HIER, AUJOURD'HUI, DEMAIN...

Optimisez et transformez avec les solutions Red Hat

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Olivier MIKELADZE - Solution Architects Manager
16 Octobre 2018

HIER, AUJOURD'HUI, DEMAIN...

LE DARWINISME DIGITAL

AUTOMATION

SELF-SERVICE ON-DEMAND INFRA

RE-ORG TO DEVOPS

ADVANCED DEPLOYMENT TECHNIQUES

CONTINUOUS DEPLOYMENT

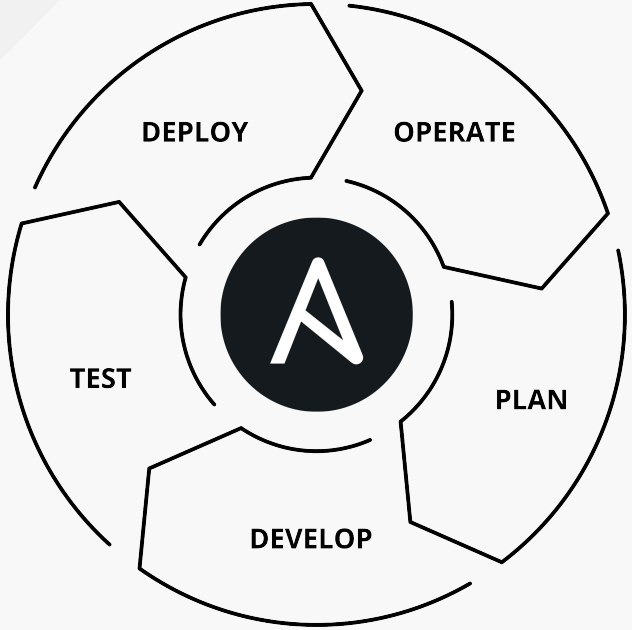
MICROSERVICES

FAST MONOLITH

redhat.

PHASE 1

OPTIMISER L'EXISTANT ET ADOPTER LE CLOUD



- ➔ Application de e-Commerce JBoss EAP
- ➔ Version 1.0.0 on prem standalone (RHEL RHV)
- ➔ Automatisation du scale out JBoss HA F5
- ➔ Version 1.1.0 dans AWS

redhat.

ANSIBLE TOWER

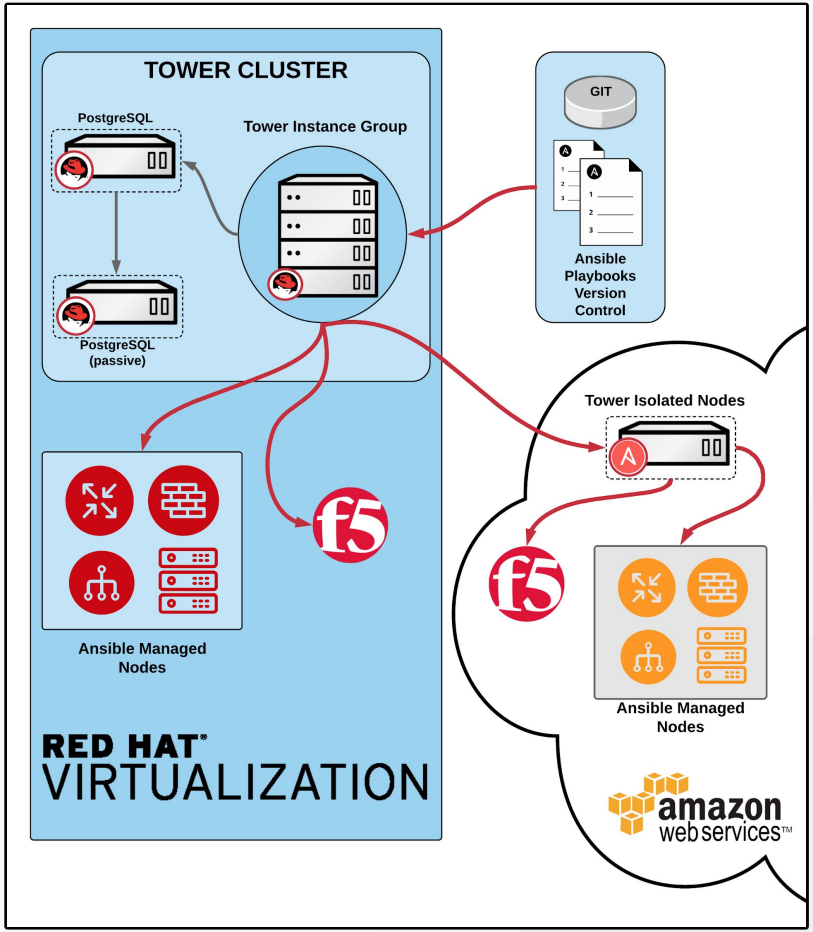
BRIQUE D'INFRASTRUCTURE DÉDIÉE À L'AUTOMATISATION

Environnements on prem ou clouds publics

Serveurs Physiques, VMs, Instances, Réseaux...

Infrastructure as Code & Integration GIT

API REST



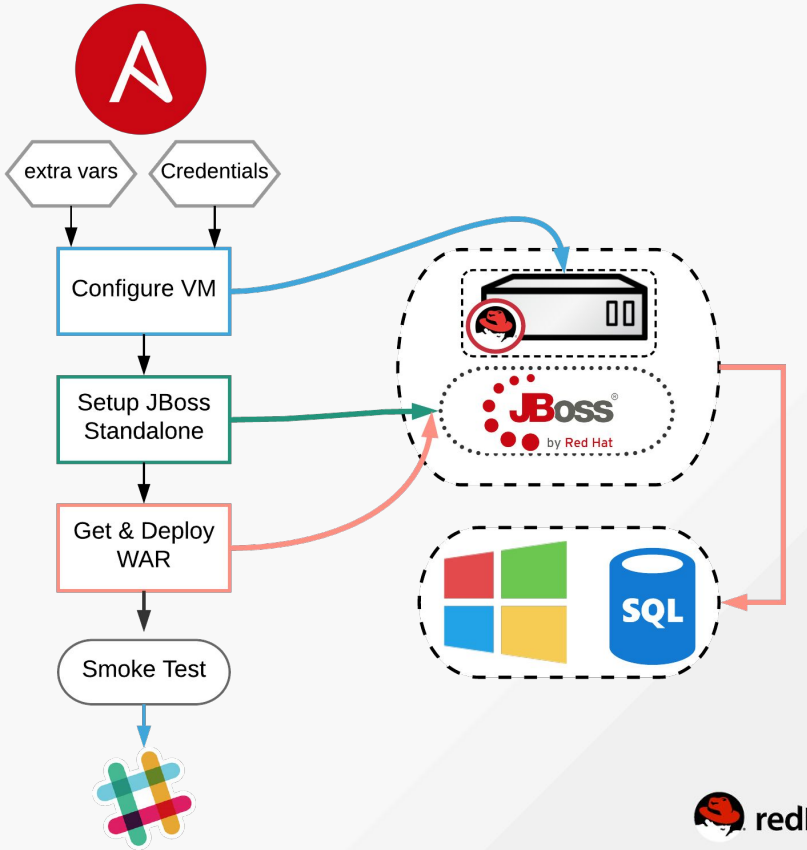
redhat.

ON PREMISE AUTOMATION

EAP Standalone Configuration

Basé sur un rôle communautaire

Template Jinja2 pour la configuration XML



redhat.

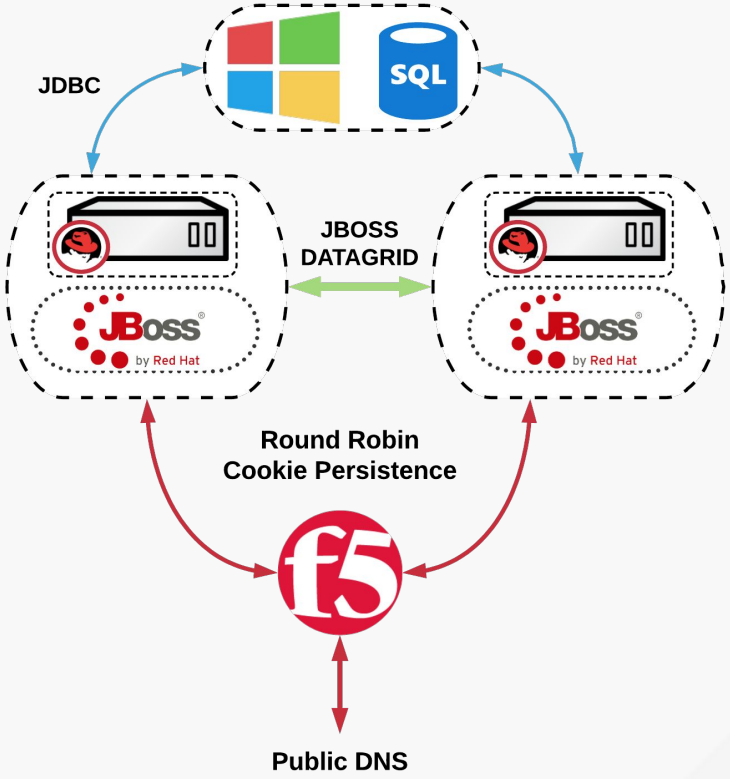
ON-PREMISE SCALE OUT

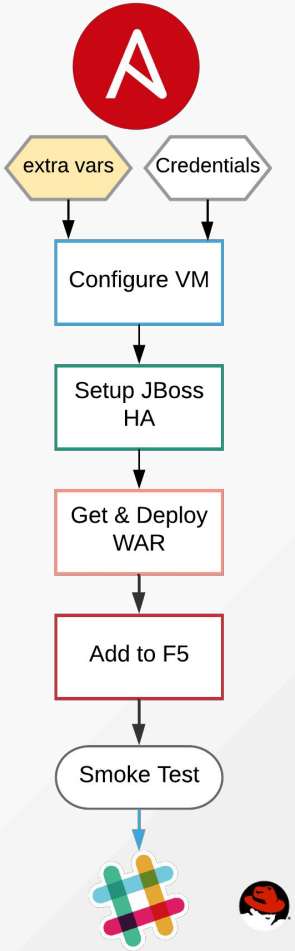
EAP HA + F5

Même Rôle & Même Playbook

Configuration Cluster EAP

Role de configuration F5



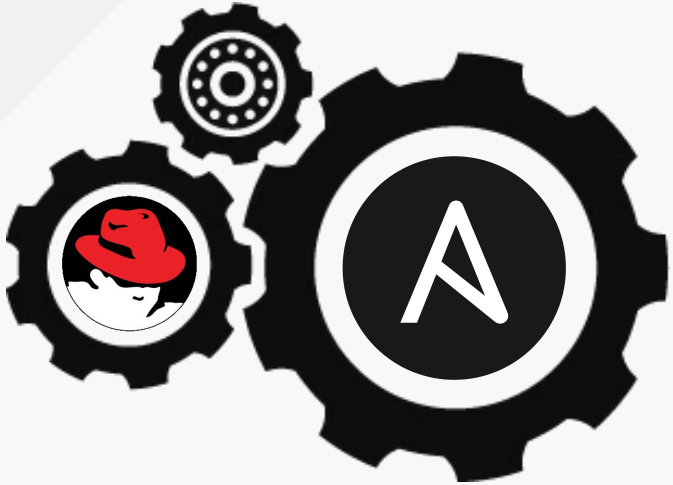


redhat.

DEPLOIEMENT DANS AWS

THE OS MATTERS !

AUTOMATISER AUJOURD'HUI



Automatisation du déploiement et des configurations Haute Disponibilité

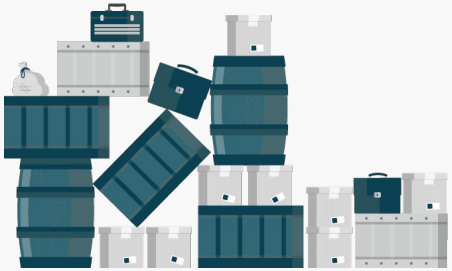
Langage simple permettant la collaboration entre équipes

Unified Hybrid Cloud : Infrastructure As code pour tous les environnements

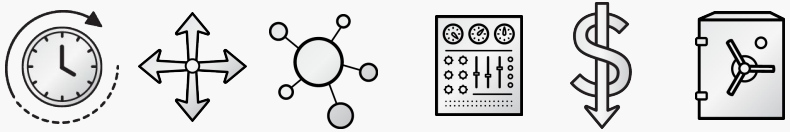
PHASE 2

TRANSFORMATION VIA CONTAINERISATION

Une manière efficace de packager, livrer, déployer, opérer des applications !



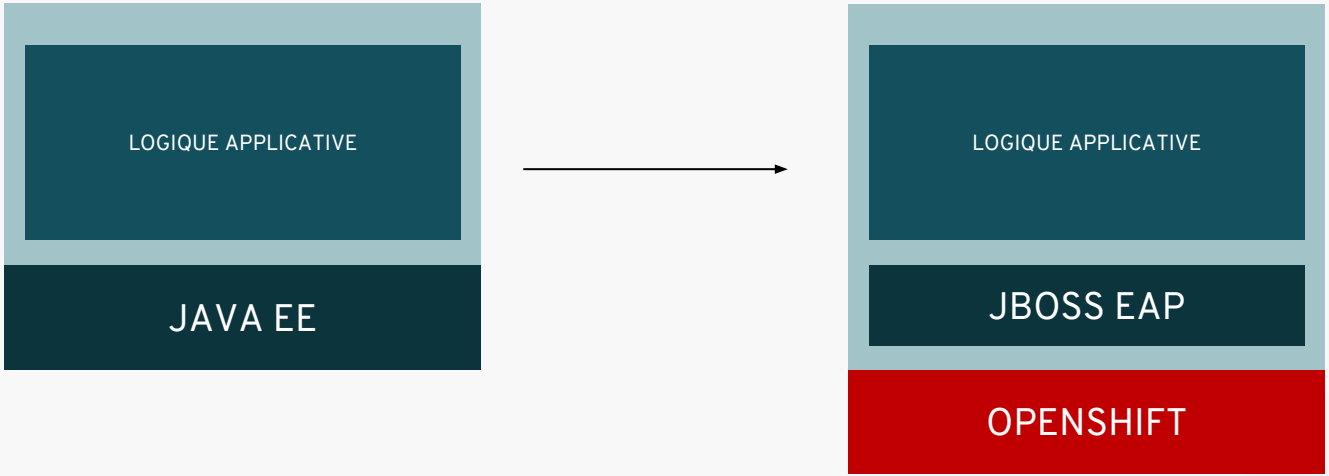
Concilier innovation et contrôle, diversité et uniformisation
pour une meilleure
optimisation des coûts



redhat.

1ÈRE ÉTAPE - MIGRER L'APP SUR OPENSHIFT

Pour améliorer l'automatisation et la vitesse de déploiement, nous migrons l'application vers JBoss EAP et OpenShift.



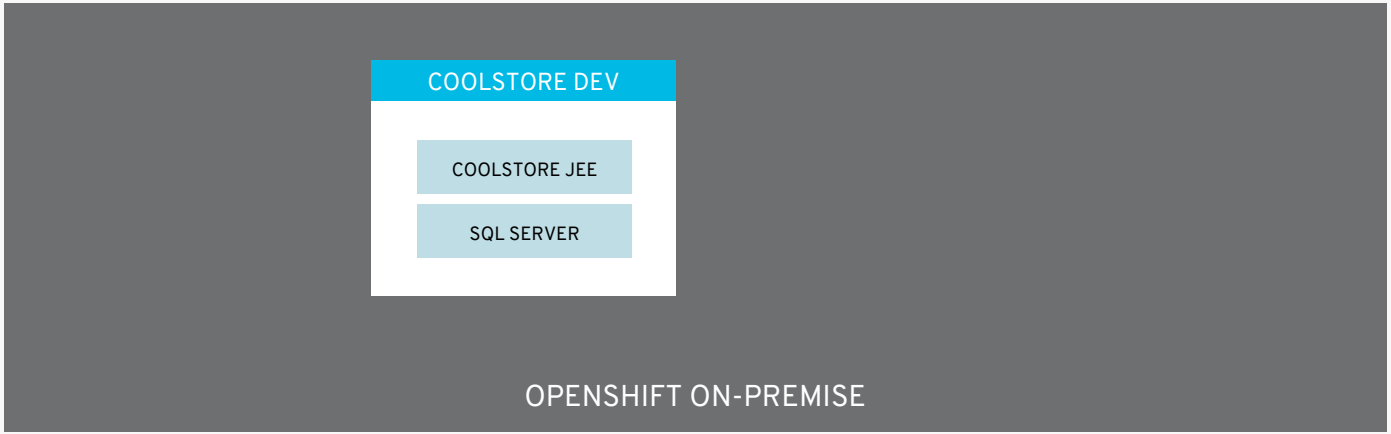
Une plateforme pour containers applicatifs basés sur SE Linux, Docker et Kubernetes pour **construire, sécuriser, distribuer** et **exécuter** des containers à l'échelle.

RED HAT® ENTERPRISE LINUX®

cri-o

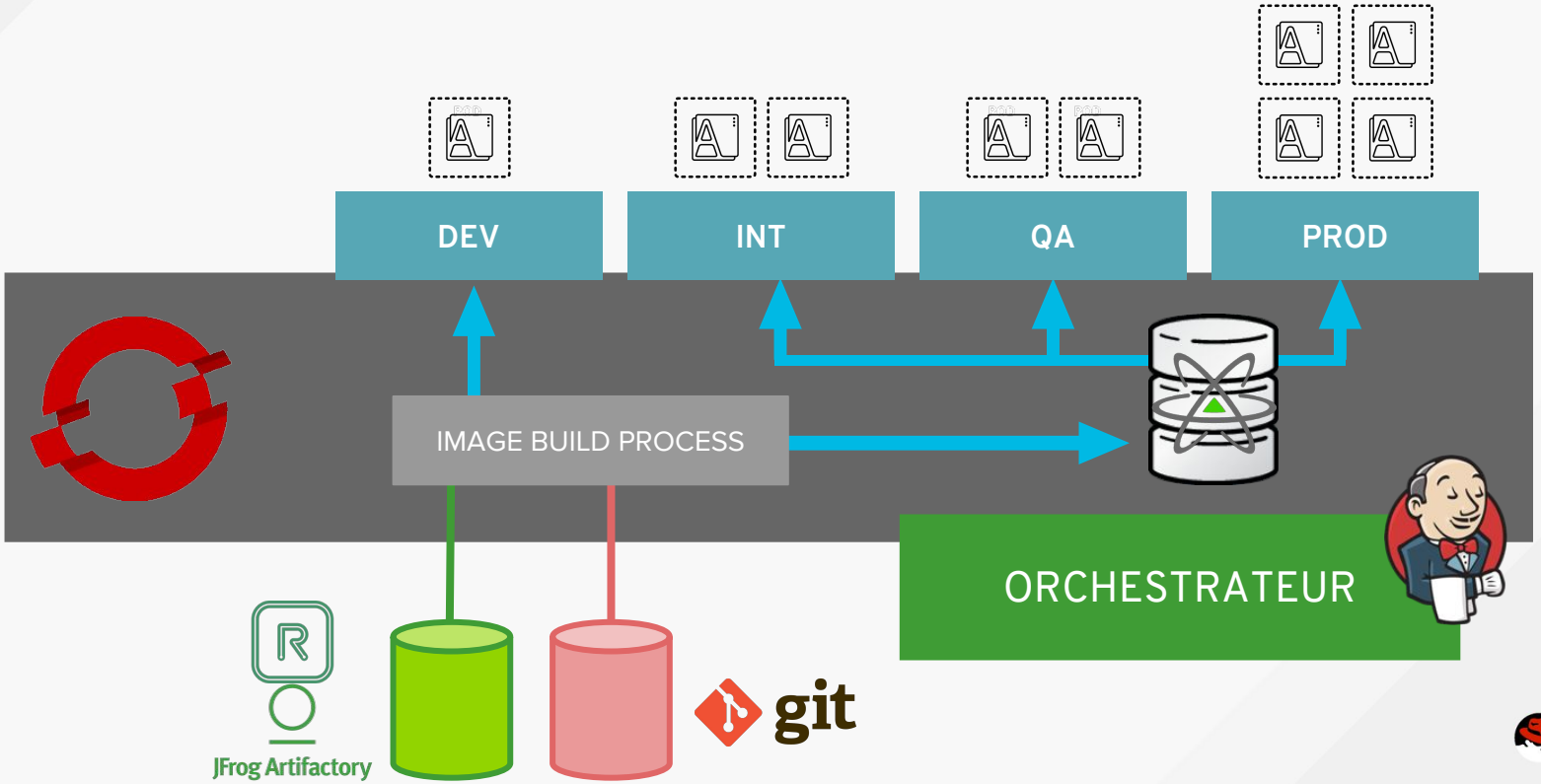
RE-HOST OU LIFT & SHIFT

NEXUS



CI/CD AVEC OPENSHIFT

Rolling Upgrades
Blue/Green Deployments
A/B Testing



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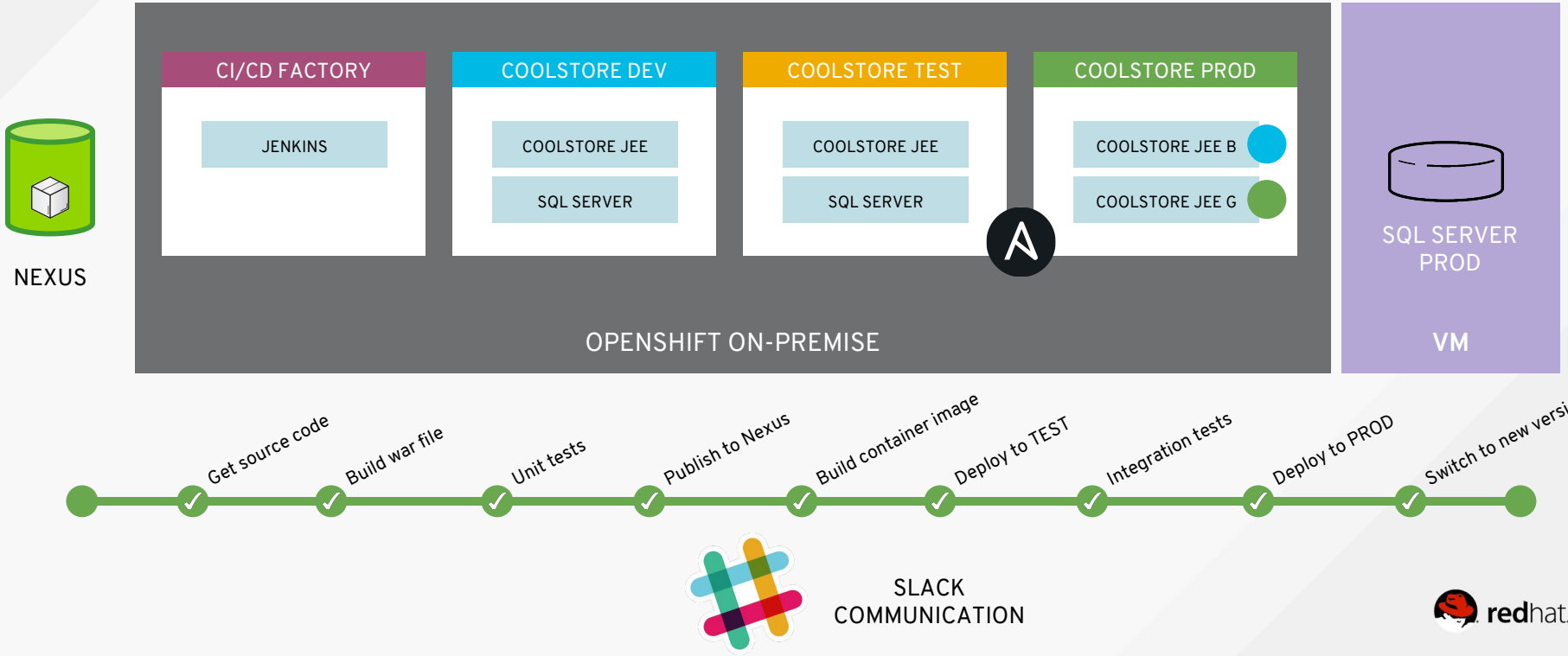
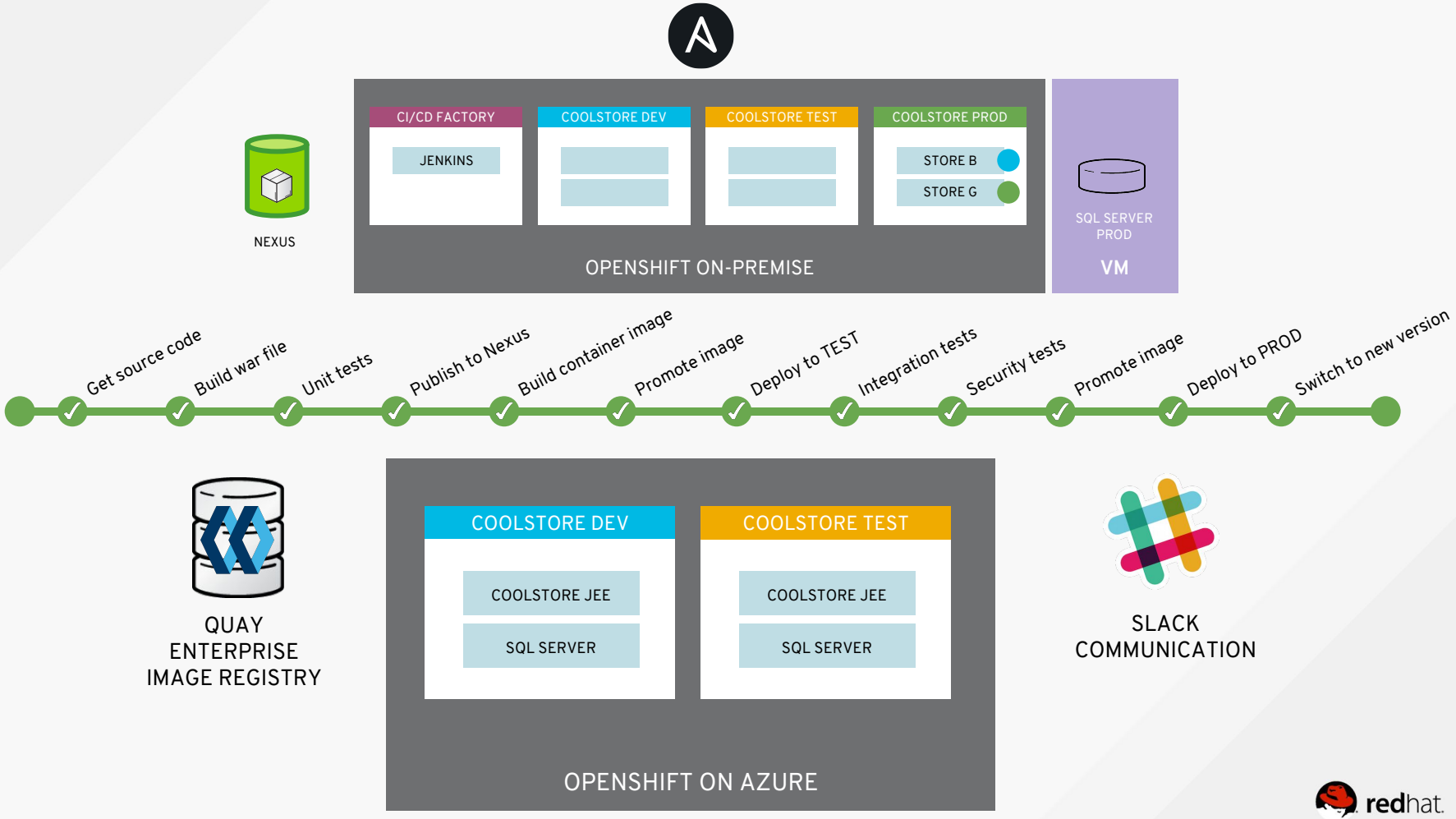
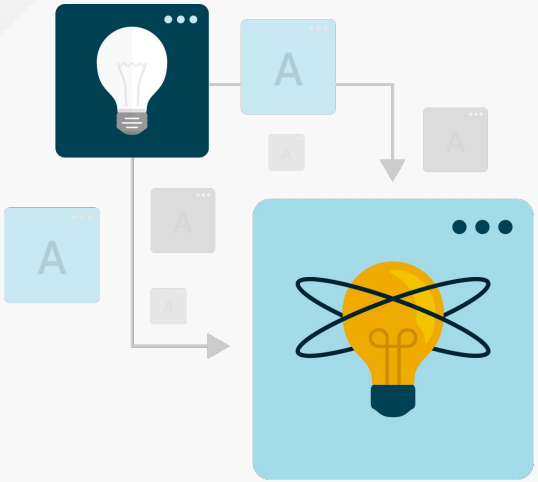
DEPLOIEMENT CONTINU




CI/CD FACTORY
JENKINS
COOLSTORE DEV
COOLSTORE TEST
COOLSTORE PROD
STORE B
STORE G
OPENSHIFT ON-PREMISE
NEXUS
SQL SERVER PROD
VM
Get source code
Build war file
Unit tests
Publish to Nexus
Build container image
Promote image
Deploy to TEST
Integration tests
Security tests
Promote image
Deploy to PROD
Switch to new version
QUAY ENTERPRISE IMAGE REGISTRY
COOLSTORE DEV
COOLSTORE JEE
SQL SERVER
COOLSTORE TEST
COOLSTORE JEE
SQL SERVER
OPENSHIFT ON AZURE
SLACK COMMUNICATION
redhat.

VERS LE DÉPLOIEMENT CONTINU ET L'HYBRIDATION



Accélérez le cycle de développement et de livraison (TTM et fiabilité)

Supportez votre stratégie d'hybridation grâce à une totale portabilité

Assurez la reproductibilité de vos déploiements via le *everything-as-code*.

Densifiez et optimisez l'utilisation de vos ressources

PHASE 3

CLOUD-NATIVE APP DEV ?

Photo by Jean Gerber on Unsplash

redhat.

CLOUD-NATIVE APP DEV

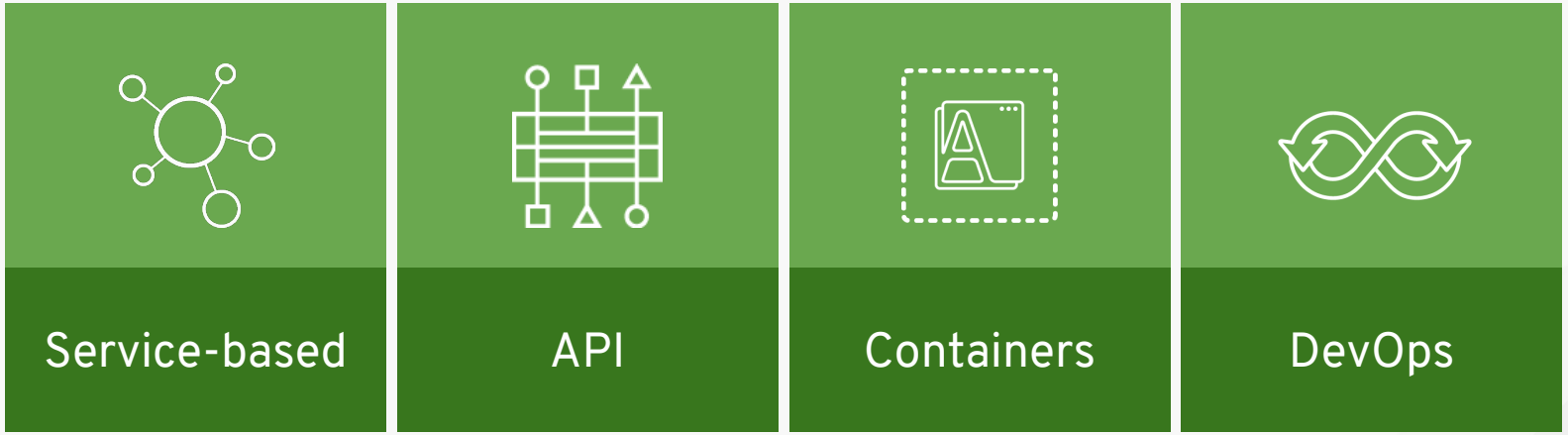
An approach to building and deploying applications utilizing the advantages of the cloud computing model

IT'S ABOUT BECOMING FASTER, NOT COST REDUCTION

Photo by Jean Gerber on Unsplash

redhat.

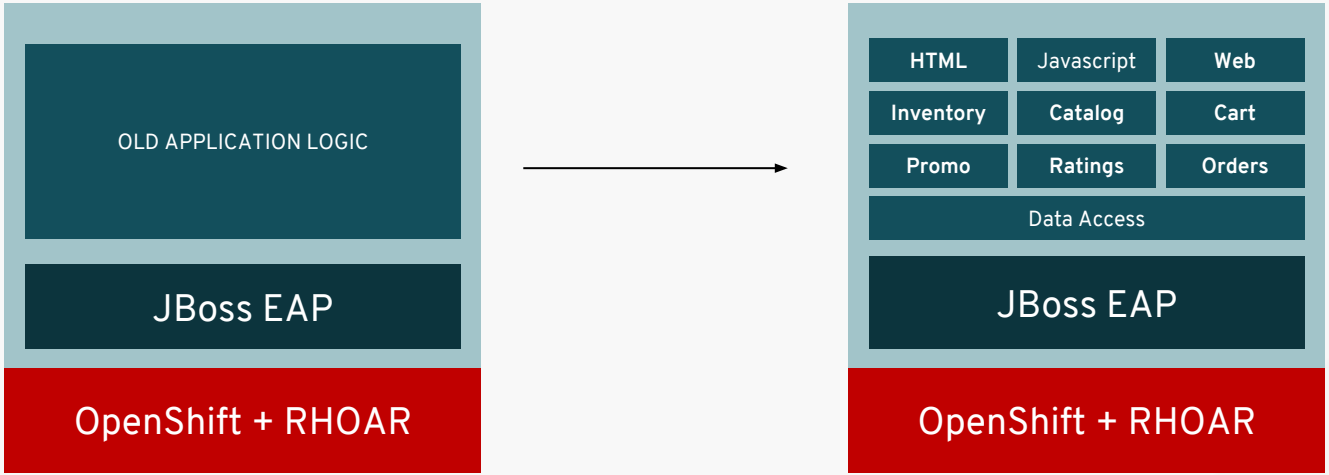
LES CARACTÉRISTIQUES D'APPLICATIONS CLOUD-NATIVE



redhat.

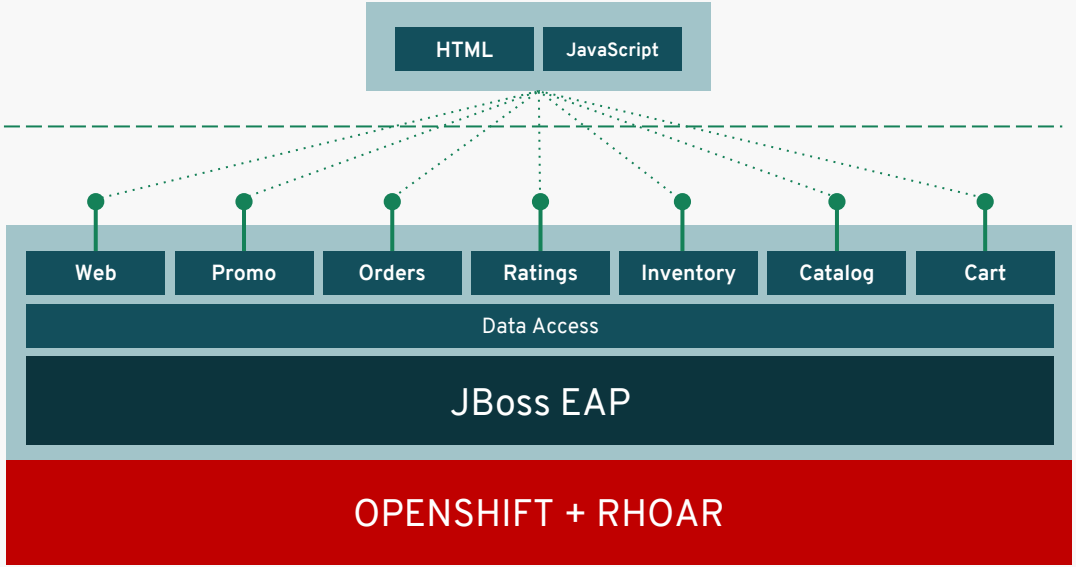
2ND STEP - MODULARIZE THE APP

- Replace non-modular application with independent modules based on business boundaries
- Experiment in a monolith to identify business boundaries



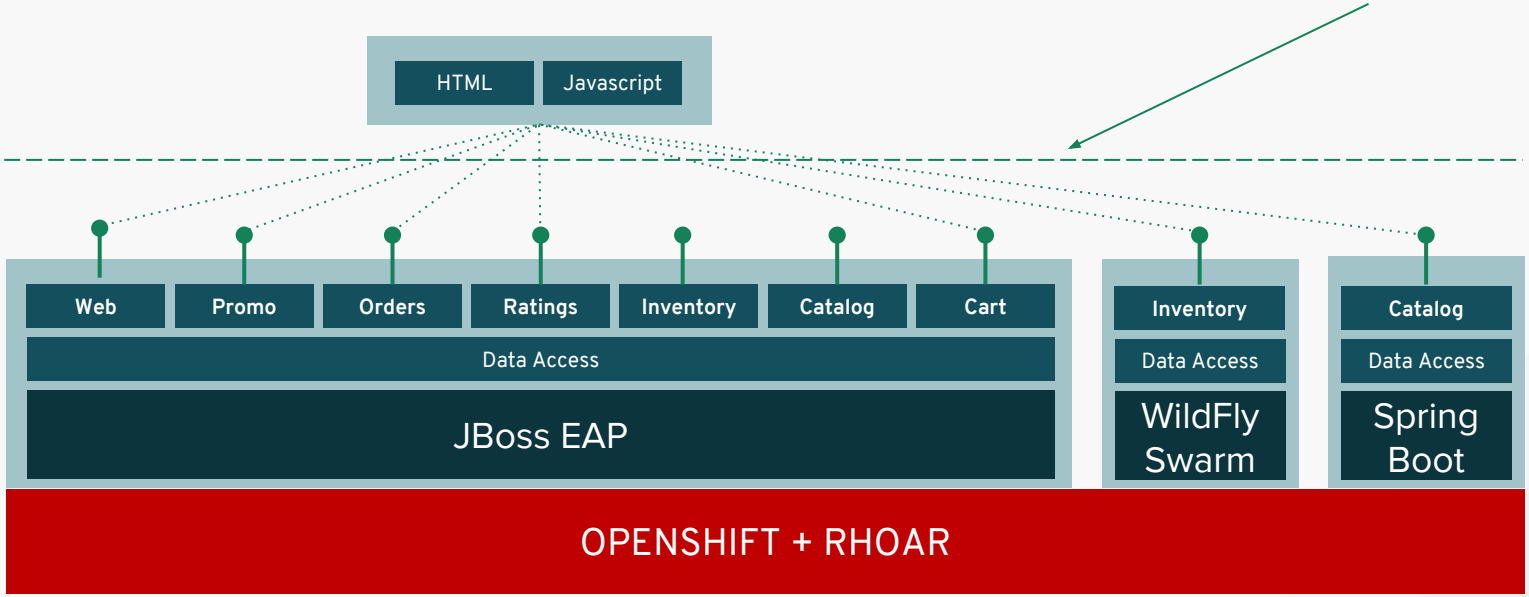
3RD STEP - EXTEND THE APP THROUGH API

- Expose components using API's
- Optionally add new services

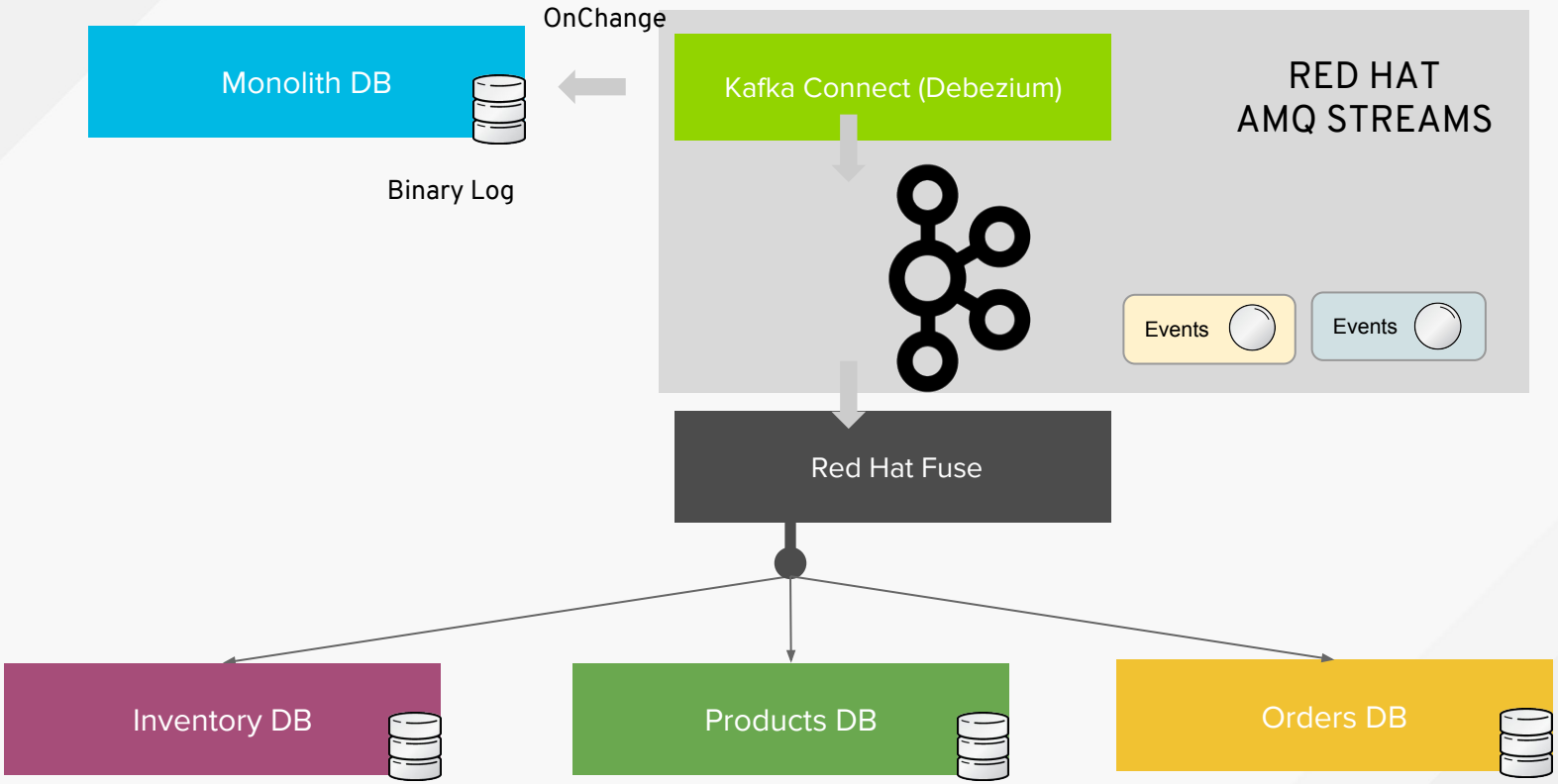


4TH STEP - STRANGLE THE MONOLITH

- Strangulation pattern: replace an existing app piece by piece instead of rewriting the whole application at once
- The OpenShift router can send incoming traffic to new services

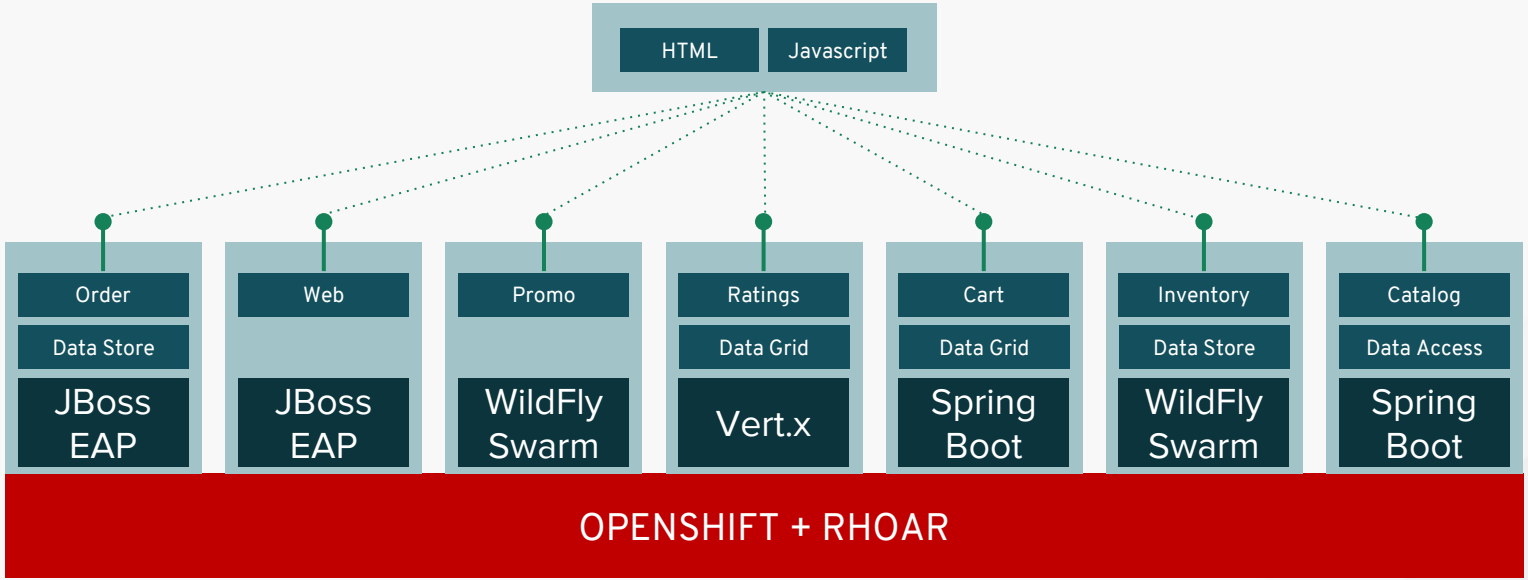


CHANGE DATA CAPTURE WITH AMQ STREAMS



5TH STEP - RETIRE THE MONOLITH

- Retire the old app as the microservices takes over
- Optionally use Istio or app libraries for resiliency



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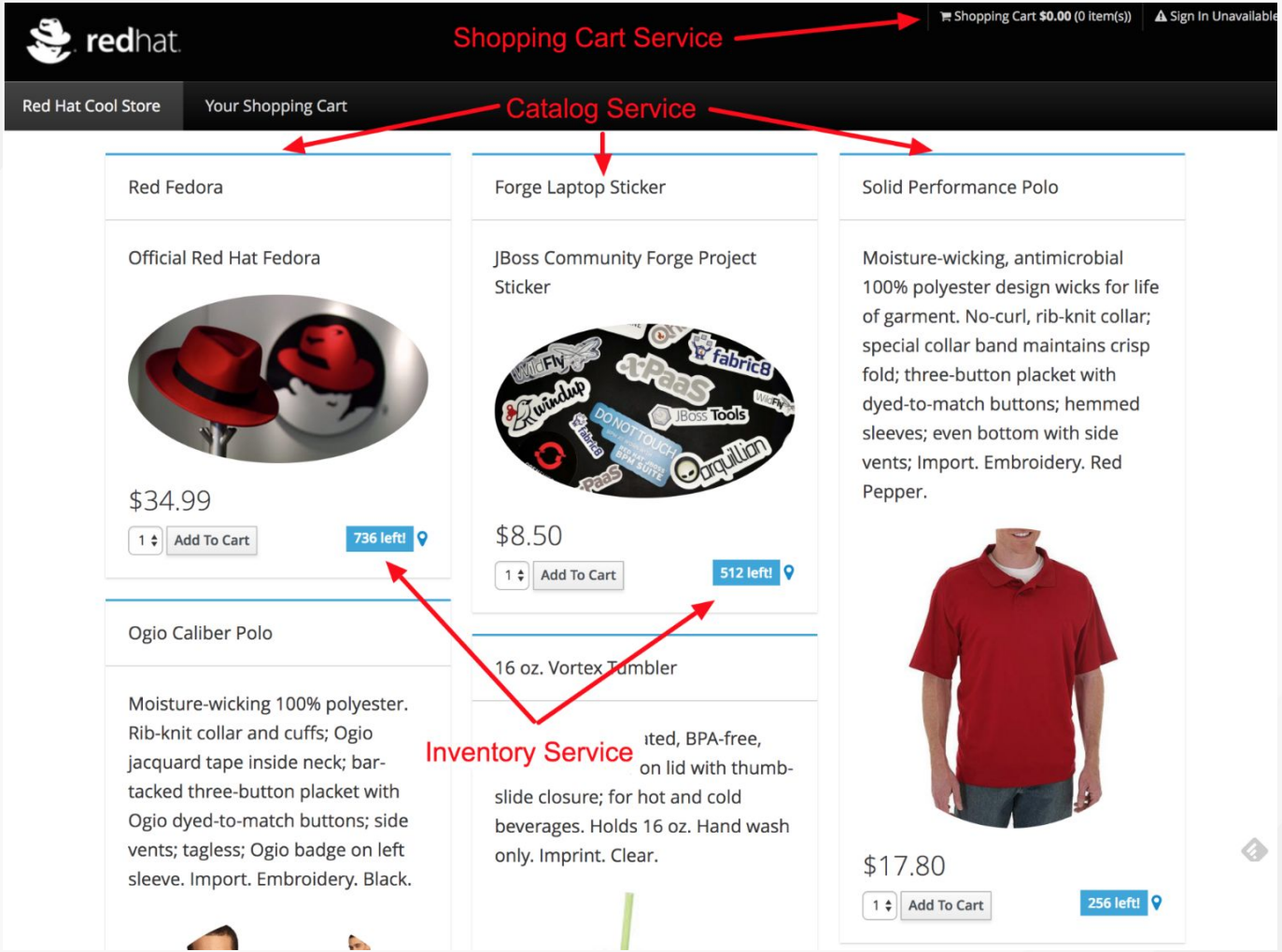
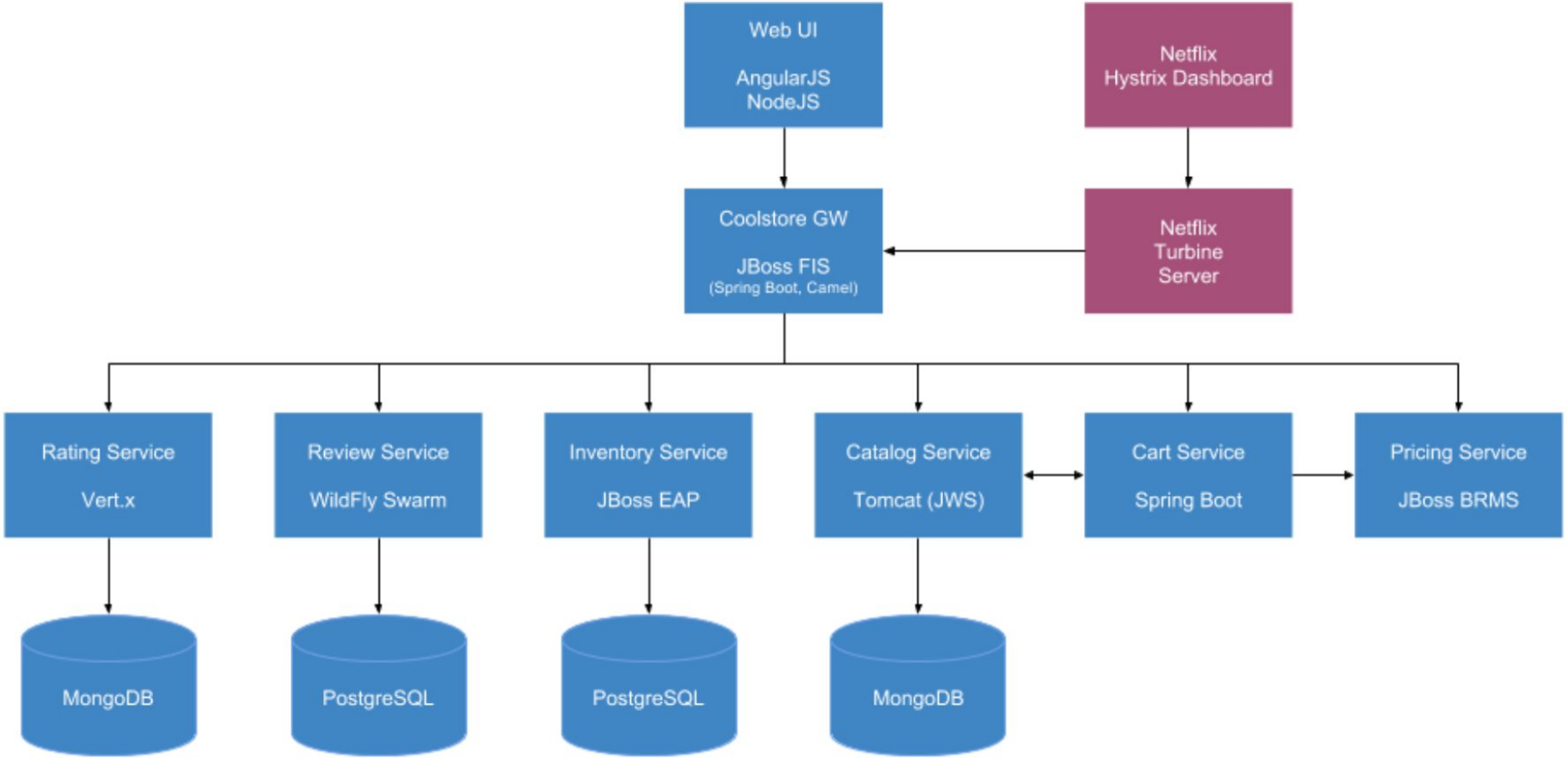
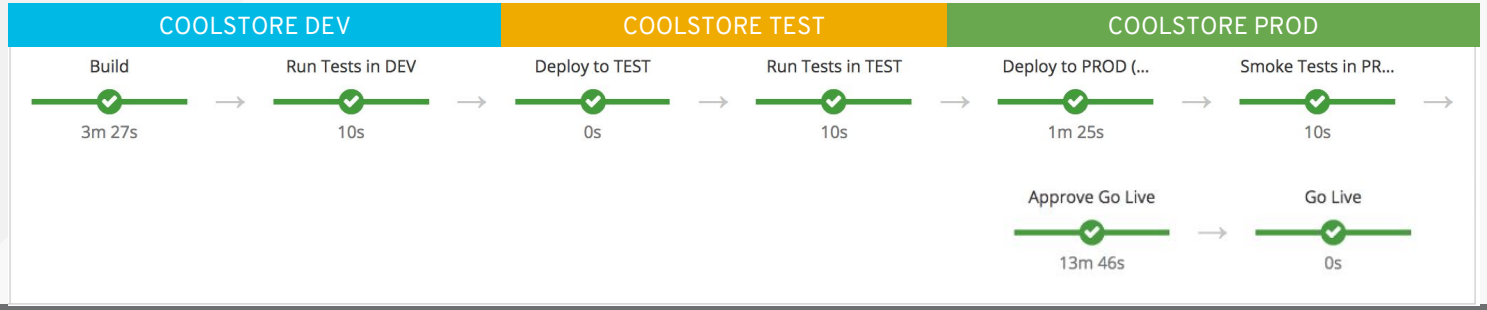
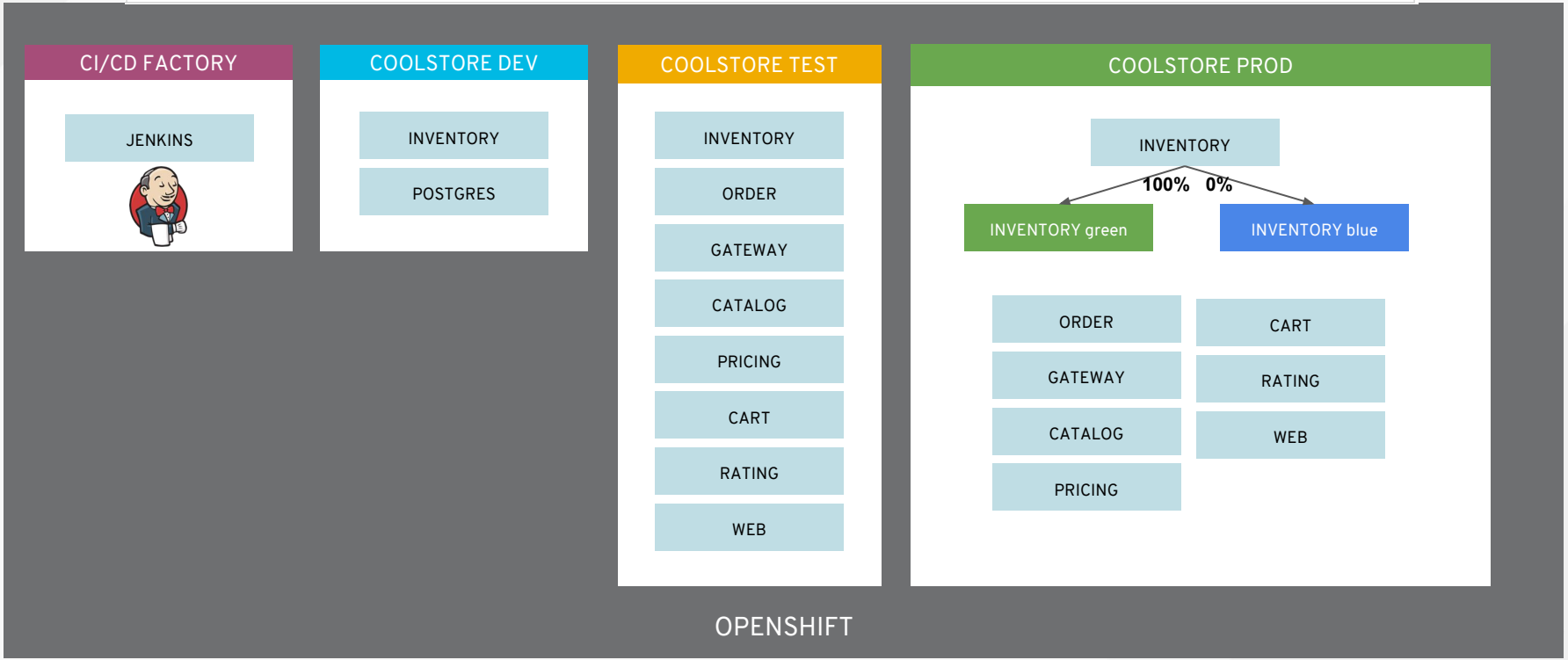

redhat
Shopping Cart Service
Shopping Cart $0.00 (0 item(s))
Sign In Unavailable
Red Hat Cool Store
Your Shopping Cart
Catalog Service
Red Fedora
Official Red Hat Fedora
$34.99
1
Add To Cart
736 left!
Forge Laptop Sticker
JBoss Community Forge Project Sticker
$8.50
1
Add To Cart
512 left!
Solid Performance Polo
Moisture-wicking, antimicrobial 100% polyester design wicks for life of garment. No-curl, rib-knit collar; special collar band maintains crisp fold; three-button placket with dyed-to-match buttons; hemmed sleeves; even bottom with side vents; Import. Embroidery. Red Pepper.
$17.80
1
Add To Cart
256 left!
Ogio Caliber Polo
Moisture-wicking 100% polyester. Rib-knit collar and cuffs; Ogio jacquard tape inside neck; bar-tacked three-button placket with Ogio dyed-to-match buttons; side vents; tagless; Ogio badge on left sleeve. Import. Embroidery. Black.
16 oz. Vortex Tumbler
Inventory Service
ited, BPA-free,
on lid with thumb-
slide closure; for hot and cold beverages. Holds 16 oz. Hand wash only. Imprint. Clear.

Coolstore microservices architecture




COOLSTORE DEV
COOLSTORE TEST
COOLSTORE PROD
Build
3m 27s
Run Tests in DEV
10s
Deploy to TEST
0s
Run Tests in TEST
10s
Deploy to PROD (...
1m 25s
Smoke Tests in PR...
10s
Approve Go Live
13m 46s
Go Live
0s


CI/CD FACTORY
JENKINS
COOLSTORE DEV
INVENTORY
POSTGRES
COOLSTORE TEST
INVENTORY
ORDER
GATEWAY
CATALOG
PRICING
CART
RATING
WEB
COOLSTORE PROD
INVENTORY
100%
0%
INVENTORY green
INVENTORY blue
ORDER
GATEWAY
CATALOG
PRICING
CART
RATING
WEB
OPENSHIFT

LES DIFFERENCES DU MODELE CLOUD-NATIVE

TRADITIONAL	CLOUD-NATIVE
Server-centric	Container-centric
Scale up vertically	Scale out horizontally
Tightly coupled monolith	Loosely coupled & service-based
Infrastructure-dependent	Portable across infrastructure
Waterfall, semi-agile, & long delivery	Agile & continuous delivery
Local IDEs & developer tools	Cloud-based, intelligent tools
Siloed Dev, Ops, QA, & security teams	DevSecOps, NoOps, & collaboration

CONTAINER NATIVE VIRTUALISATION

An OpenShift add-on that allows running Virtual Machine workloads natively in OpenShift

- **Migration path from existing VM infrastructure**
  - Imports VMs from VMware
- **Decomposing VM workloads into containers**
  - Begin moving existing VMs into OpenShift now
  - Decompose apps out of VMs into containers over time
- **Centralize development workflows**
  - One pipeline for both VMs and Containers
  - Allows VMs and Containers to coexist
- **Centralized Operations**
  - One System for both Container and VM workloads
  - Increased Ops efficiency and lowers Ops costs.

Overview

Applications

Builds

Resources

Storage

Monitoring

Catalog

Select an item to add to the current project

All | Languages | Databases | Middleware | CI/CD | Virtualization | Other

Virtual Machines

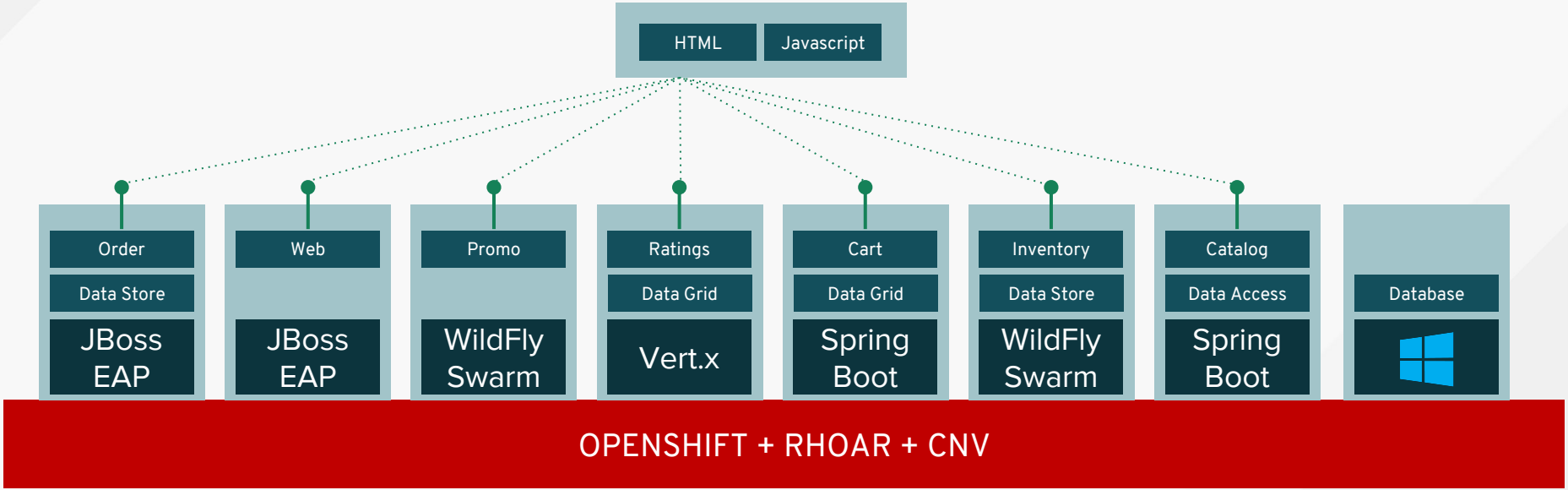
Filter

6 Items

- Blank Virtual Machine
- Import Virtual Machine from VMware
- Import Virtual Machine Image
- RHEL Virtual Machine
- Windows Virtual Machine
- Wingtip Toys Application VM

CNV - VMs & CONTAINERS IN SAME PROJECT

- Lift & Shift existing VM workloads as-is and build containers around it



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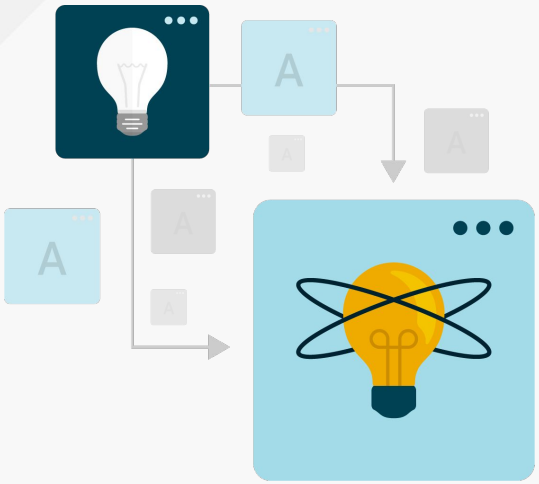
NEXT-GEN: CLOUD-NATIF ET MICROSERVICES POUR L'INNOVATION



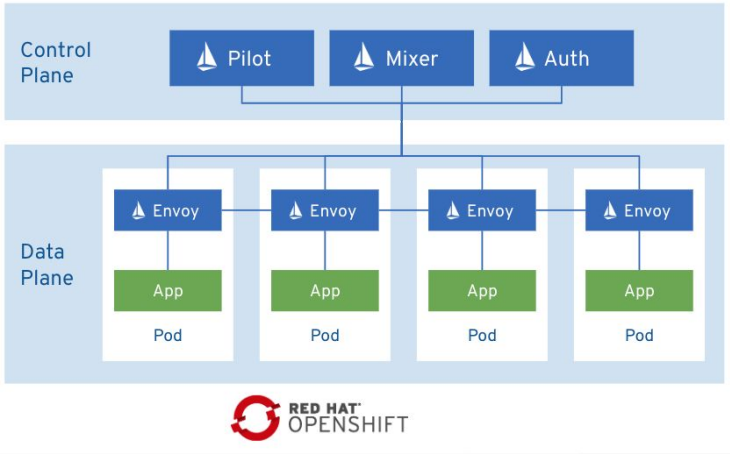
Développez des applications polyglottes utilisant le langage le plus approprié pour chaque microservice.

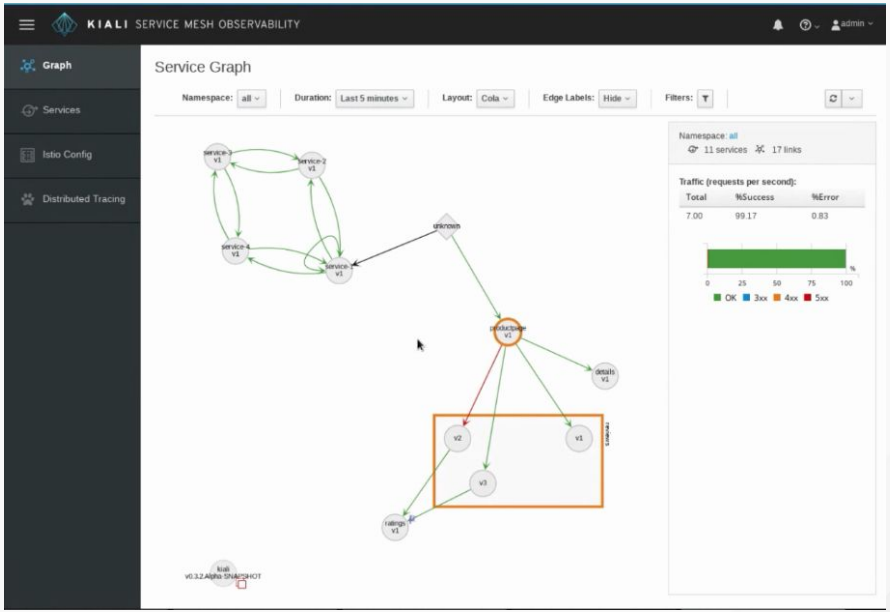
Bénéficiez d'une scalabilité à la demande des microservices les plus sollicités

Facilitez la portabilité de vos microservices dans un contexte de cloud hybride grâce aux patterns cloud-native

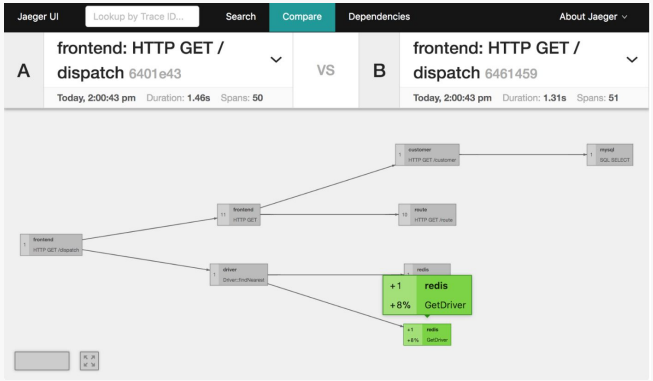
Allez vers le déploiement continu en minimisant l'impact des mises-à-jour applicatives

ISTIO SERVICE MESH





KIALI

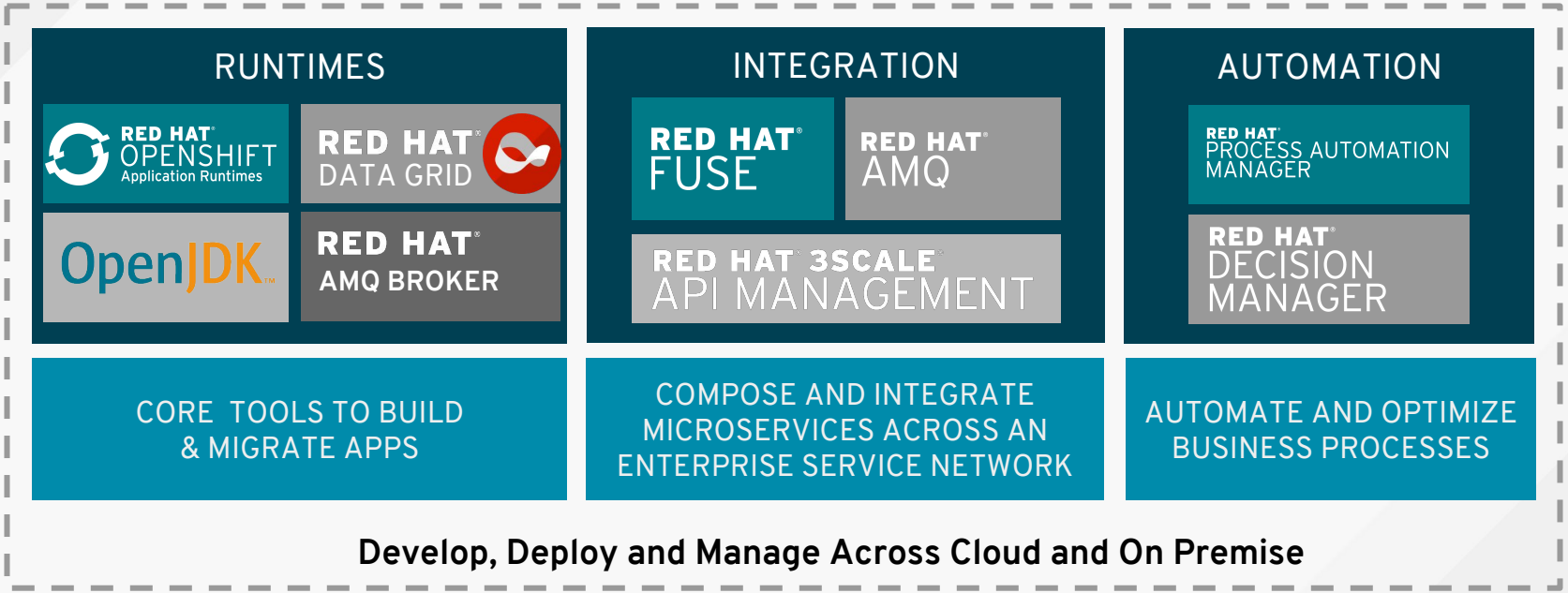


JAEGER


COMMENT ?

RED HAT MIDDLEWARE

TO BUILD OR RUN MODERN SERVICES



Integration with RH Developer, CI/CD tools & Security Services
Optimized for OpenShift & Kubernetes Services

redhat.

RED HAT APPLICATION SERVICES SUPPORTS DIGITAL TRANSFORMATION

Build new apps

Maintain & migrate existing apps

Integrate data and services

With Services:
Create a Digital Transformation Road Map
Test concepts in a Red Hat Labs

With People:
Build skill sets
Create a partner ecosystem

With Technology:
Choose and use the right tools
Maintain your favorite app platforms

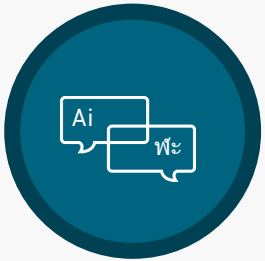
redhat.

THE PATH TO CLOUD NATIVE WITH RED HAT

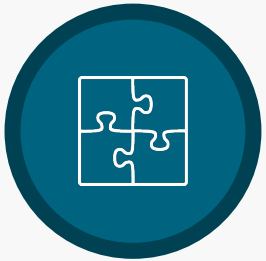
APPLICATION SERVICES ARE CURATED RUNTIMES, FRAMEWORKS AND SERVICES FOR YOUR CLOUD NATIVE JOURNEY

Run Existing Applications

Support Multiple Application Architectures



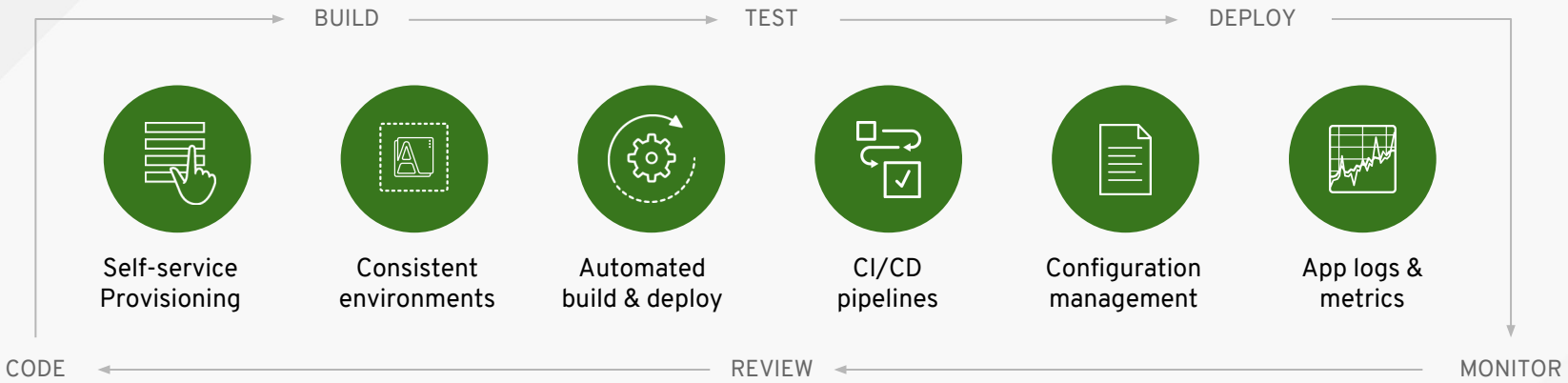
Multiple Runtimes, Frameworks and programming languages



Integrated with OpenShift Services

redhat.

ENABLING DEVELOPERS ON KUBERNETES



SPRING & JAVA EE | MICROSERVICES | FUNCTIONS

LANGUAGES | DATABASES | APPLICATION SERVICES

OPENSHIFT SERVICE MESH (ISTIO)

LINUX | RED HAT OPENSHIFT | WINDOWS*

* coming soon

redhat.

An immersive residency for teams of 3-6 people
to rapidly build applications,
experience Devops,
and learn how to develop cloud native apps

redhat.

MERCI

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linkedin.com/company/red-hat

twitter.com/RedHatNews

youtube.com/user/RedHatVideos