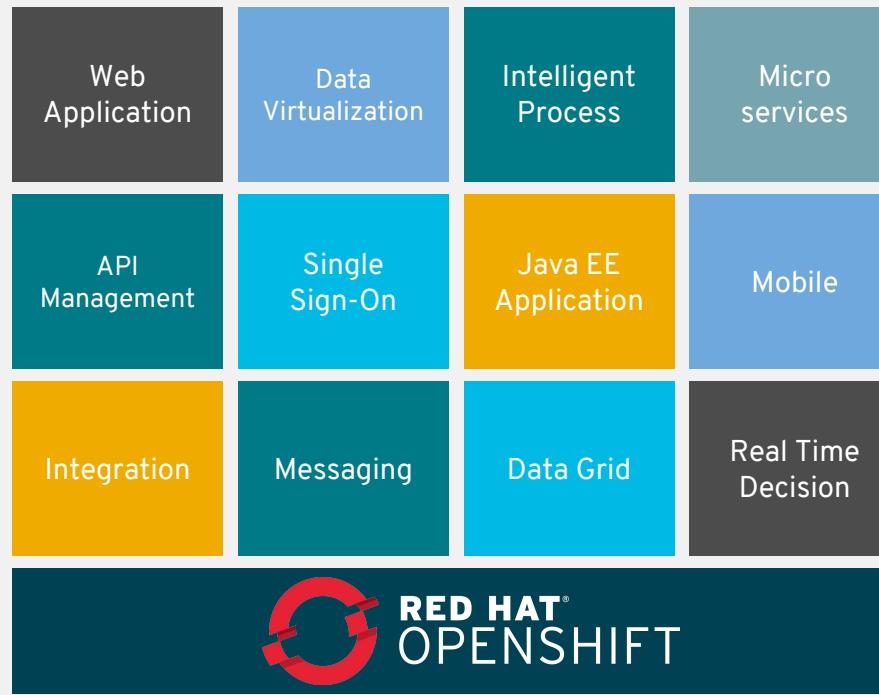
Example of provisioning part of a CD pipeline:



Example of a CD pipeline:



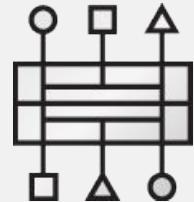
# A PLATFORM THAT GROWS WITH YOUR BUSINESS



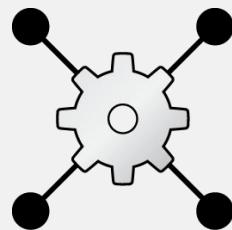
# Agile Integration

# STAYING COMPETITIVE

Service Endpoints



Weservices



API

Architecture

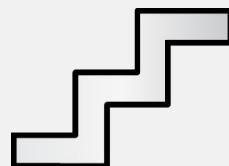


Monolithic

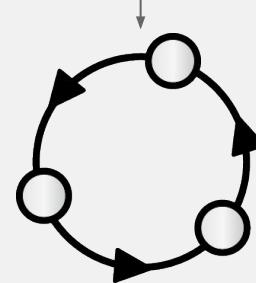


Microservices

Development Process



Waterfall

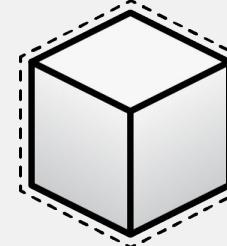


CI/CD

Deployment



Servers/VM

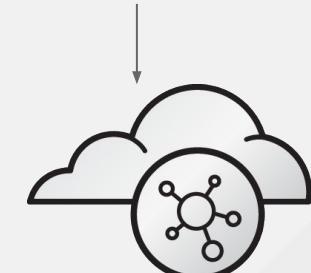


Container

Infrastructure

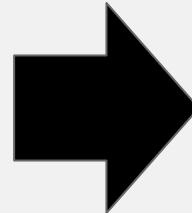
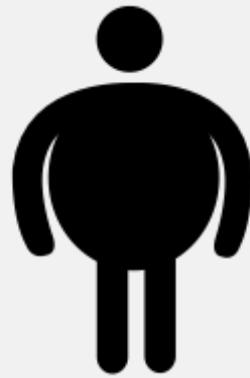


Data Center



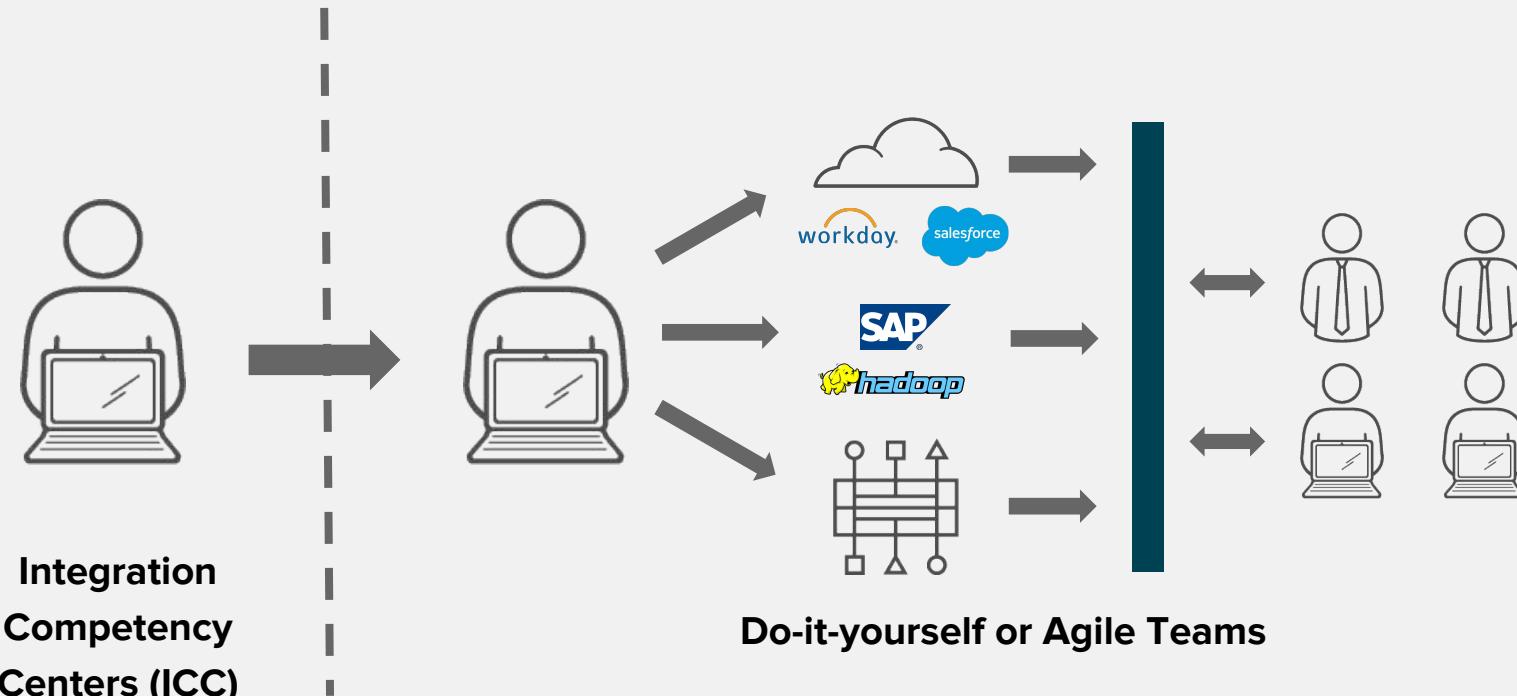
Cloud

# FROM LEGACY ESB to AGILE INTEGRATION



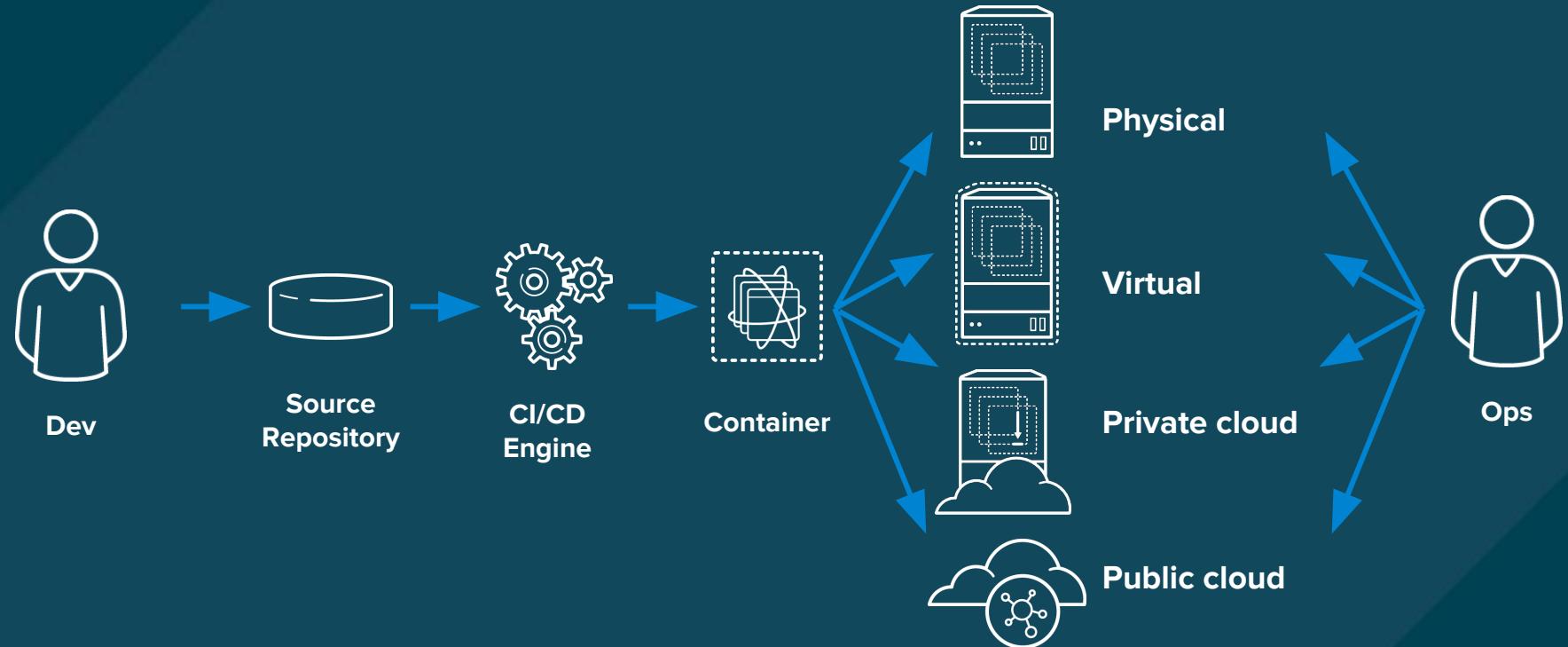
- Stringent scalability
  - Slow team co-ordination
  - Complex service registry
  - Long software delivery cycle
- Flexible resource scalability
  - Full control over services
  - Failure Isolation
  - Faster Software Delivery

# Reshaping the Organizational Model (DevOps, Citizenship devs, etc)

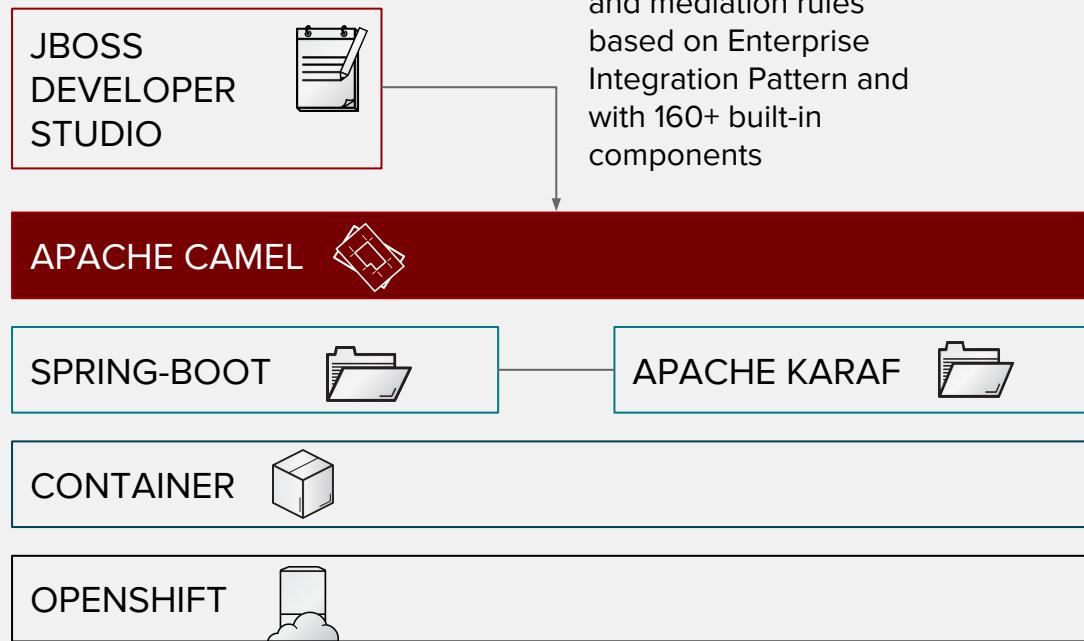


# JBoss FUSE

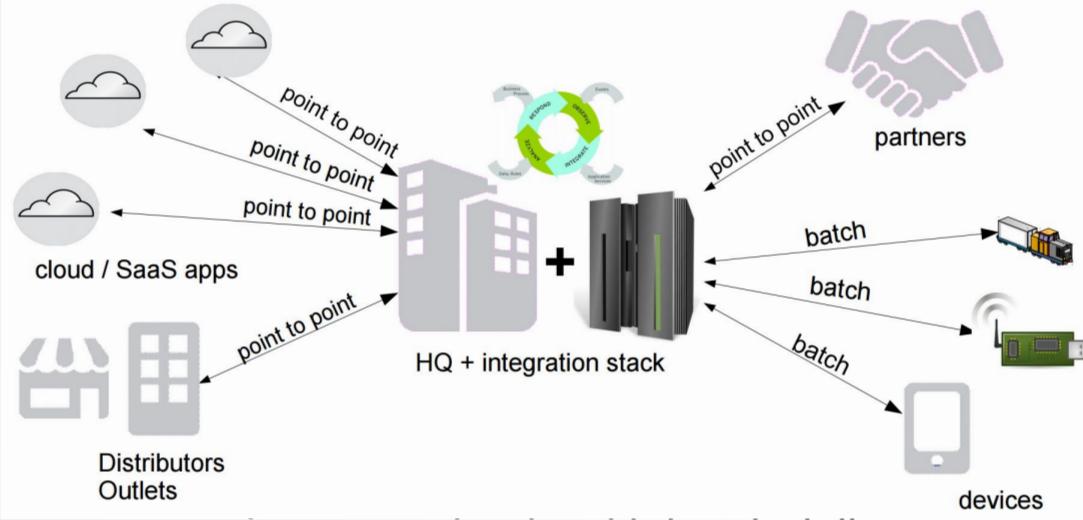
# DevOps in Hybrid Cloud?



# Red Hat JBoss Fuse



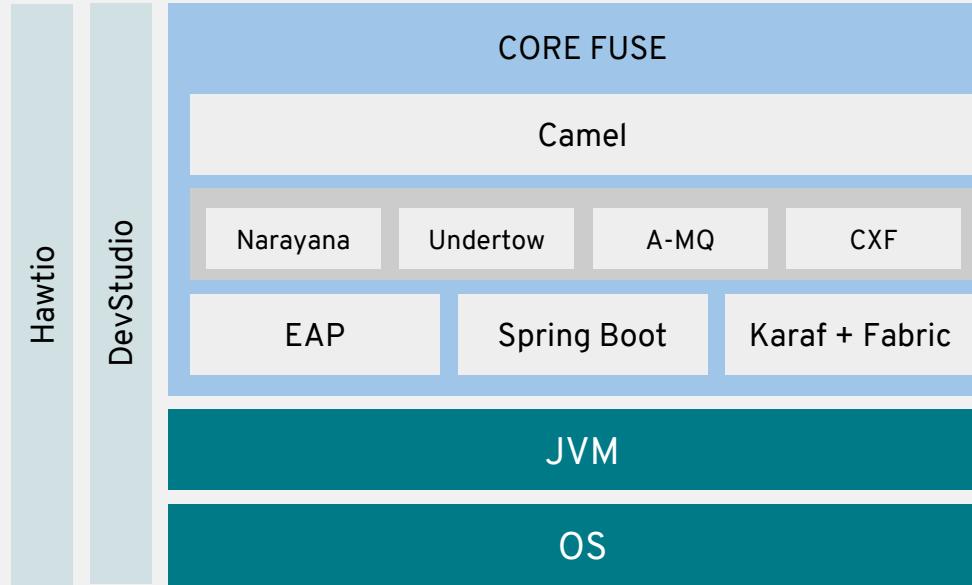
# JBoss FUSE



- Lightweight integration / ESB product / IoT!
  - over most recent trends in integration
  - Include matured de-facto standard technologies
- Similar products:
  - IBM Websphere ESB, Oracle ESB, Mule ESB ...



# FUSE STANDALONE



# FUSE 7.x

Three Fuse Product Initiatives



**Fuse Standalone**



**Fuse Integration Services**



**Fuse iPaaS**

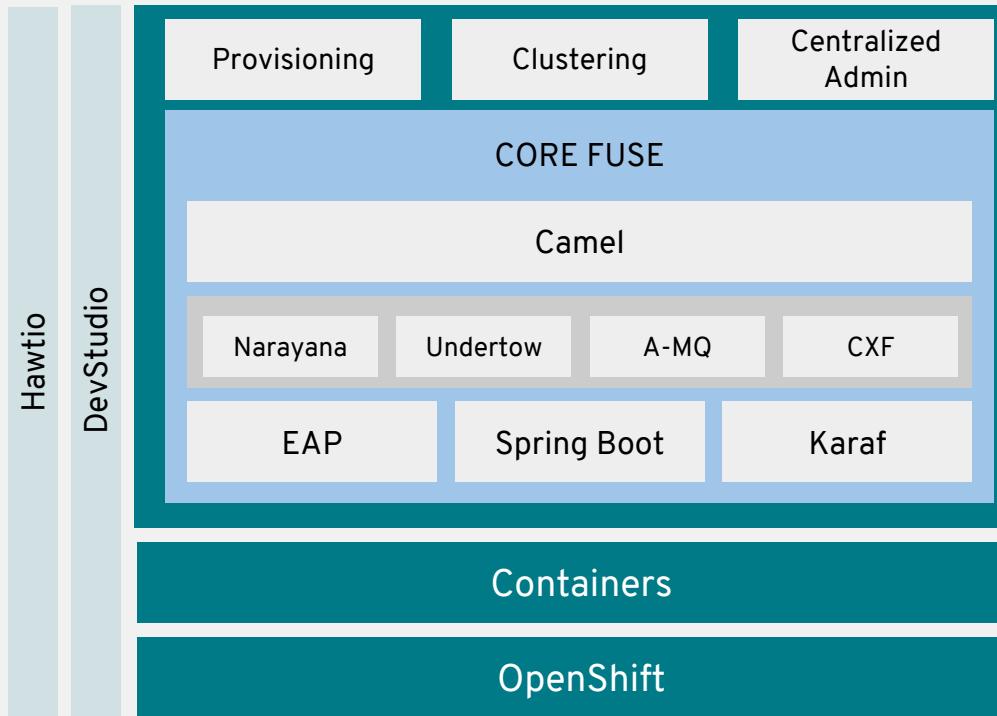


# FUSE STANDALONE

- Camel 2.20
- Karaf 4
- Add Spring Boot
- EAP 7.x Support
- Narayana transaction manager
  - Geronimo removed
- Undertow web container
  - Jetty deprecated
- AMQ 6/7 certification
- Further component modularization for EAP 7
- SwitchYard removed
- API-focused integration
  - REST DSL editor
  - SOAP <-> REST
  - 3scale integration

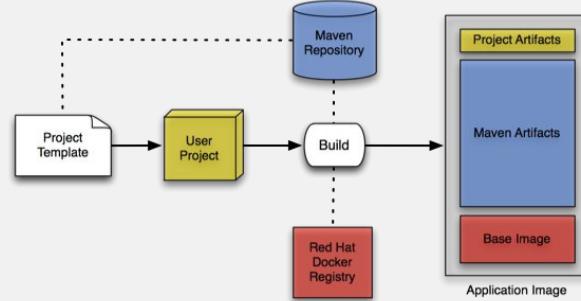


# FUSE INTEGRATION SERVICES

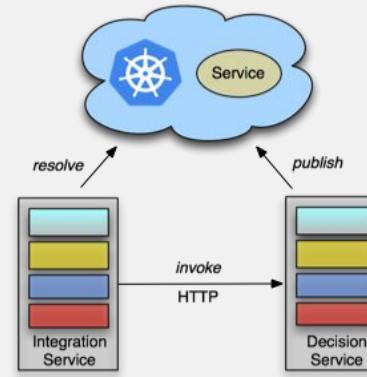


# Fuse Integration Services for OpenShift

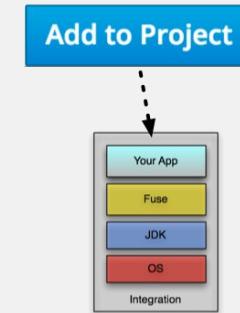
Tooling creates a complete runtime customized to an application's requirements and delivered as a Docker image

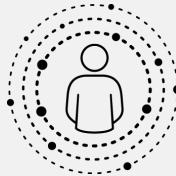


Integrate, cluster, and scale applications using Kubernetes.



Bridge development and operations with build, deployment, and management integration within OpenShift.

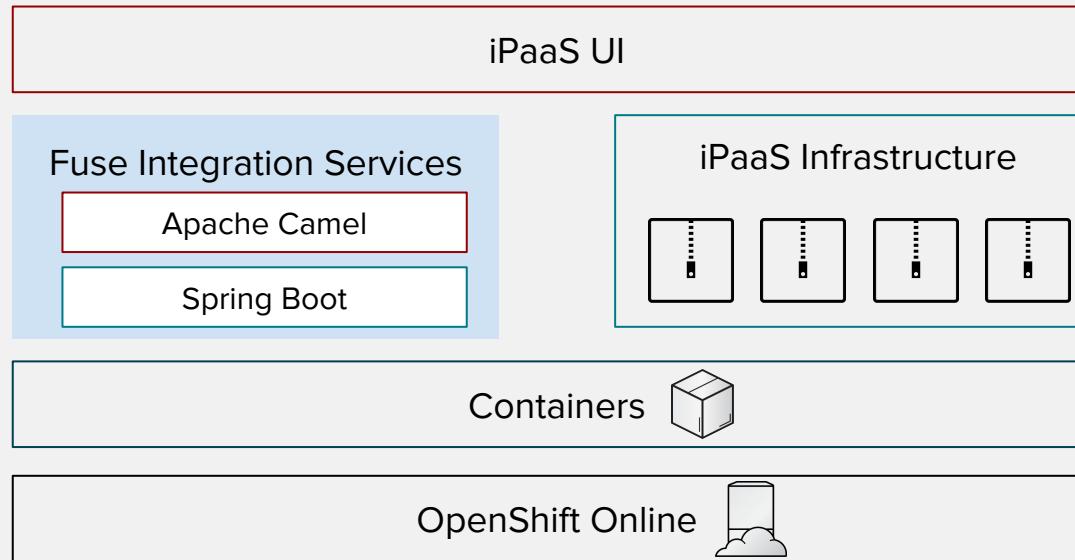




## FUSE iPaaS

- No local install footprint
- 100% web-based interface
- Designed for everyday users
- Cloud, SaaS, and API connectivity
- Comprehensive coverage of integration lifecycle
- Build on a truly *hybrid* integration platform

# Fuse iPaaS Architecture

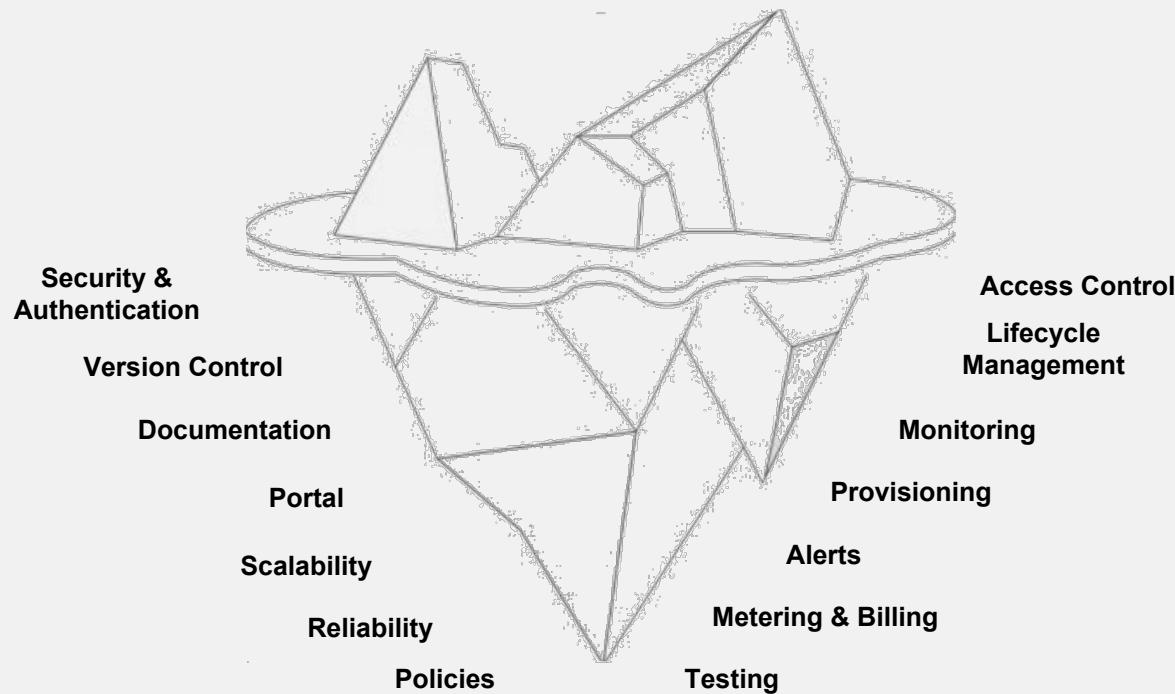




# Red Hat 3scale API management

# Take Control of Your APIs

Creating & Exposing APIs is just the start



# Challenges of API

Unknown number of developers → Does my infrastructure is well prepared?

Unknown number of calls/requests → Am I ready for huge load?

How to identify and authorize requests? → Should I use Identity management?

How to communicate with developers? → Can I create different levels/groups of developers?

How to monetize API? → How to create free and paid API?

# Challenges

Unknown number of developers

→ I need SLA between me & developer

---

Unknown number of calls/requests

→ I need throttling functionality to protect back-end

---

How to identify and authorize requests? → I need to integrate with 3<sup>rd</sup> party IM systems

---

How to communicate with developers?

→ I need developer portal to share docs&info

---

How to monetize API?

→ I need billing functionality with invoicing & payments

# Common Needs

I need SLA between me & developer

→ 3scale supports ***application plans***, developers can subscribe to one of offered application plans (contract)

I need throttling functionality to protect back-end

→ 3scale supports ***limits*** and can throttle requests above threshold to protect back-end against overloading

I need to integrate with 3<sup>rd</sup> party IM systems

→ 3scale can be integrated with IM via OAuth 2.0

I need developer portal to share docs & info

→ 3scale has ***developer portal*** with self registration functionality or by invitation only

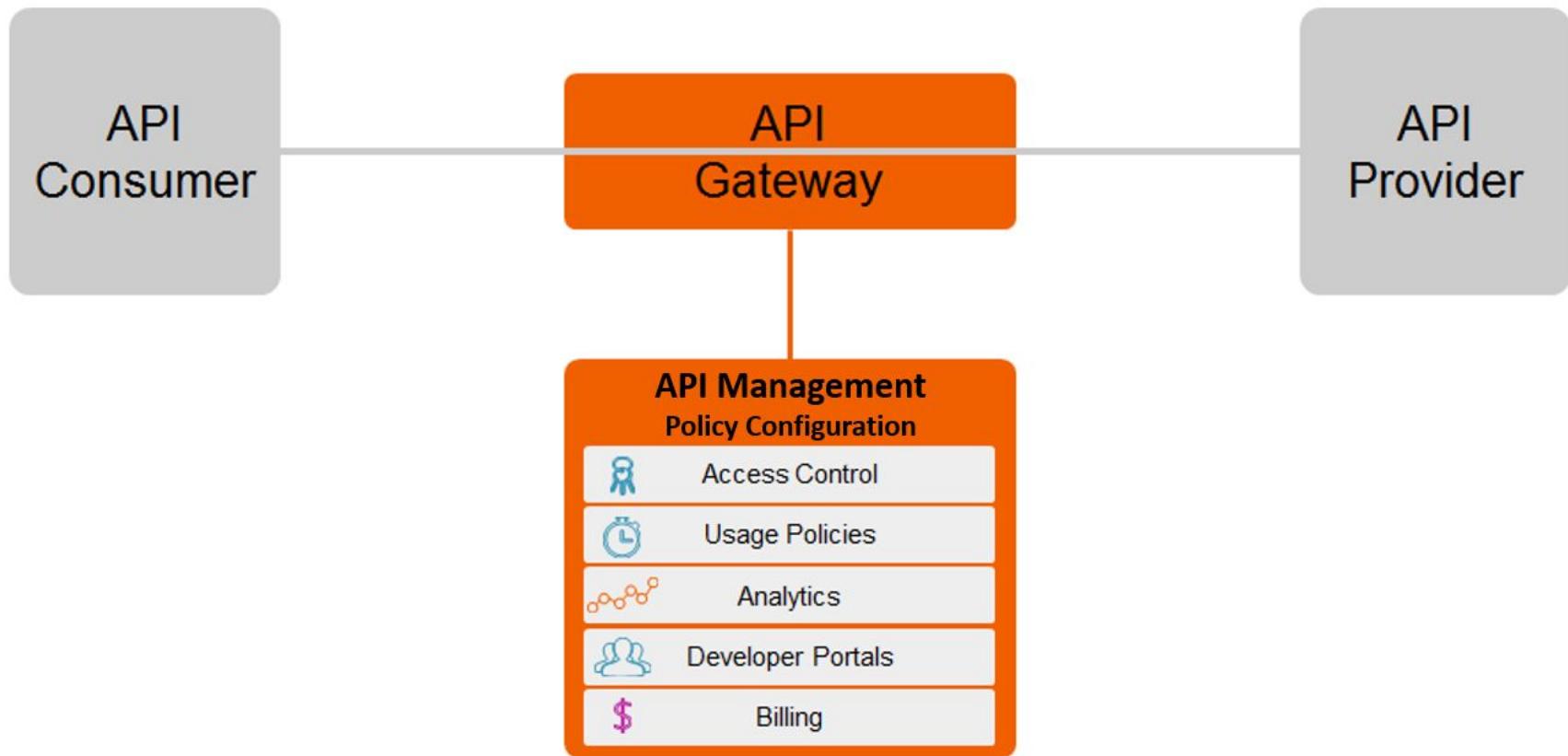
I need billing system with invoicing & payments

→ 3scale ***monetization module*** (billing+invoicing&payments)  
API can be used free of charge or paid

# 3scale Hybrid-Cloud Model

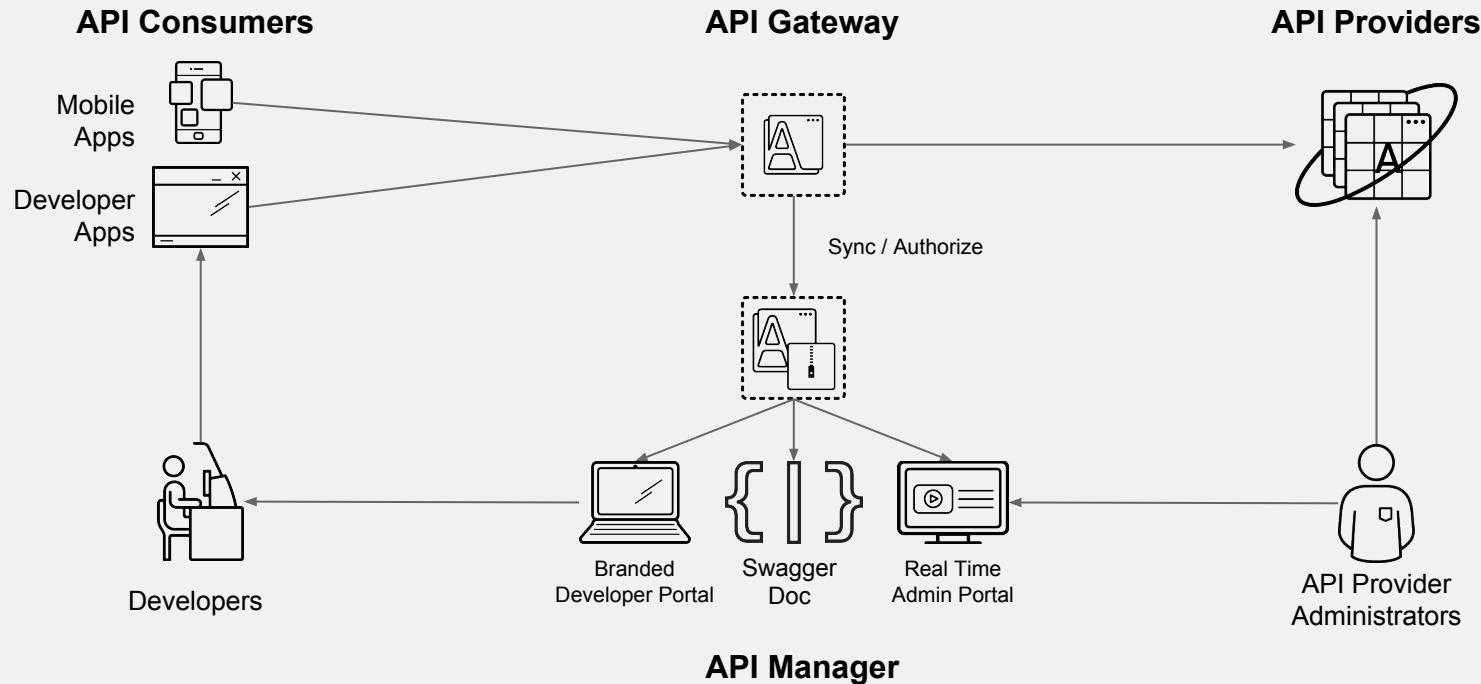


# 3scale Hybrid-Cloud Model



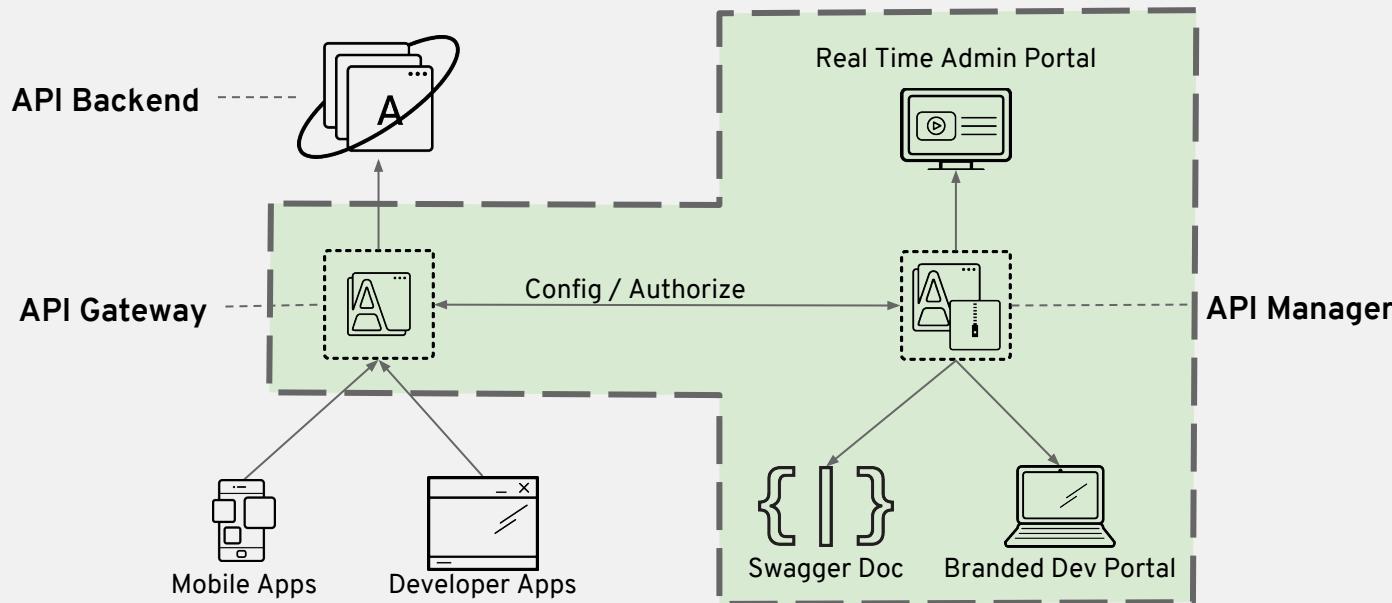
# 3Scale API Management

Components - Flexible Distributed Control

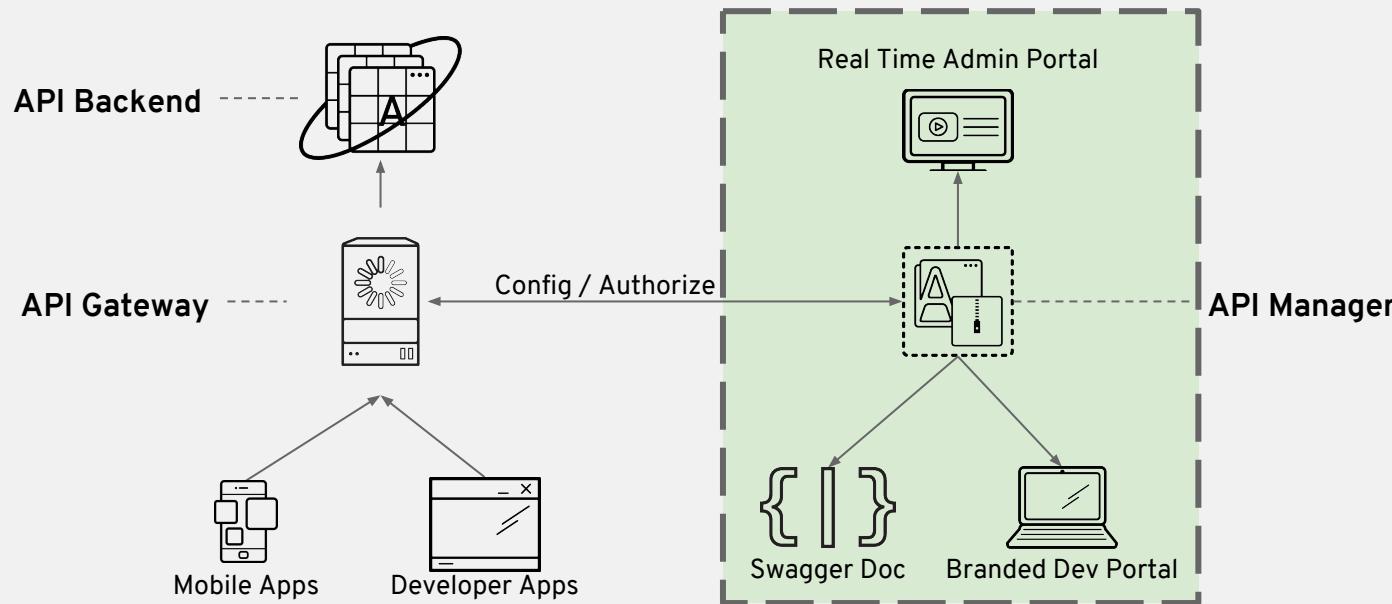


# RED HAT 3SCALE API MANAGEMENT: DEPLOYMENT OPTIONS

# Full SaaS: Hosted API Manager and API Gateway

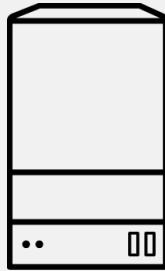


# Hybrid: Hosted API Manager - Self Managed Gateway



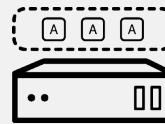
# Self-managed API Gateway

## Deployment Options



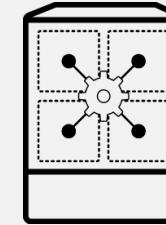
**Native**

apicast-gateway code from upstream project GitHub repo running on:  
Openresty (NGINX + LUA)  
for Red Hat Enterprise Linux



**Docker**

apicast-gateway Docker Image from Red Hat Registry



**OpenShift**

OpenShift API Gateway Template (which will pull in apicast-gateway Docker Image)  
Inside or outside the OCP cluster where API manager is deployed

# Resources

## 3scale Website

- [www.3scale.net](http://www.3scale.net)
- <http://www.3scale.net/resources/>
- <http://www.3scale.net/blog/>

## 3scale Support Portal

- <https://support.3scale.net>
- <https://support.3scale.net/reference/active-docs>

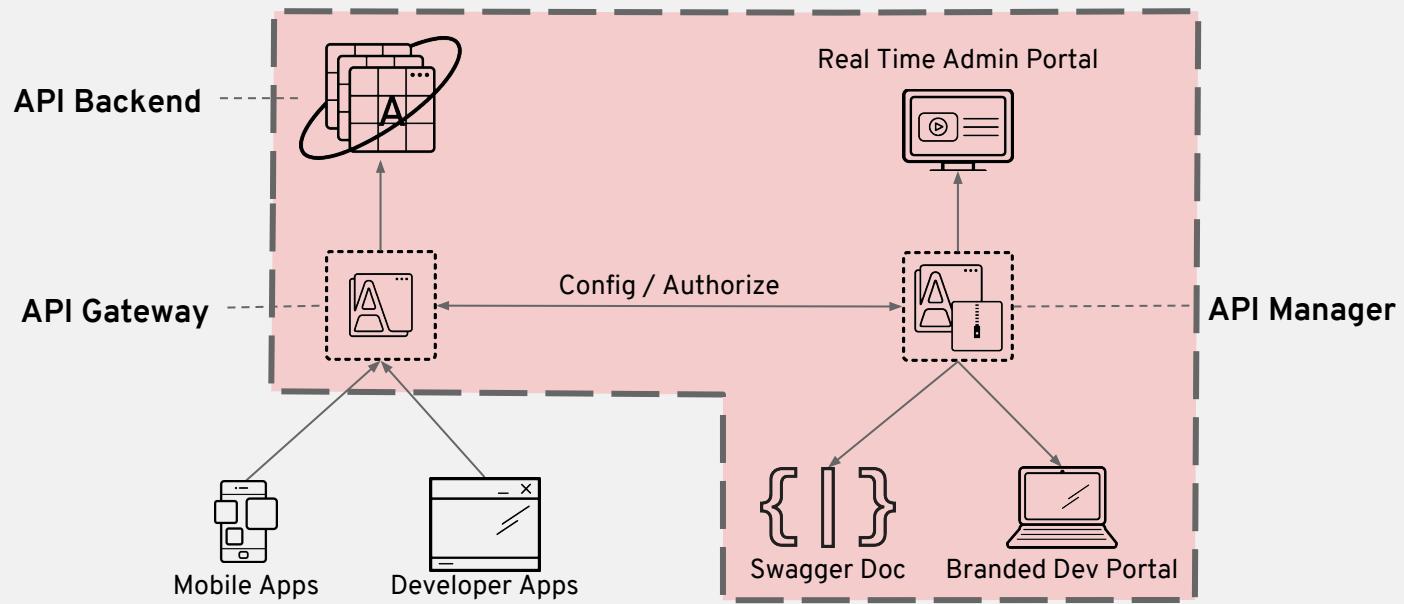
## Performance

- <http://www.3scale.net/2015/04/how-to-load-test-and-tune-performance-on-your-api-part-i/>
- <http://www.3scale.net/2015/05/how-to-load-test-and-tune-performance-on-your-api-part-ii/>

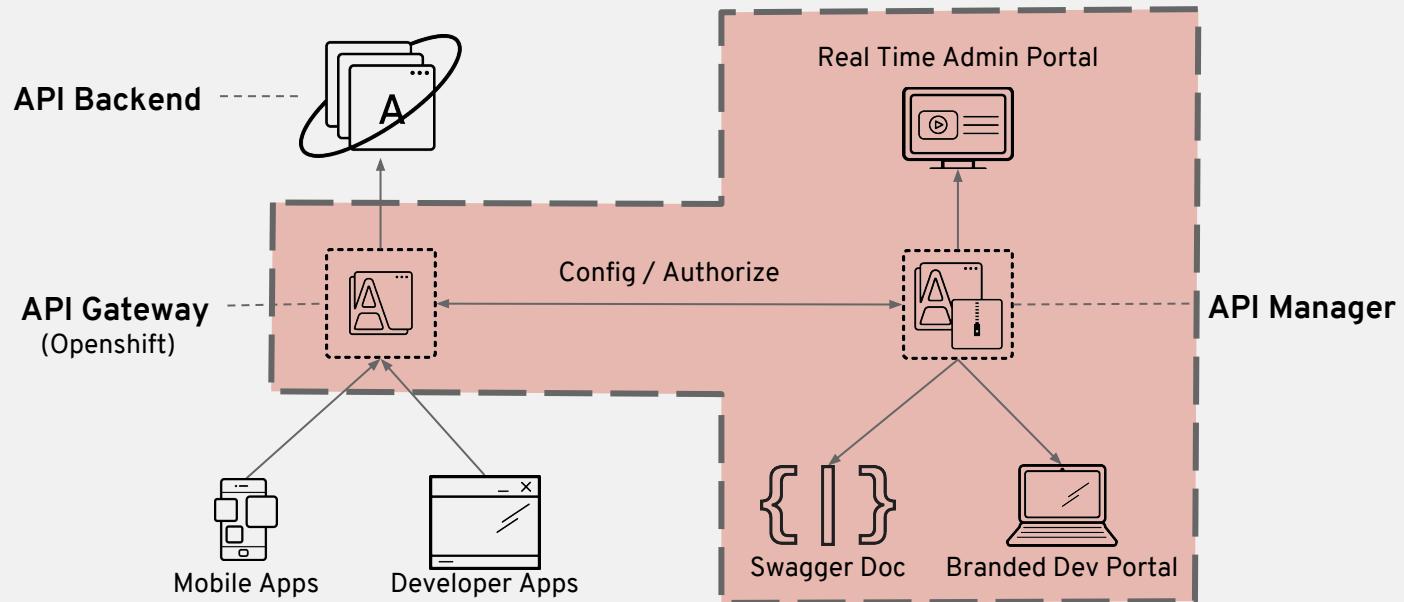
## eBooks

- <http://www.3scale.net/2015/08/new-ebook-the-api-owners-manual-best-practices/>
- <http://www.3scale.net/api-economy/>

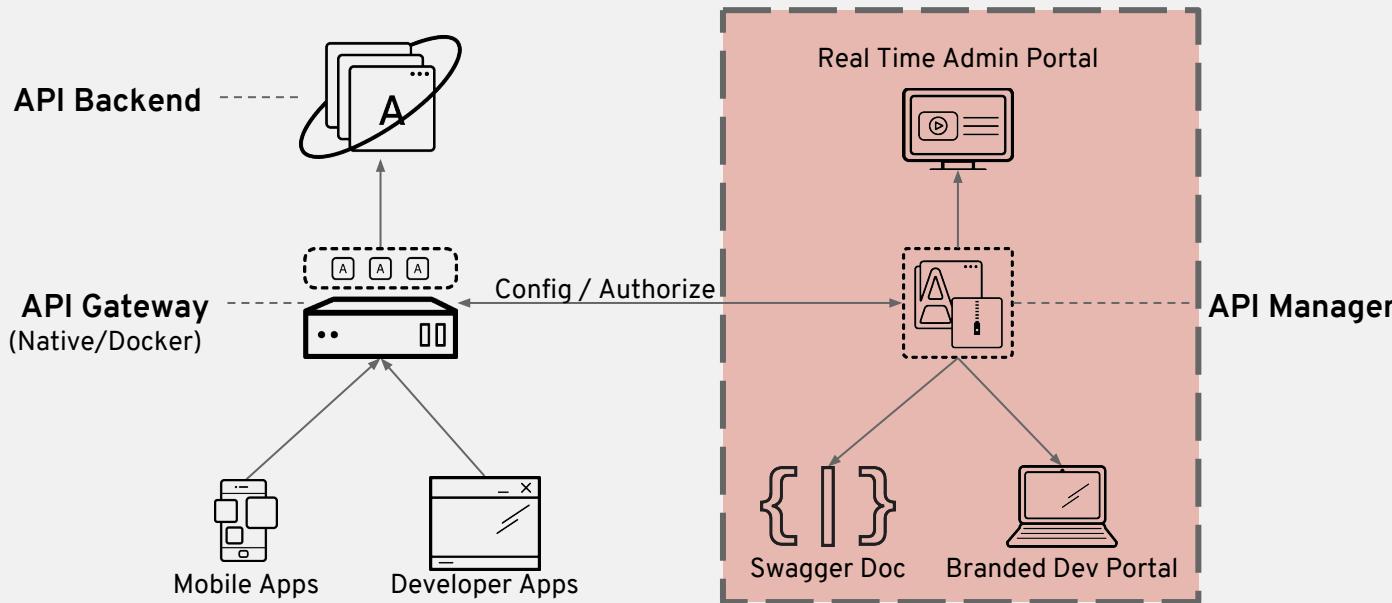
# Full On-Premises: All on OpenShift



# On-Premises: API Backend outside OpenShift

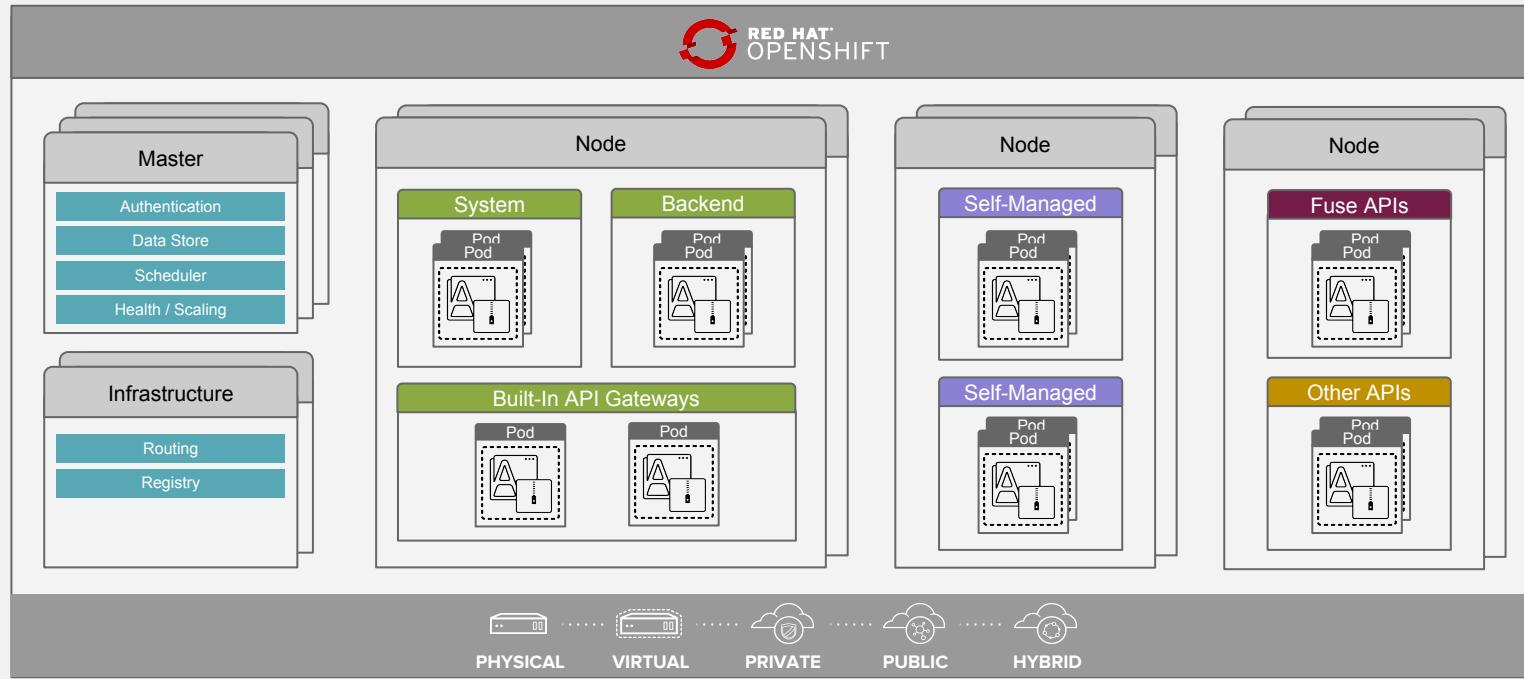


# On-premises: API Backend and API Gateway outside of OpenShift

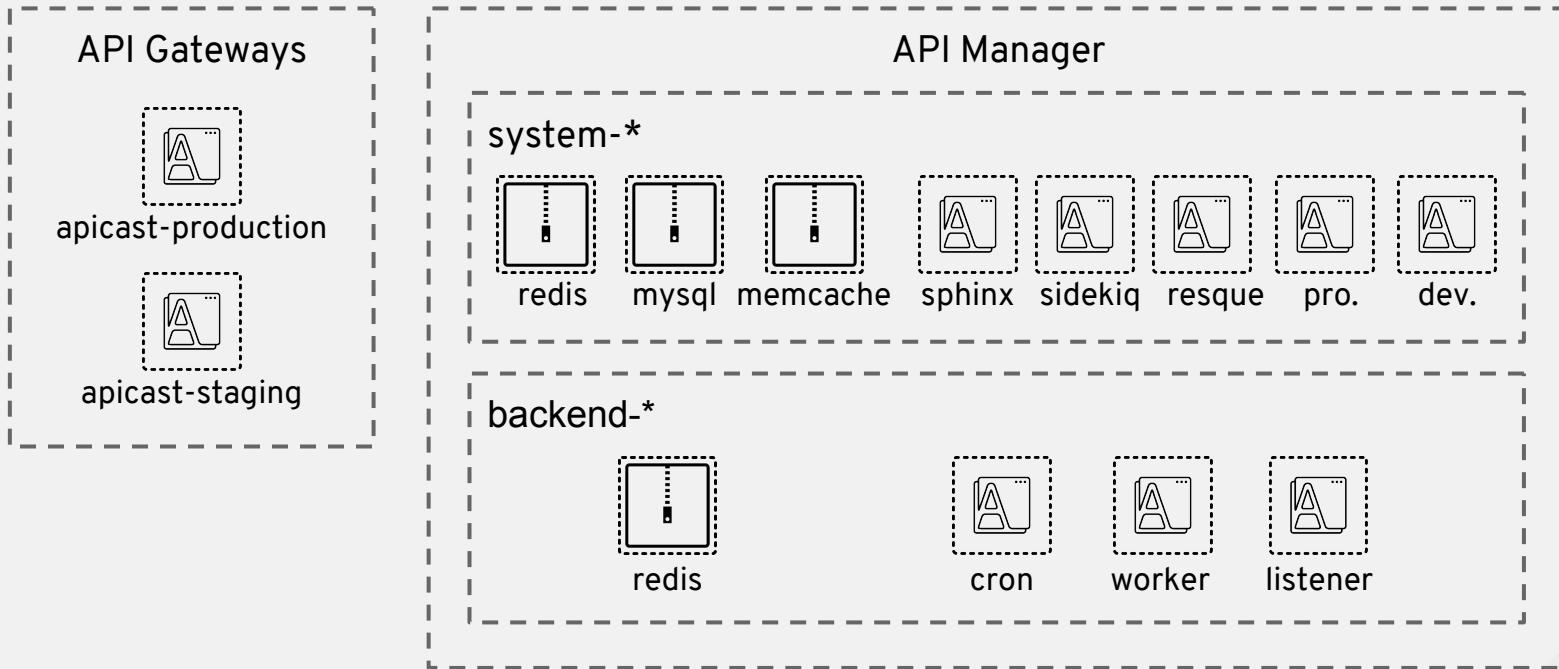


# Images and containers

# 3scale in OpenShift



# AMP Containers



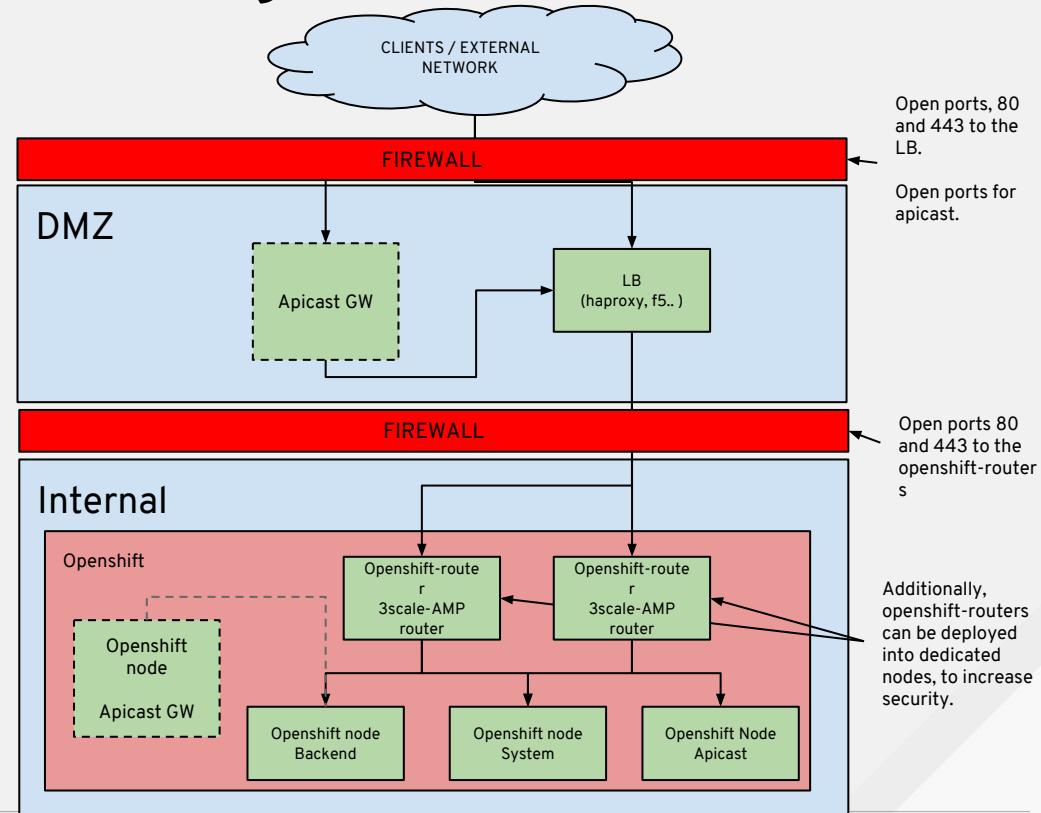
# AMP Containers by Type

	public services	caching service	indexing service	scheduler	async job queues	persistence
system	 provider	 memcached	 sphinx		 sidekiq	 system-redis
backend	 developer				 resque	 mysql
gateway		 listener		 cron	 worker	 backend-redis
		 apicast *				

# AMP Internal plus Self-Managed APICast

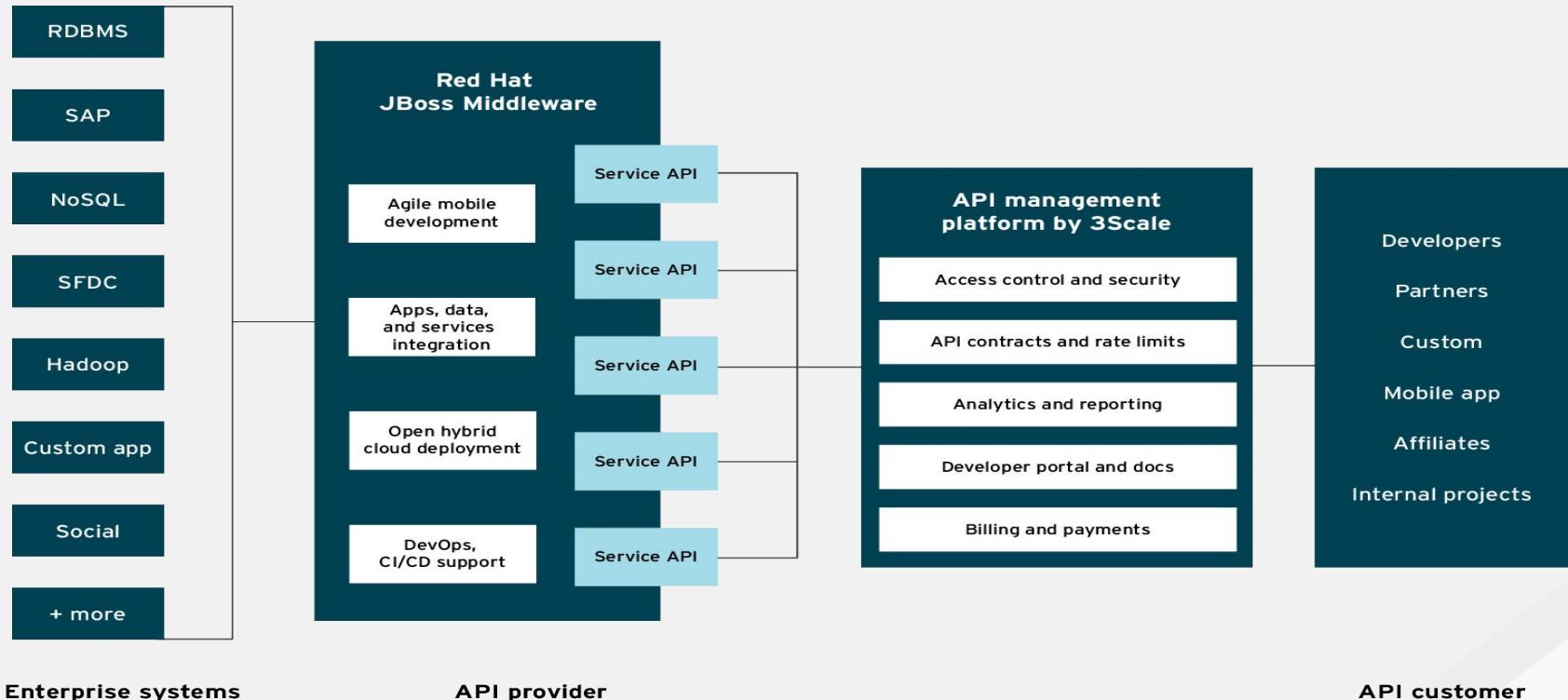
In this scenario APICast GW can be deployed either:

- **In the DMZ.** APICast connects to Backend and System via the exposed routes in the LB.
- **Internal.** APIcast connects to Backend and System via the internal service (check "[Openshift SDN](#)" for more info)

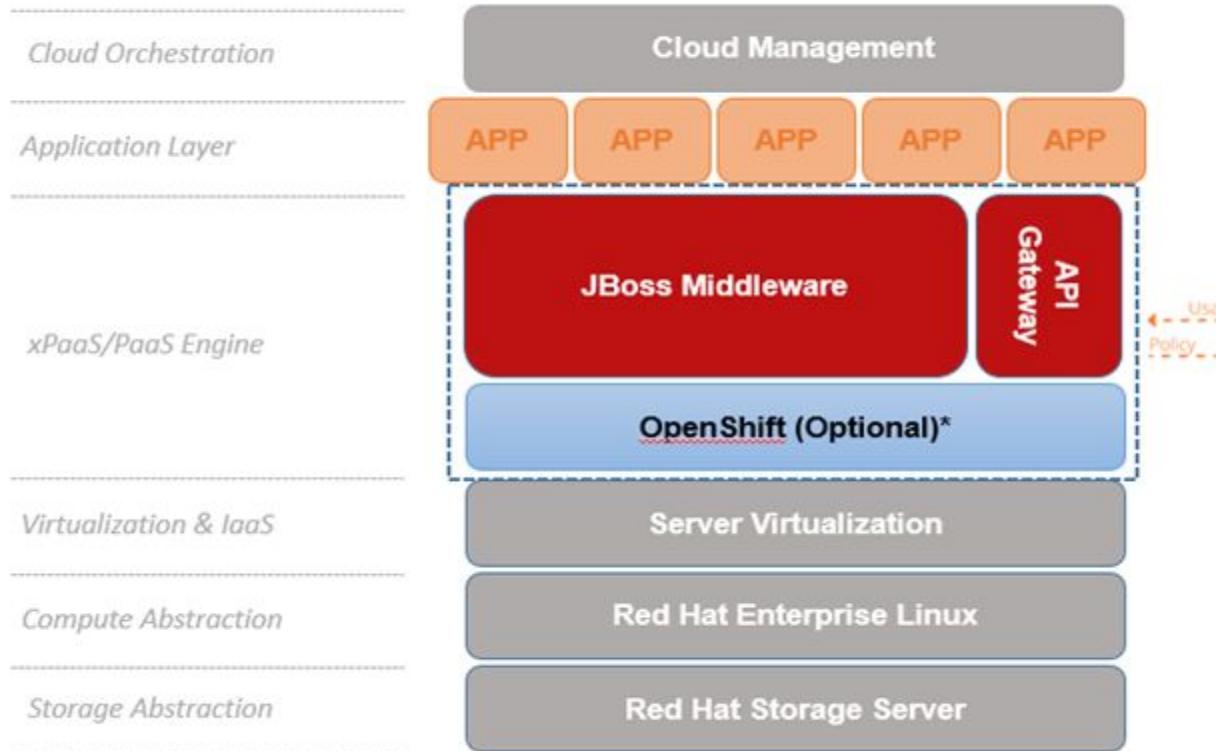




# API Management



# JBoss Middleware Integration



# Broad and Deep Customer Base



CrunchBase



Red Hat vision:

- ✓ Modular microservices
- ✓ Based on JBoss Middleware
- ✓ Running in OpenShift

**RED HAT® JBOSS®  
FUSE**

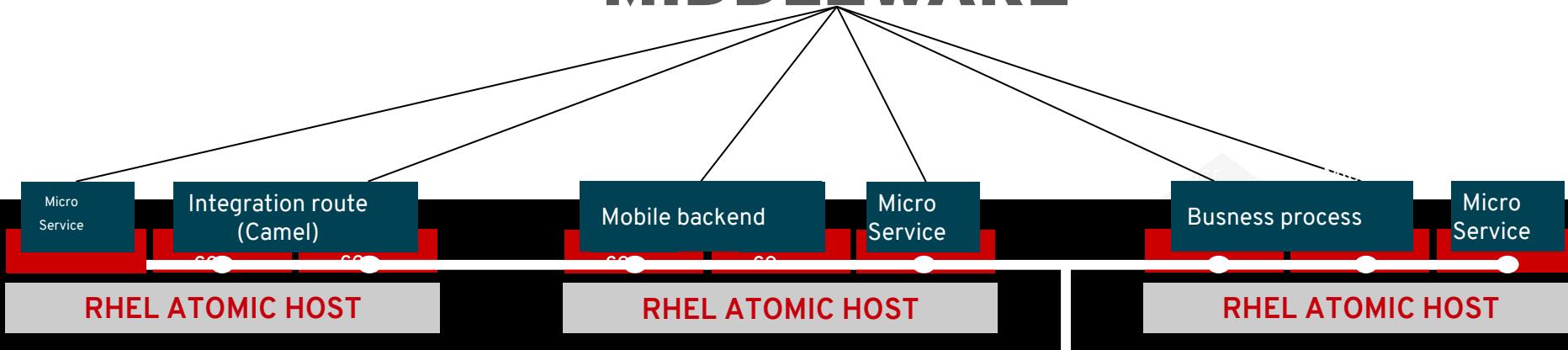
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APPLICATION PLATFORM**

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**RED HAT® JBOSS®  
MIDDLEWARE**



**RED HAT®  
MOBILE APPLICATION  
PLATFORM**



**OPENSIFT**  
by Red Hat®

**KUBERNETES**  
Container Orchestration

**WORKSHOP:**  
[\*\*https://learn.openshift.com/\*\*](https://learn.openshift.com/)

**3scale Online Trial:**  
[\*\*www.3scale.net\*\*](http://www.3scale.net)

**STORAGE Online WShop:**  
[\*\*https://redhat.qwiklab.com/live\*\*](https://redhat.qwiklab.com/live)



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