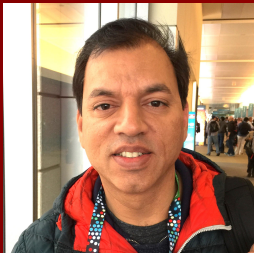


RED HAT
SUMMIT

FROM MONOLITH TO CONTAINERS

Verizon's Journey To Modernize Legacy Apps on OpenShift

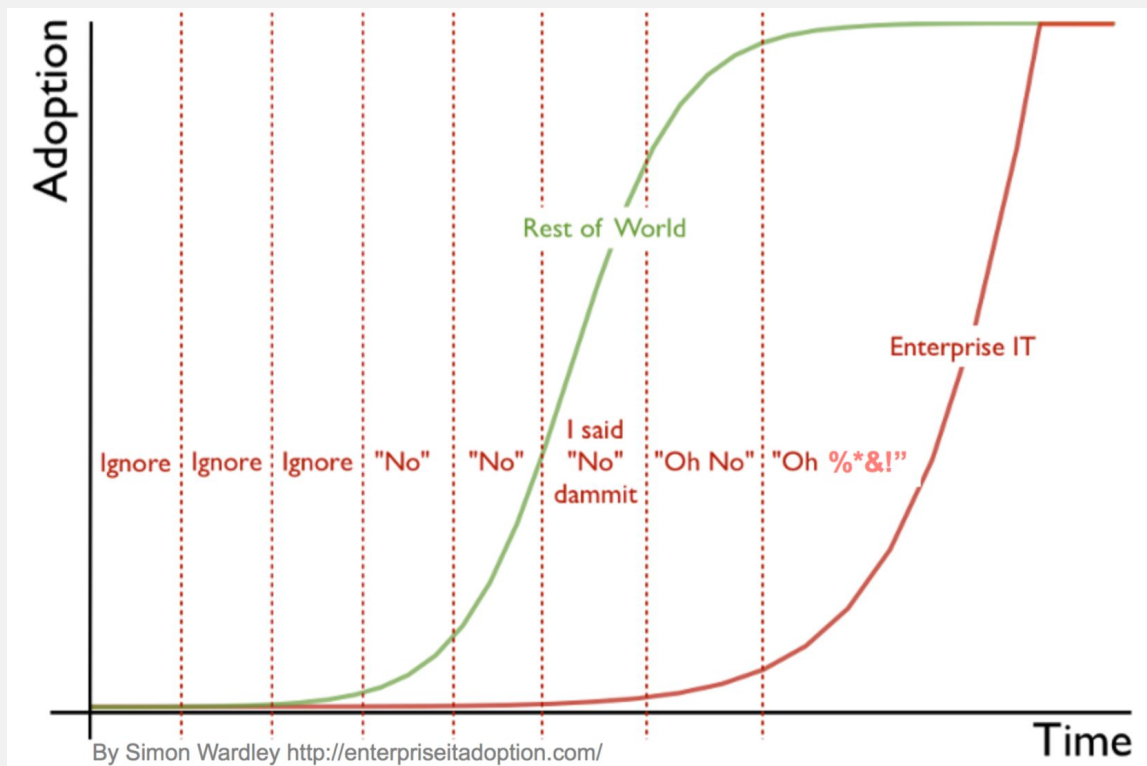


Malik Sayed
Senior Manager, Digital Architecture @Verizon
Summit 2017



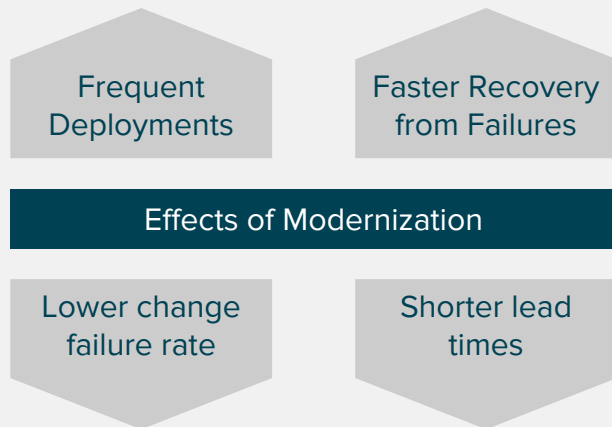
Zohaib Khan (@zeebluejay)
App Modernization Practice Lead @RedHat
Summit 2017

A LOOK AT CLOUD ADOPTION



WHY MODERNIZE?

- Enable experimental approach to product development.
- Optimize for Speed vs Cost
- Catalyst for Organizational transformation



BUT CHANGING SYSTEMS AT SCALE IS HARD!

- Organizational Inertia: Skills, Processes and Mindset
- Sizable Investments in IT existing assets
- Often times it is uncharted territory
- Business Perception: Modernization efforts are IT project with large amounts of risks and little perceived value

IT MUST EVOLVE TO STAY AHEAD OF DEMANDS

Application Lifetimes

Months & Years



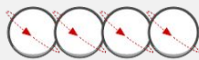
Weeks & Months



Days & Weeks

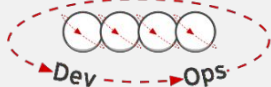
Development Process

Waterfall



Agile

DevOps



Application Architecture

Monolithic



N-Tier

Microservices



Deployment & Packaging

Physical Servers



Virtual Servers

Containers



Application Infrastructure

Datacenter



Hosted

Cloud



IS THERE A STRUCTURED WAY TO MODERNIZE?

PATTERNS FOR WORKLOAD MODERNIZATION

LIFT AND SHIFT

- Containerize existing components
- Deploy them on a PaaS
- Keep external integrations and data on legacy
- Legacy applications have to be well written and suited

AUGMENT / REFACTOR

- Legacy remains intact
- New layer enables new capabilities
- Deploy on PaaS
- New integration points between legacy and new layers

COMPLETE REWRITE

- Legacy is totally replaced
- New interfaces and data
- Use PaaS to run
- Some data and features can be re-wrapped, but mostly are retired.

3 PATTERNS FOR MODERNIZATION

Starting Points

LIFT AND SHIFT

- Have a well Architected set of applications with clean separation of concerns.
- Components can be easily deployed independently.

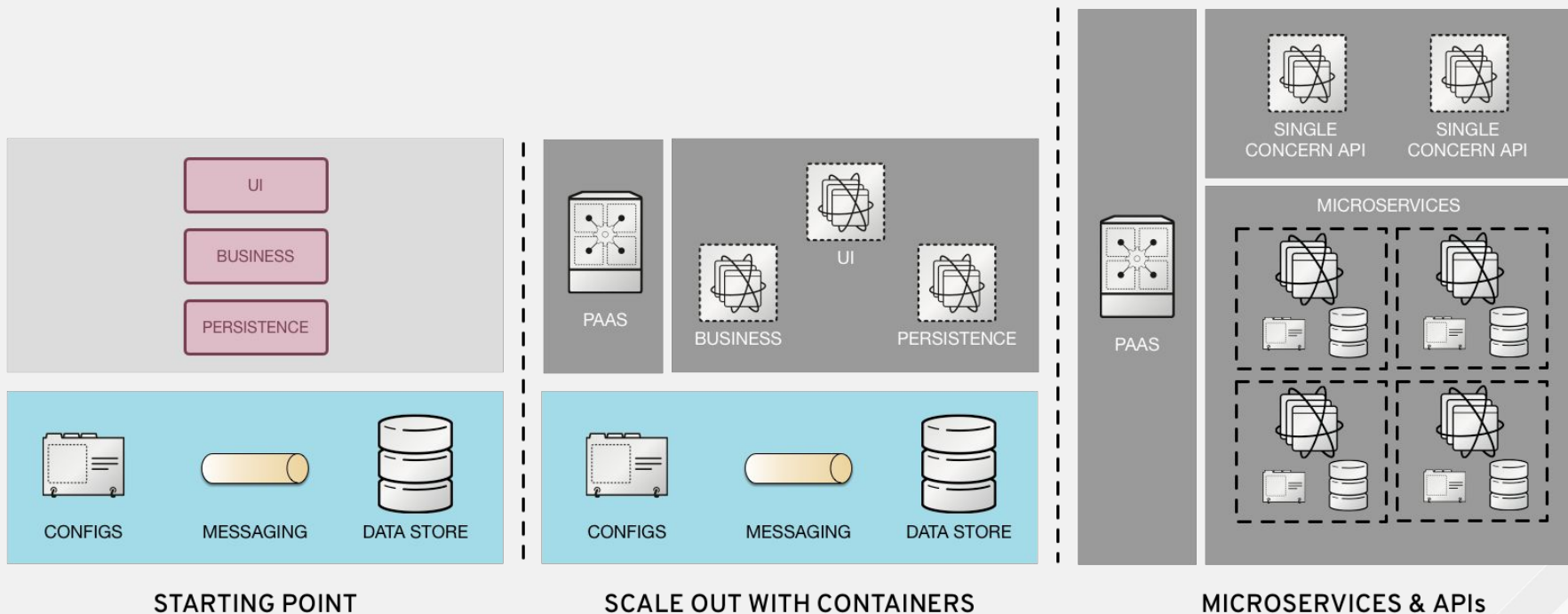
AUGMENT / REFACTOR

- Legacy system that is hard to change piecemeal.
- Changes are not generally isolated.
- Hard to change parts.
- Composite architecture over time.

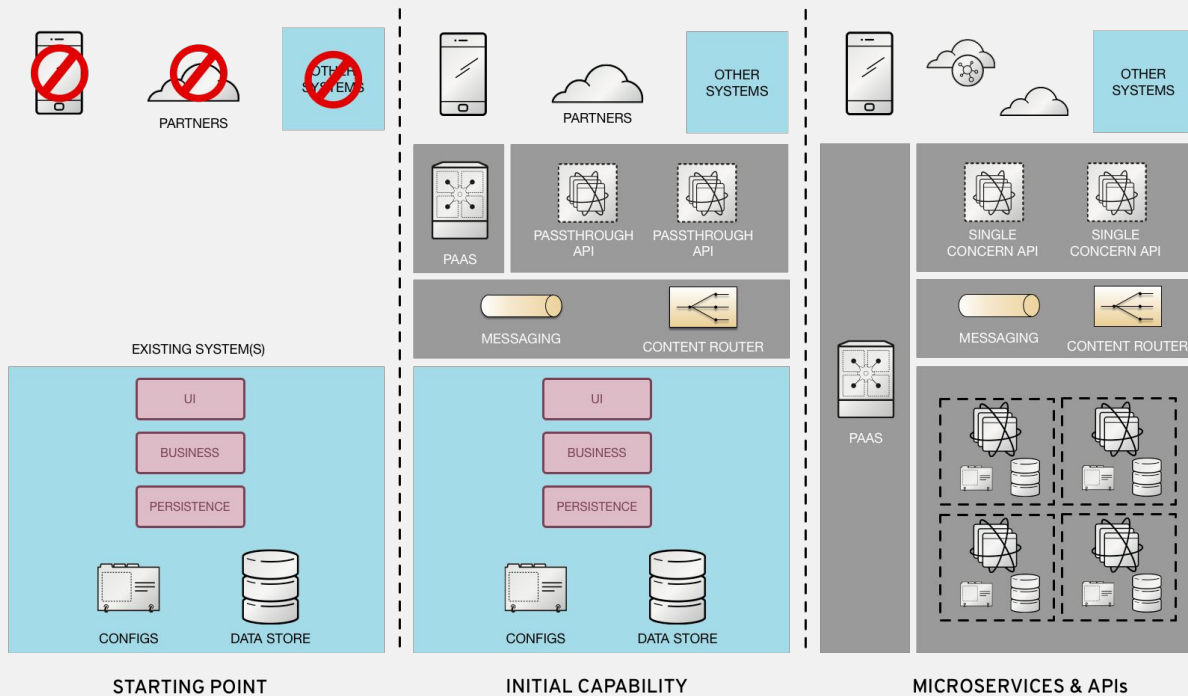
COMPLETE REWRITE

- Legacy end-of-life system.
- Built on technology going out of support / skillsets do not exist anymore.
- Benefits of Rewrite outweigh its costs.

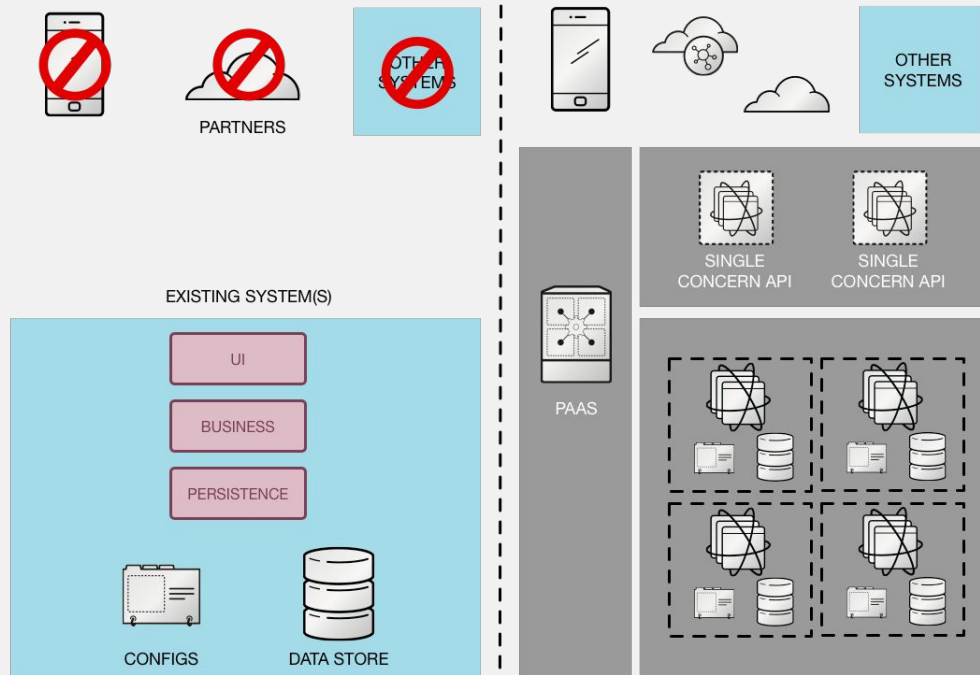
LIFT AND SHIFT MODERNIZATION



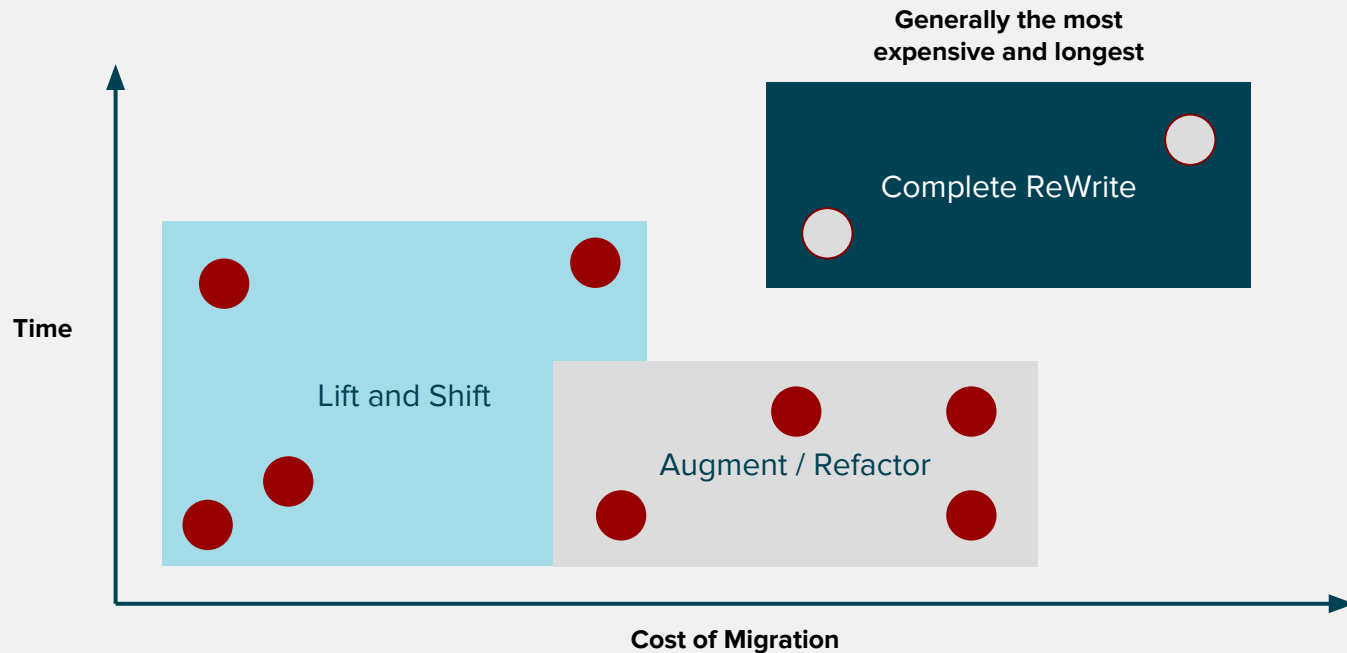
AUGMENT / REFACTOR MODERNIZATION



COMPLETE REWRITE



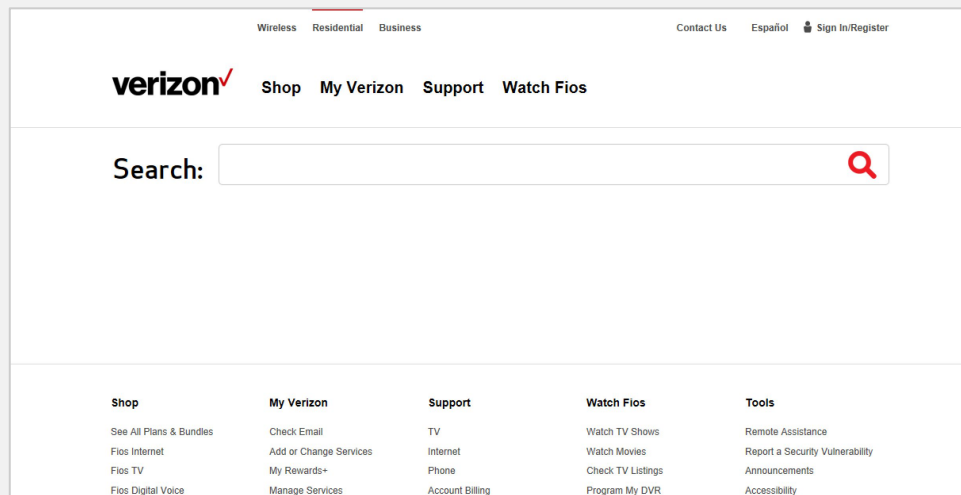
COMPARING THE APPROACHES



VERIZON'S JOURNEY

VZSEARCH

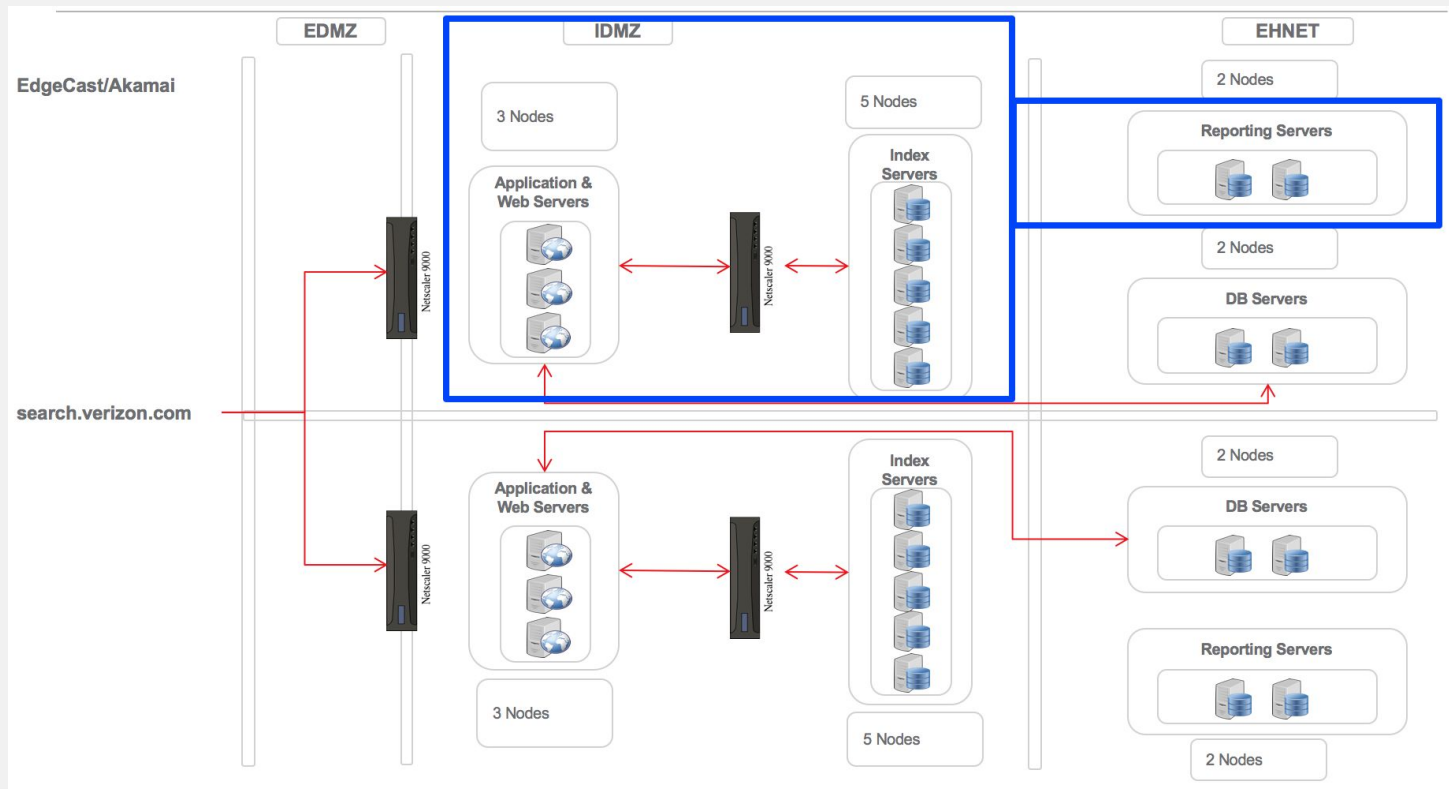
- Tier-1 Verizon Application
- Built on Monolithic COTS platform
- Challenges: Environments lockdown (Dev, QA), Scaling, Proprietary, Large Releases, Application Quality etc.
- Little automation for development and deployments.



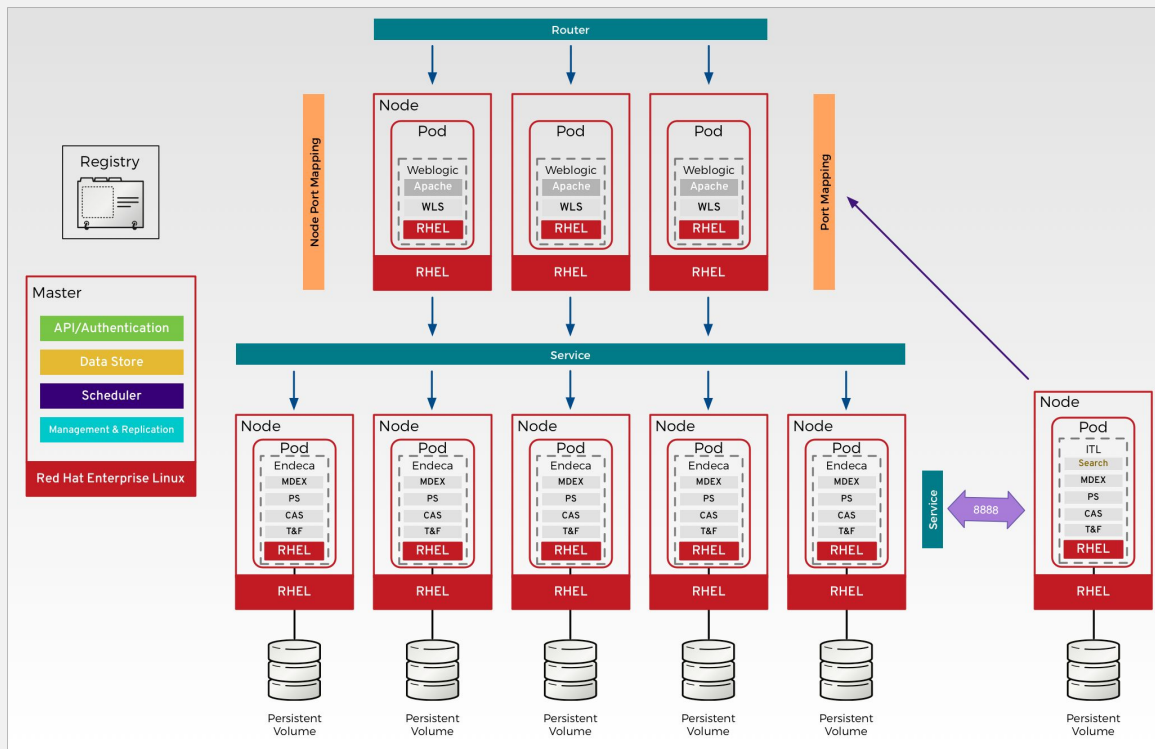
VZSEARCH MODERNIZATION OBJECTIVES

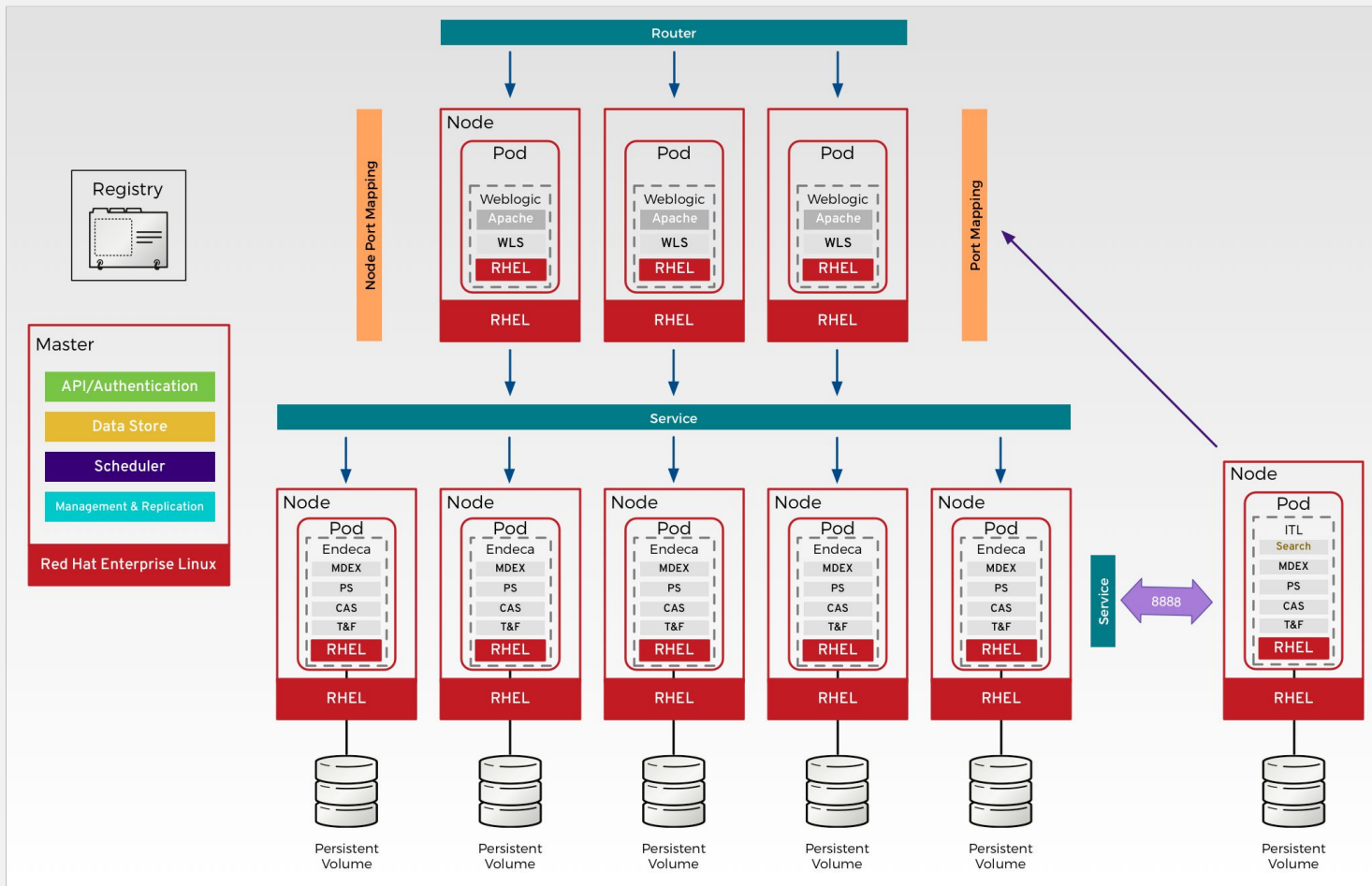
- Can we isolate pieces in separate containers without massive rewrite?
- How fast can we get to:
 - Disposable non-Prod environments
 - Auto scaling
 - Self service to eliminate wait times
 - Integrated CI & CD
- Can we do this with Open Source technology to avoid vendor lock-in?
- Wishlist: Can we make it portable across Public and Private cloud?

ARCHITECTURE - BEFORE



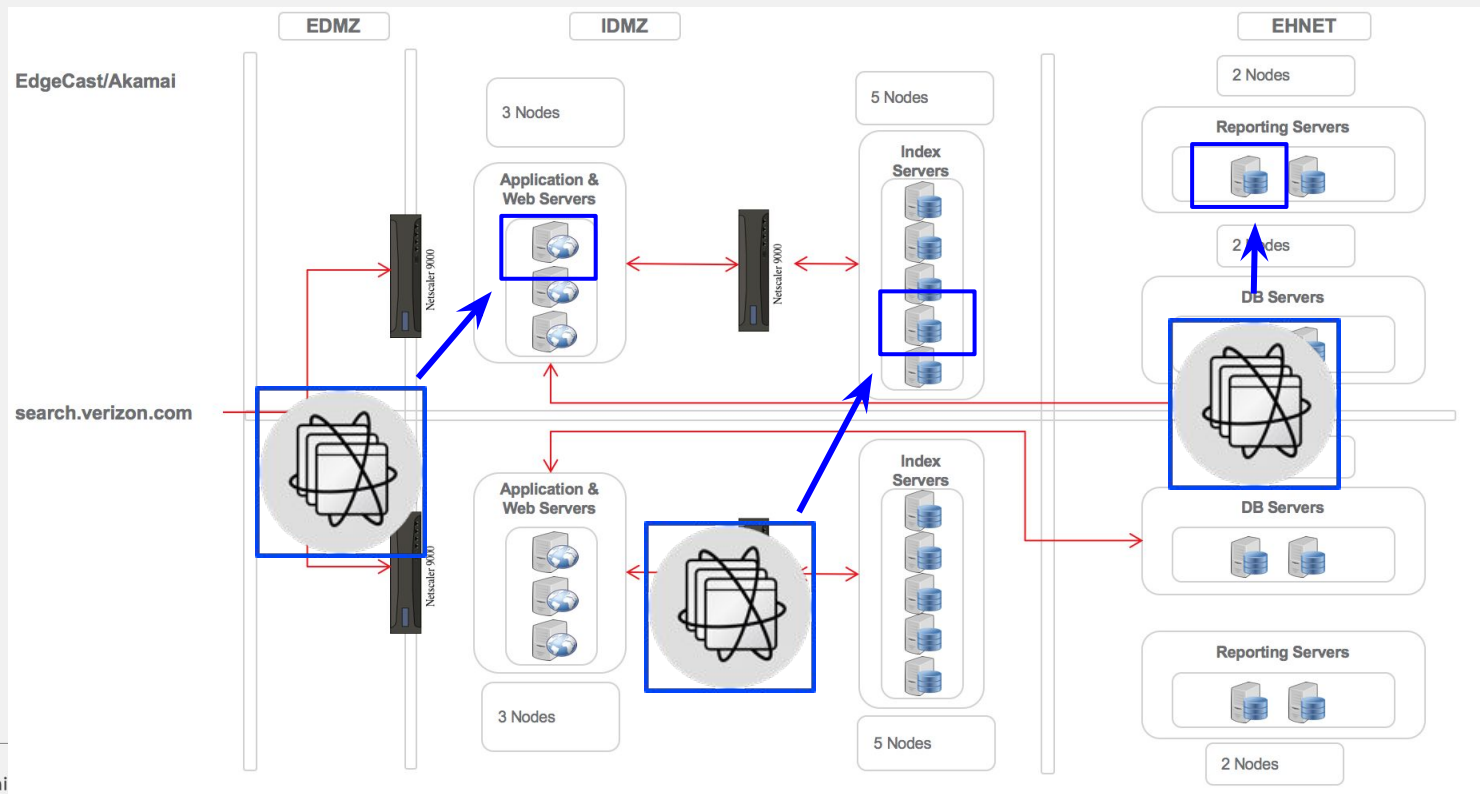
TARGET ARCHITECTURE - OPENSSHIFT

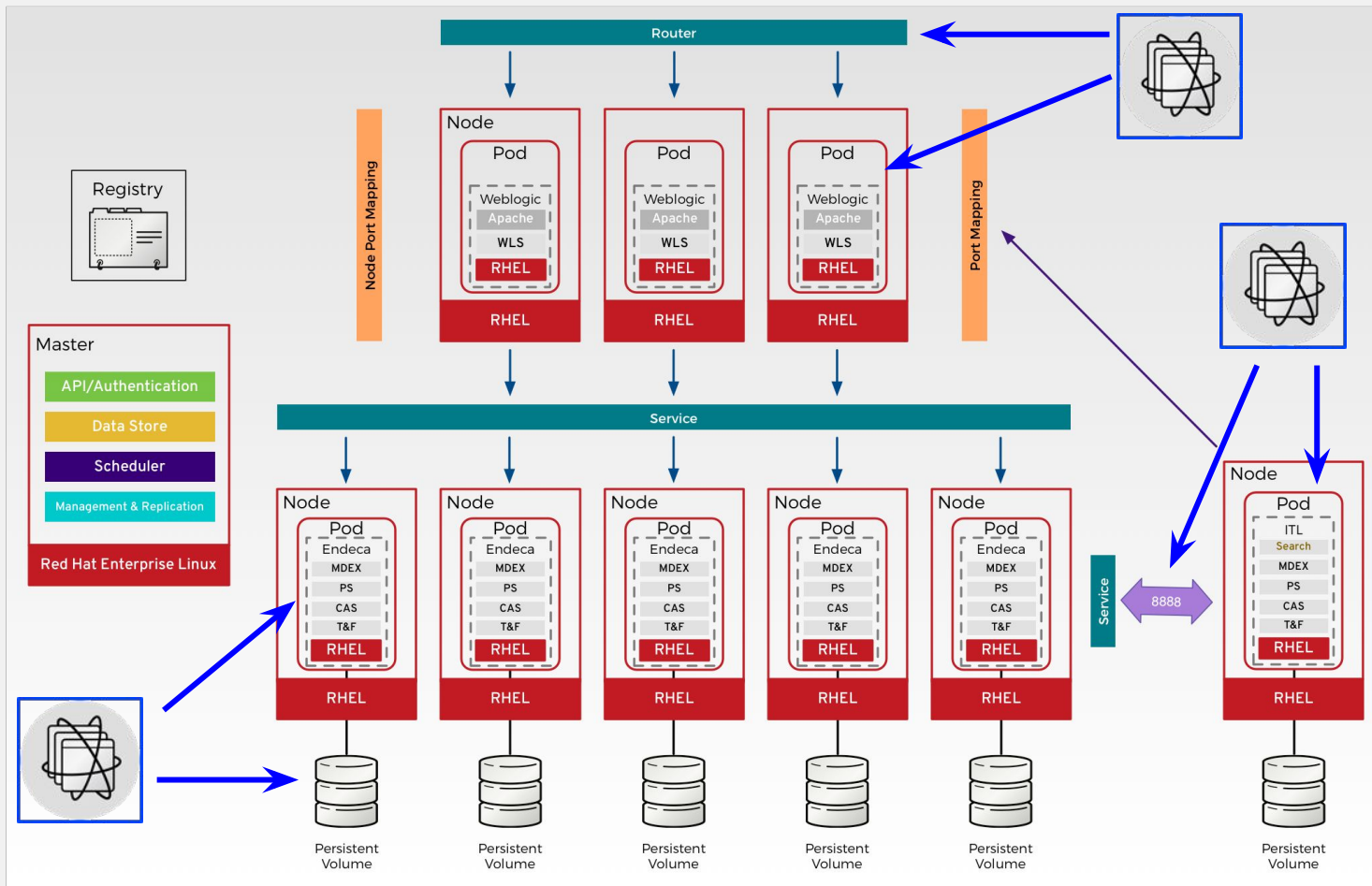




VZSEARCH STEP BY STEP TO OPENSIFT

#2 - OPENSIFT POD TEMPLATES





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See All Plans & Bundles	Check Email	TV	Watch TV Shows	Remote Assistance
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Search: fio

Common Searches

- fios tv remote codes
- fios multi screen
- fios services down
- fios bundles
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Services

- Fios Quantum Gateway Wall Bracket -- Verizon®
- Fios Voice Backup Battery for TV Internet -- Verizon®

My Verizon

- UltraViolet FAQs -- Fios TV
- Shop for Services -- TV + Internet + Phone

Shop

- See All Plans & Bundles
- Fios Internet
- Fios TV
- Fios Digital Voice

Support

- Fios Quantum TV - Customer Service
- Fios Quantum TV Advanced Mobility - Customer Service

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verizon Shop My Verizon Support Watch Fios

Search: fios

Recent Searches : fios tv channels

Site Results

Search Results for "fios": Results: 1-10 of 7334

Refine Results:

- Residential
- My Verizon (61)
- Shop (99)
- Support (3184)
- TV & Movies
- Forums
- SmallBusiness

- Fios TV 4 Device Remote Control -- Verizon®
- Fios Voice Backup Battery for TV Internet -- Verizon®
- What is Fios? Verizon Internet, TV and Digital Voice Phone Plans

Wireless Residential Business Contact Us Español Sign In/Register

verizon Shop My Verizon Support Watch Fios

Search: spiderman

Recent Searches : fios , fios tv channels

Site Results

Search Results for "spiderman": Results: 1-1 of 1

Did you mean "spider man" (9 results)?

Refine Results:

- Residential
- TV & Movies
- Forums

- Support & Help - Customer Care -- Neustar

1 item

OUTCOMES

VZSEARCH OPENSIFT OUTCOMES



- Can we isolate pieces in separate containers without massive rewrite?

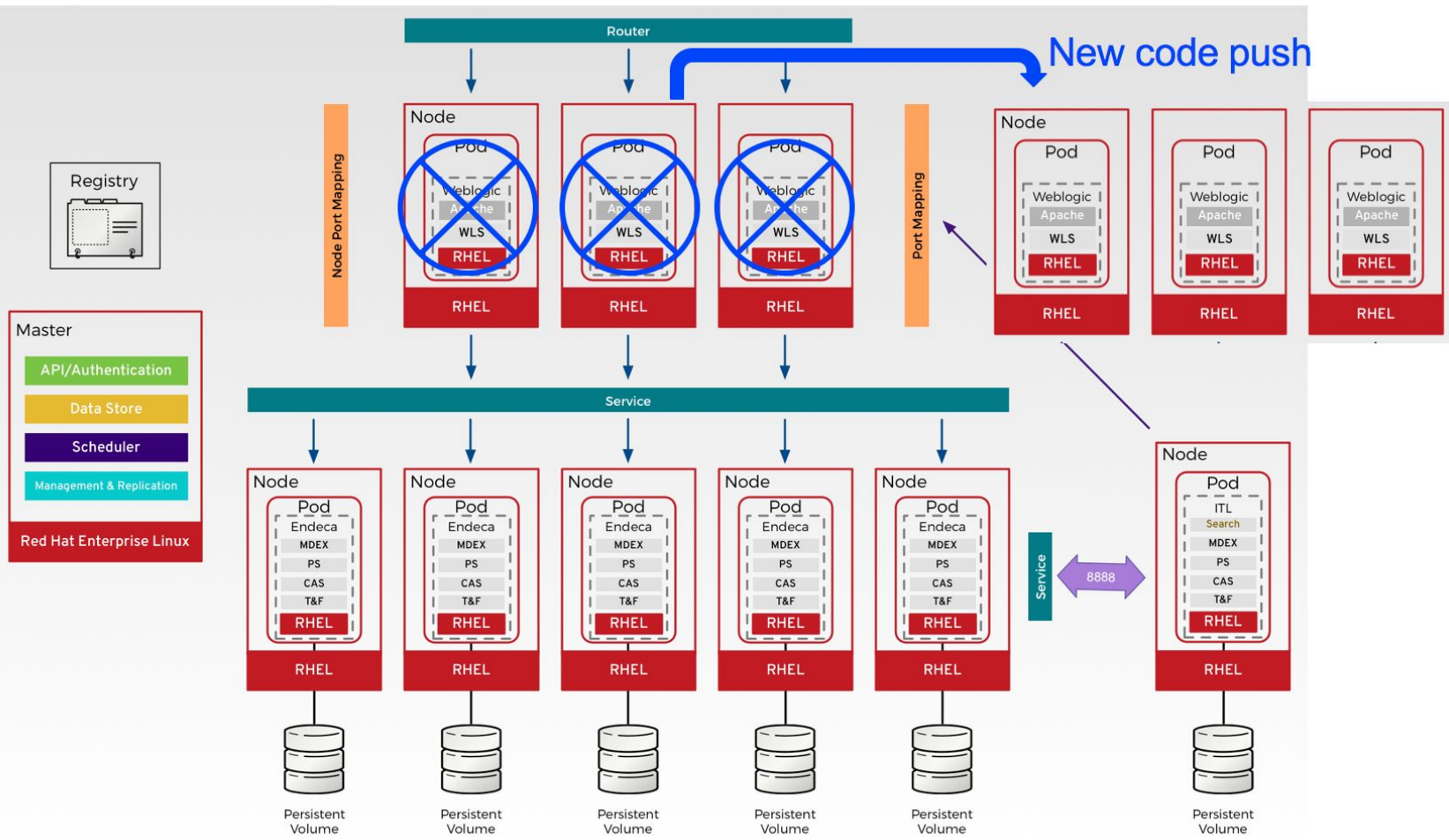
VZSEARCH OPENSIFT OUTCOMES



- Can we isolate pieces in separate containers without massive rewrite?
- How fast can we get to:



- Disposable non-Prod environments
- Auto scaling
- Self service to eliminate wait times
- Integrated CI & CD



VZSEARCH OPENSIFT OUTCOMES

- ✓ ● Can we isolate pieces in separate containers without massive rewrite?
- ✓ ● How fast can we get to:
 - Disposable non-Prod environments
 - Auto scaling
 - Self service to eliminate wait times
 - Integrated CI & CD
- ✓ ● Can we do this with Open Source technology to avoid vendor lock-in?

VZSEARCH OPENSIFT OUTCOMES



- Can we isolate pieces in separate containers without massive rewrite?
- How fast can we get to:



- Disposable non-Prod environments
- Auto scaling
- Self service to eliminate wait times
- Integrated CI & CD



- Can we do this with Open Source technology to avoid vendor lock-in?
- Wishlist: Can we make it portable across Public and Private cloud?



THANK YOU



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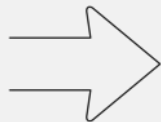
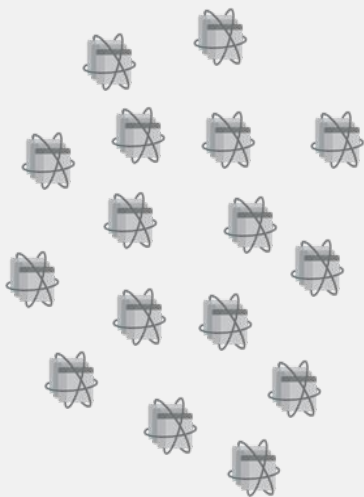


youtube.com/user/RedHatVideos

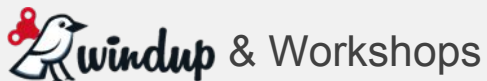
METHODOLOGY & PROCESS

ASSESSMENT PHASE

CATALOG



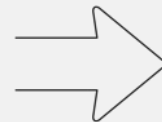
ASSESS & RATIONALIZE



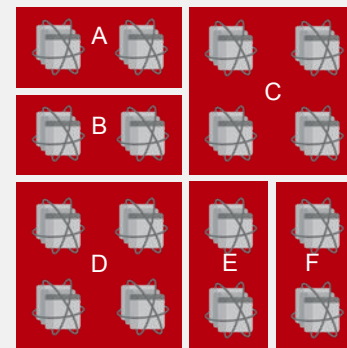
Application Name	Rating	Grouping	SME	Testing Contact	Business Contact	Operations Contact
New Customer Web App	E / M / H	A / B / C	Last, First	Last, First	Last, First	Last, First

Application Name	Grouping	Documentation Location	Source Control Location	Development Machines	Testing Machines	Production Machines
New Customer Web App	A / B / C	[url]	[path]	[ip addresses]	[ip addresses]	[ip addresses]

Application Name	Grouping	Estimated Development Deployment	Estimated QA Deployment	Estimated QA Completion	Estimated Production
New Customer Web App	A / B / C	[date]	[date]	[date]	[date]
....					

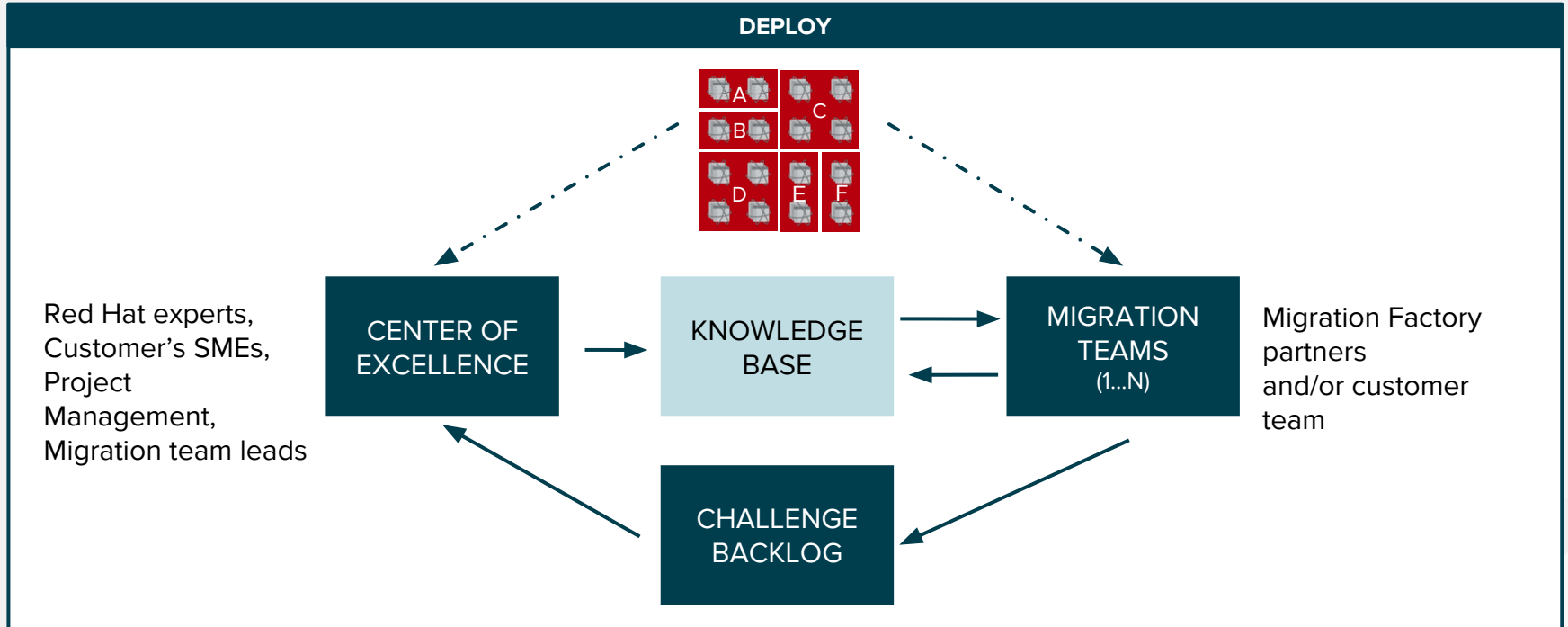


PLAN



METHODOLOGY & PROCESS

DEPLOY PHASE: ITERATIVELY DIVIDE, SCALE & DELIVER



Application Modernization Pathways

Enabling Modernization from Legacy Applications

	Starting Point	Open Source & Enablement	Cloud Enablement	Desired State
Lift and Shift Modernization	Non Open Source Middleware Applications	Migrate to Red Hat JBoss Open Source stack	Enable on Red Hat Container platform	Modernize applications to API and Microservices cloud architecture on containers
Augment with new functionality	Monolithic / Mainframe applications that are hard to change without breaking functionality	Enable integrations to expose data and functionality using Red Hat Open Source stack	Enable on Red Hat Container platform	Modernize applications to API and Microservices cloud architecture on containers
Complete Re-write	Monolithic or applications on non Open Source middleware about to be retired	Architecture and Design mapping old system capabilities to new architecture.	Setup, train on and get hands-on experience with modern container platform from Red Hat	Create new set of applications on modern cloud-native architectures

The logo for Red Hat Summit, featuring the words "RED HAT" in a smaller font above "SUMMIT" in a larger font, both in white, set against a white speech bubble shape.

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