Deployment Patterns using Docker and Chef

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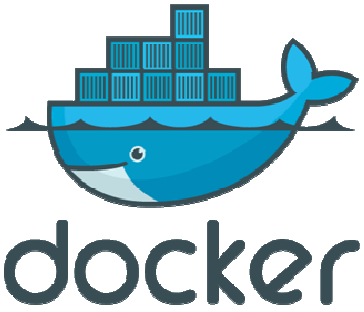
Agenda



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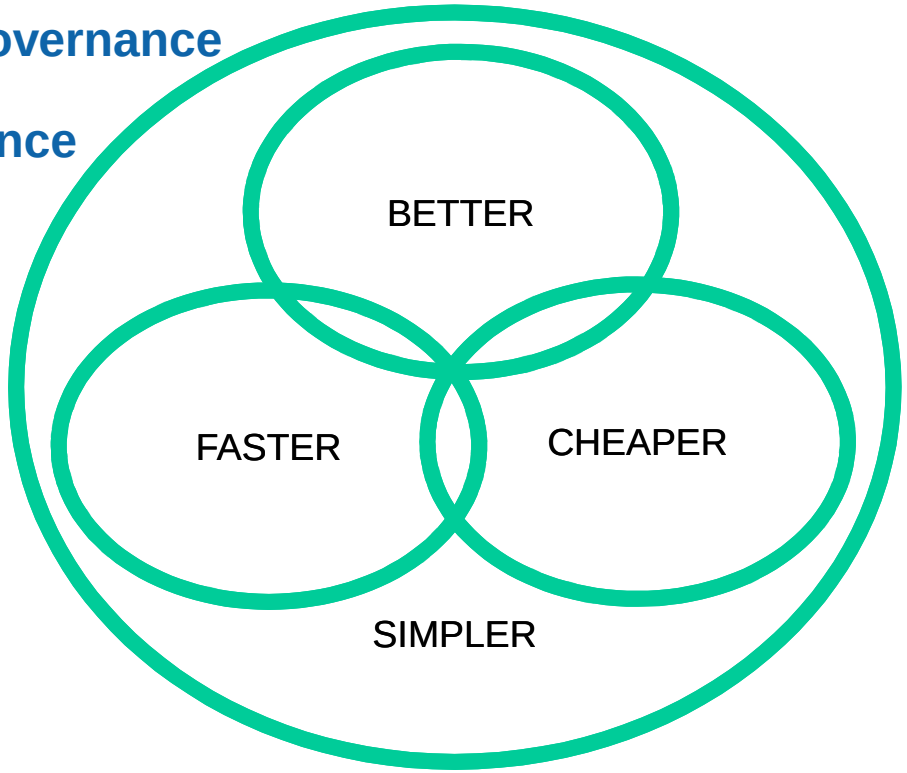
Rapid Provisioning + Automated and Managed Deployment

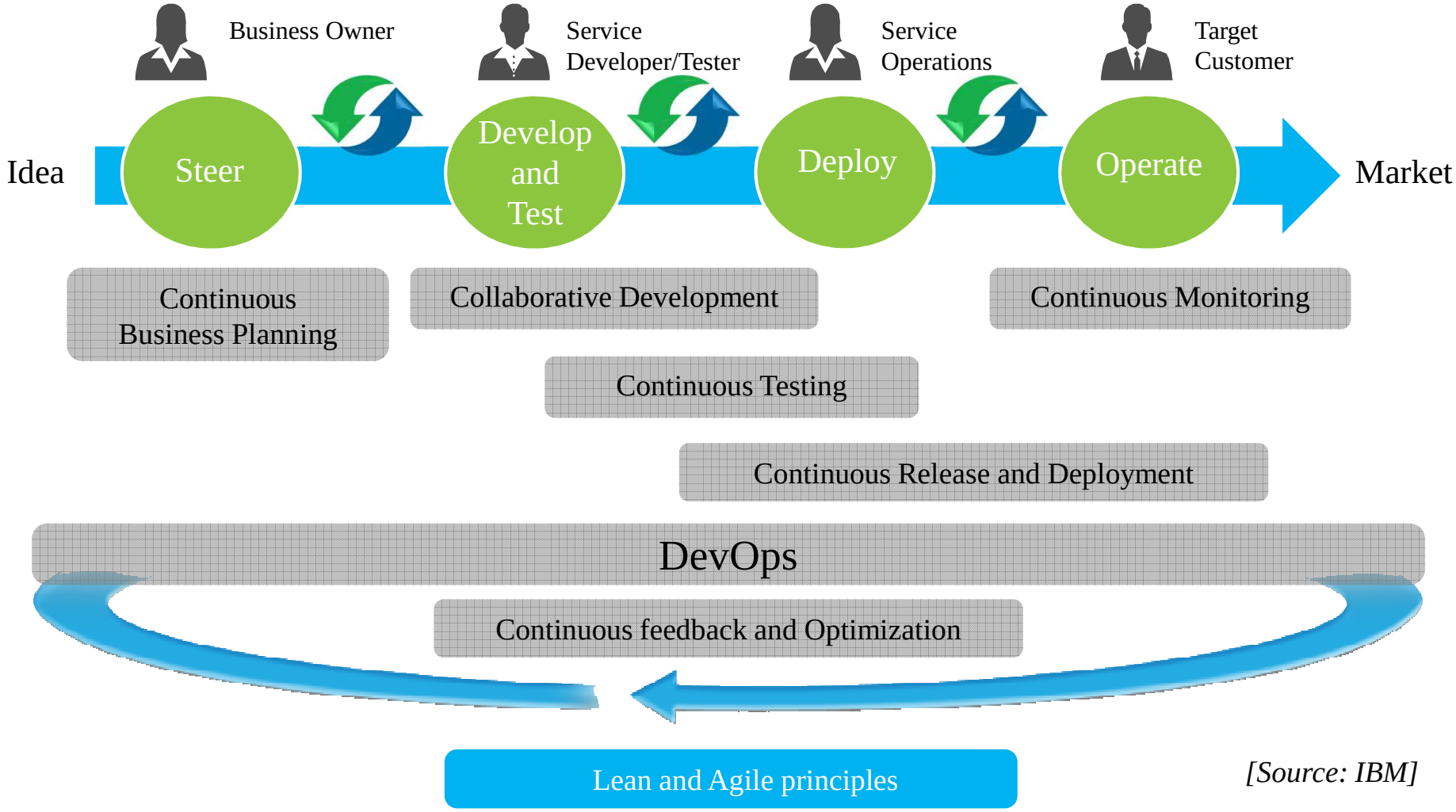
- IT Challenges - Use-cases
- What is Docker ?
- What is Chef ?
- What is IBM Urban Code Deploy ?
- Demo
- Questions & Answers

IT challenges

- Speed and complexity
- Security and auditability
- Enforcement of standards and governance
- Regulatory controls and compliance
- Consistency and repeatability
- Resource constraints
- Operational cost reduction

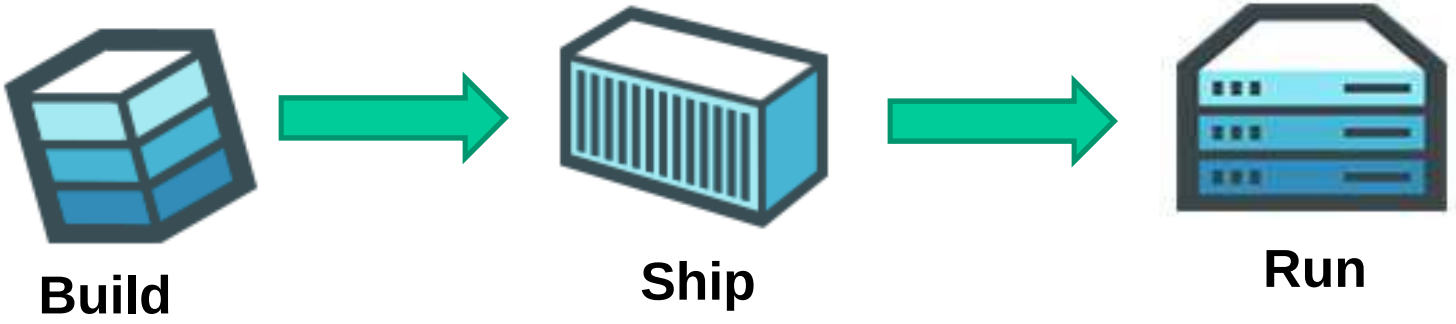


DevOps Overview



[Source: IBM]

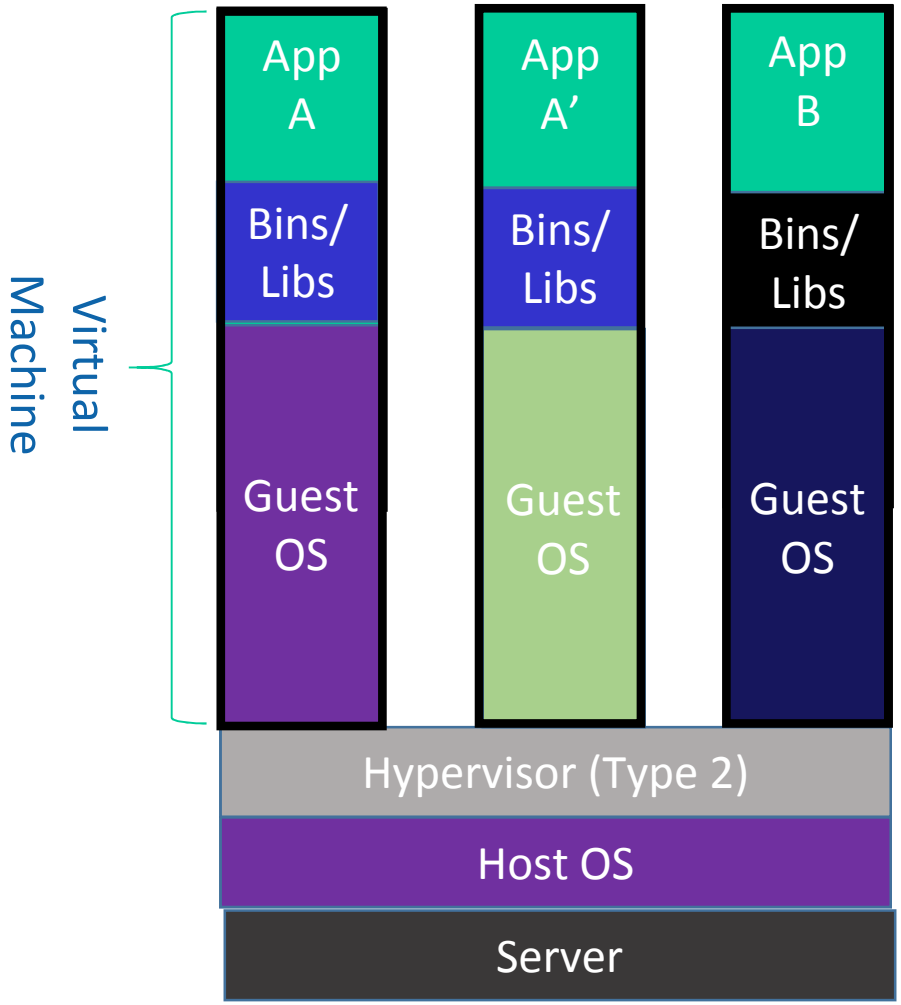
What is Docker?



Docker build, ship, run any app, anywhere.

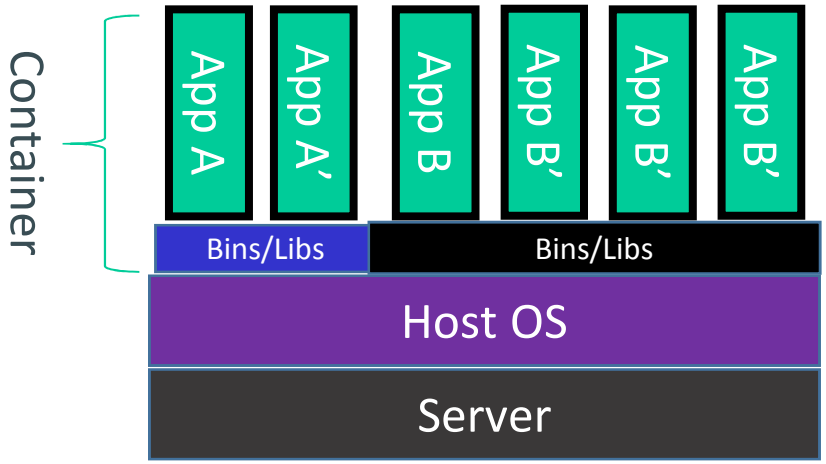
"**Docker** is an open-source project to easily create lightweight, portable, self-sufficient containers from any application. The same container that a developer builds and tests on a laptop can run at scale, in production, on VMs, bare metal, OpenStack clusters, public clouds and more."

What is a Container ?

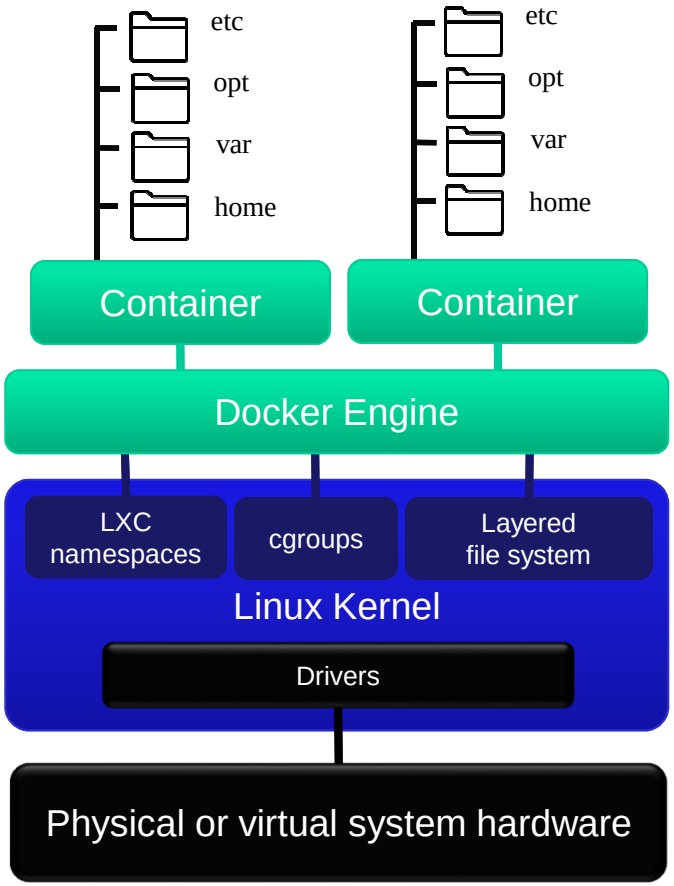


Containers:

- Isolated name space (processes partition)
- Shared system resources, but run-time isolation of application resources and data.
- Network and volume mappers.



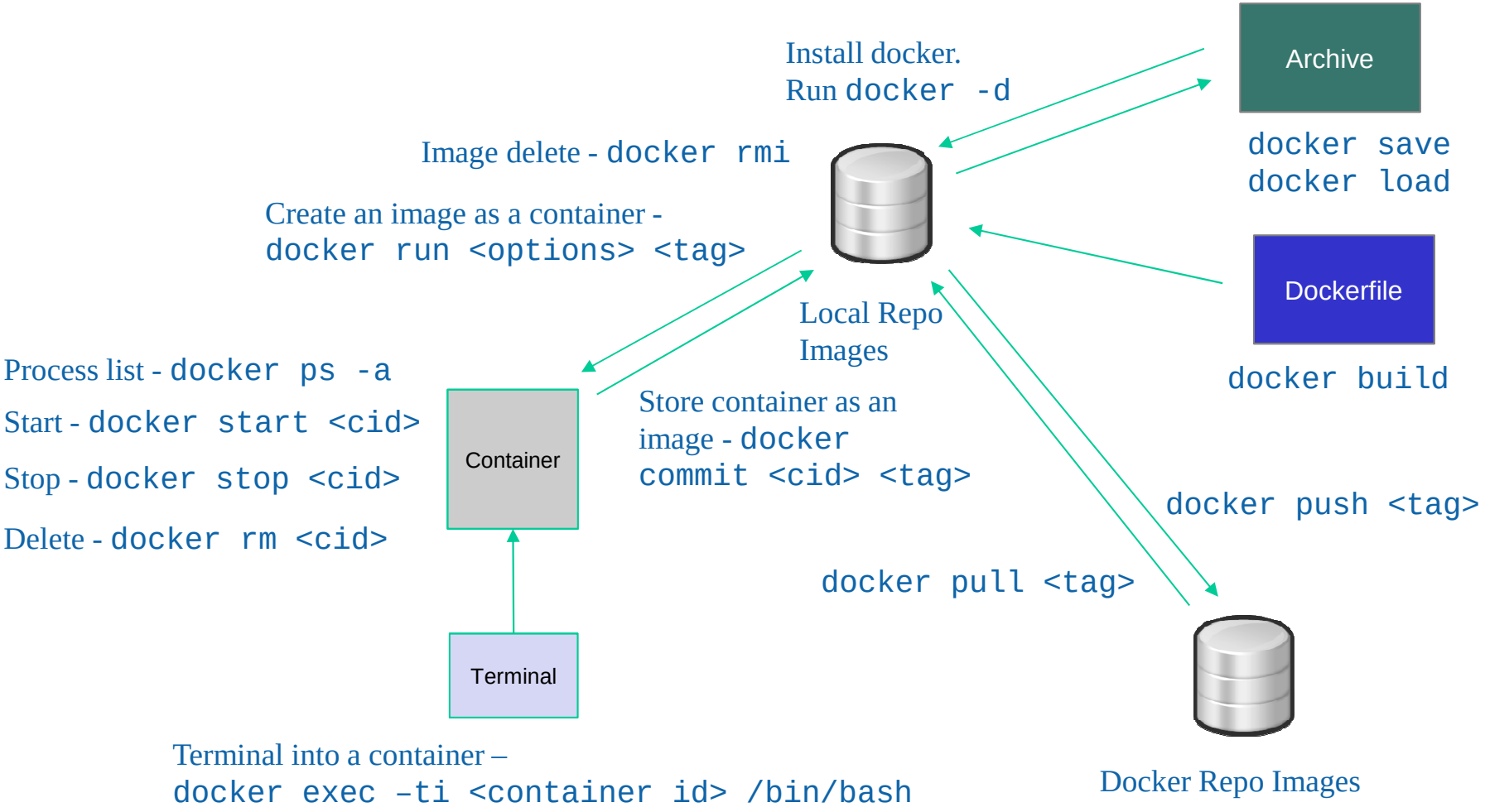
Container architecture and value



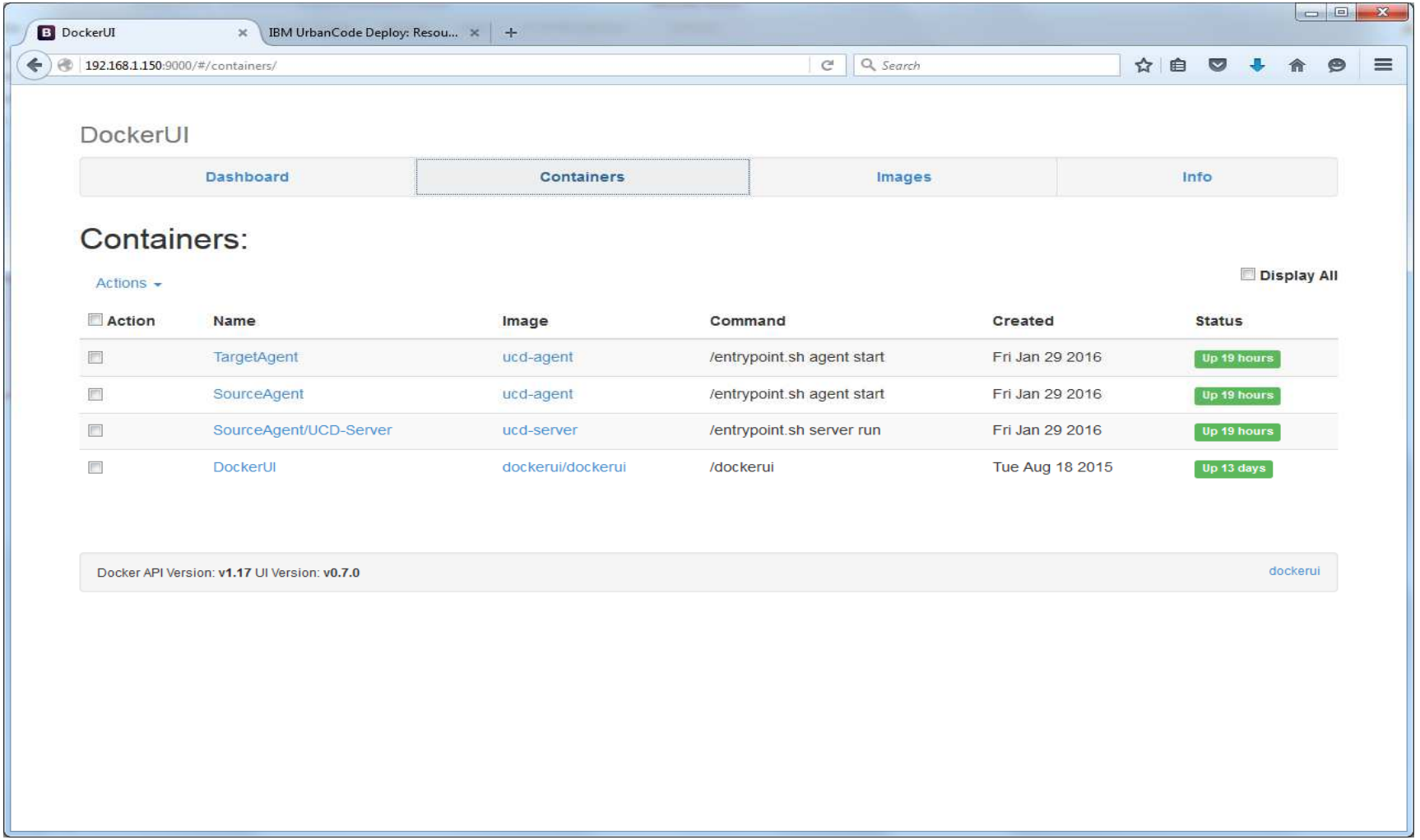
If you're focusing on the architecture **you might be missing the point**…

- We are using **already allocated resources**, so start up and shut down is **quick**.
- We are using a **layered file system** so we only need to store or retrieve deltas, which **saves network bandwidth**.
- The container runs on any X86 system with a Docker Engine, so **consistency and reuse is extremely high**.

Docker Fundamentals



Docker UI


DockerUI
IBM UrbanCode Deploy: Resou...
192.168.1.150:9000/#/containers/
Search
DockerUI
Dashboard
Containers
Images
Info
Containers:
Actions
Display All
Action
Name
Image
Command
Created
Status
TargetAgent
ucd-agent
/entrypoint.sh agent start
Fri Jan 29 2016
Up 19 hours
SourceAgent
ucd-agent
/entrypoint.sh agent start
Fri Jan 29 2016
Up 19 hours
SourceAgent/UCD-Server
ucd-server
/entrypoint.sh server run
Fri Jan 29 2016
Up 19 hours
DockerUI
dockerui/dockerui
/dockerui
Tue Aug 18 2015
Up 13 days
Docker API Version: v1.17 UI Version: v0.7.0
dockerui

What is Chef ?

Chef DK **Chef Server** **Chef Clients**

Chef is an open source software agent that automates your infrastructure by turning it into code.

Chef handled infrastructure becomes dynamic, versionable, human-readable, and testable.

Chef automates how infrastructure is configured, deployed, and managed across your network, no matter its size.

Chef Leverages to easily and quickly provision, manage, and adapt infrastructure in response to always changing needs.

What is Chef ?

Chef supports management of servers infrastructure in the cloud, on-premises, or in a hybrid environment.

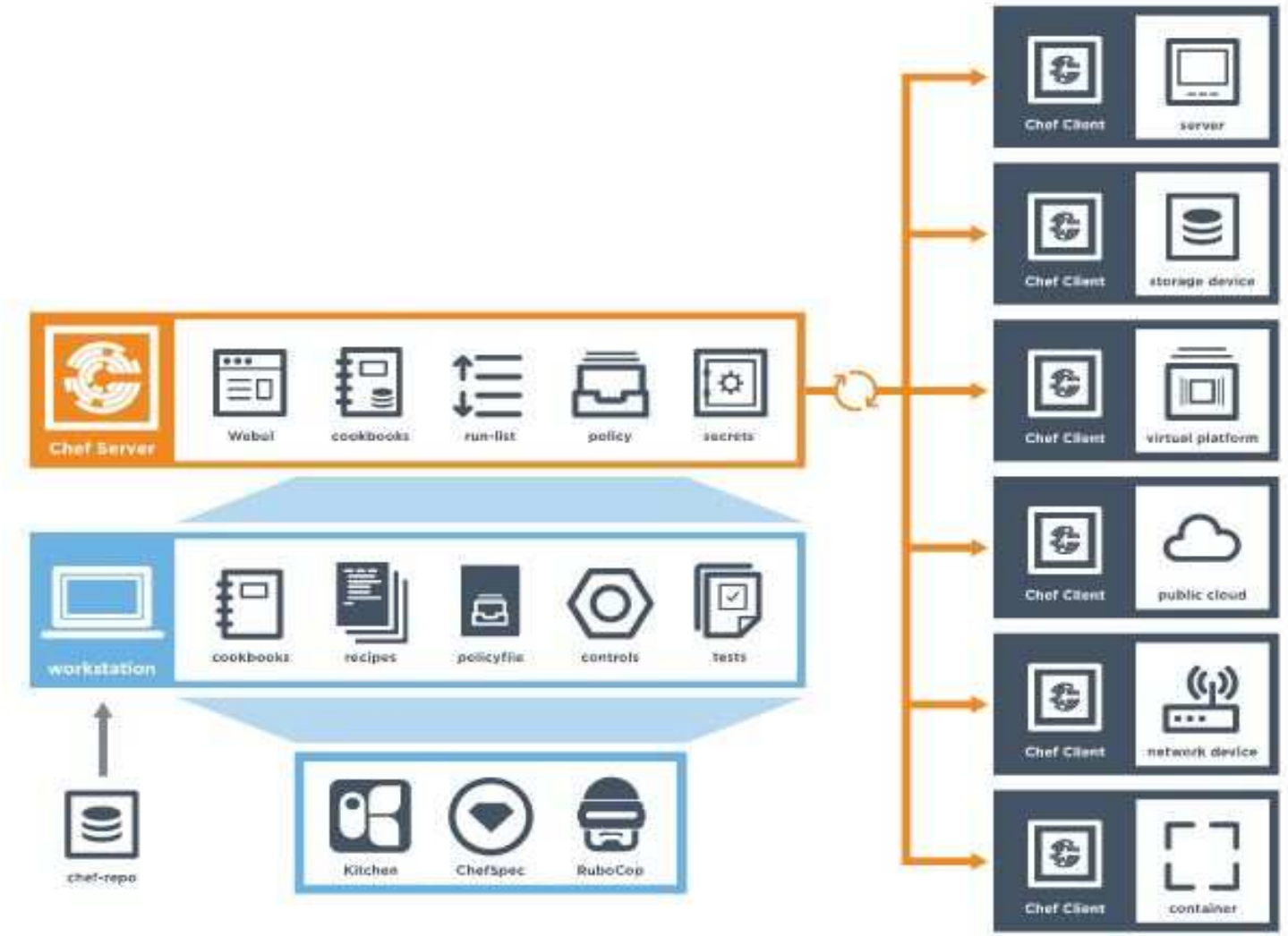
Nodes are the machines – physical , virtual, cloud, and so on that are under management by Chef.

The chef-client is installed on each node and client performs the automation on the nodes.

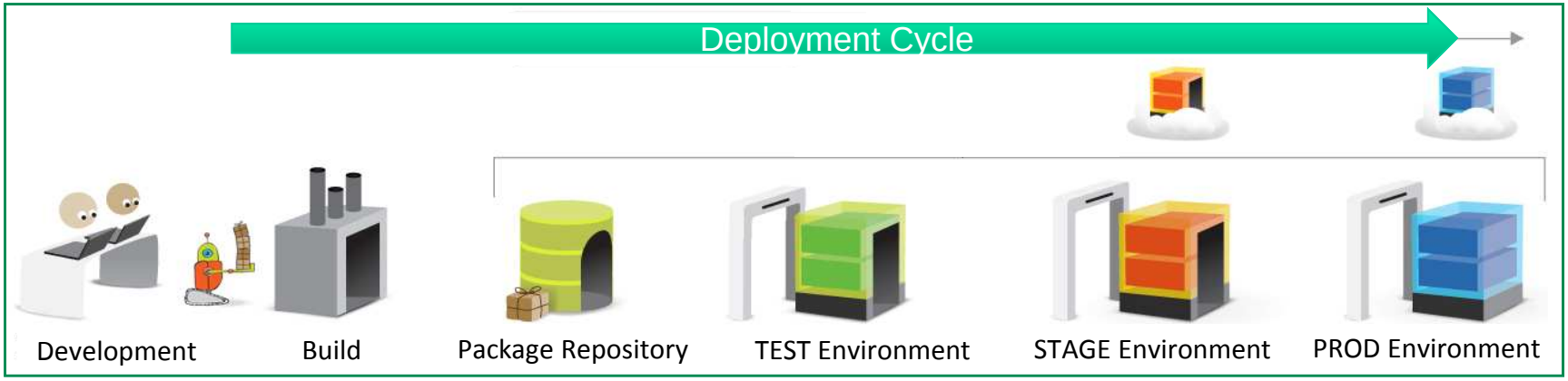
Chef server is the backbone to create and manage flexible, dynamic infrastructure (chef) nodes, across datacenters, public and private clouds , and in heterogeneous environments.

Chef Server acts as a configuration data hub, storing cookbooks and policies.

What is Chef ?


Chef Server
Webui
cookbooks
run-list
policy
secrets
workstation
cookbooks
recipes
policyfile
controls
tests
chef-repo
Kitchen
ChefSpec
RuboCop
Chef Client
server
Chef Client
storage device
Chef Client
virtual platform
Chef Client
public cloud
Chef Client
network device
Chef Client
container

What is UrbanCode Deploy ?



The Business

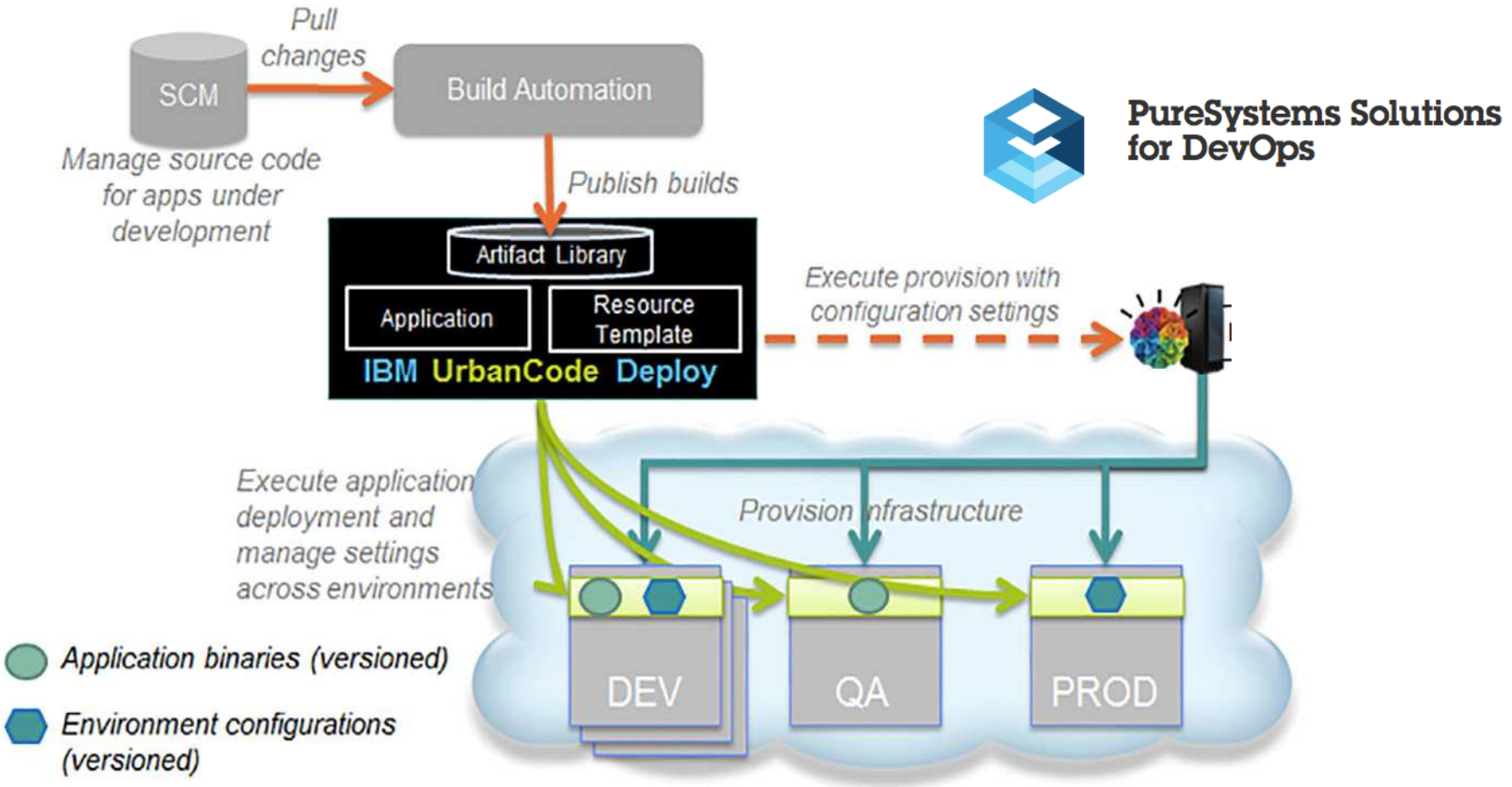
Continuous Delivery

Continuous Feedback

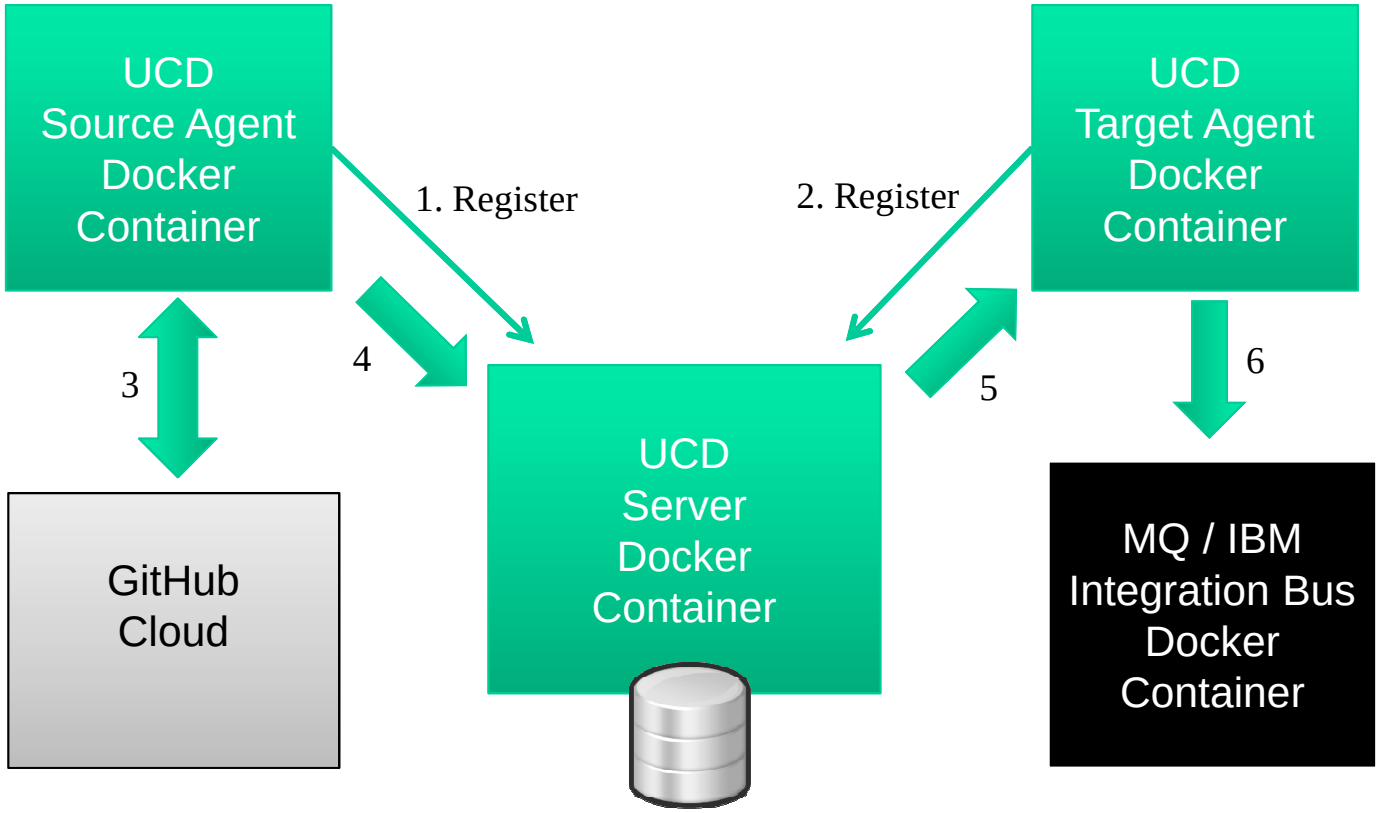
The Customer

- Deployment automation
- Application and environment visibility and transparency
- Process flexibility
- Access controls and audit controls

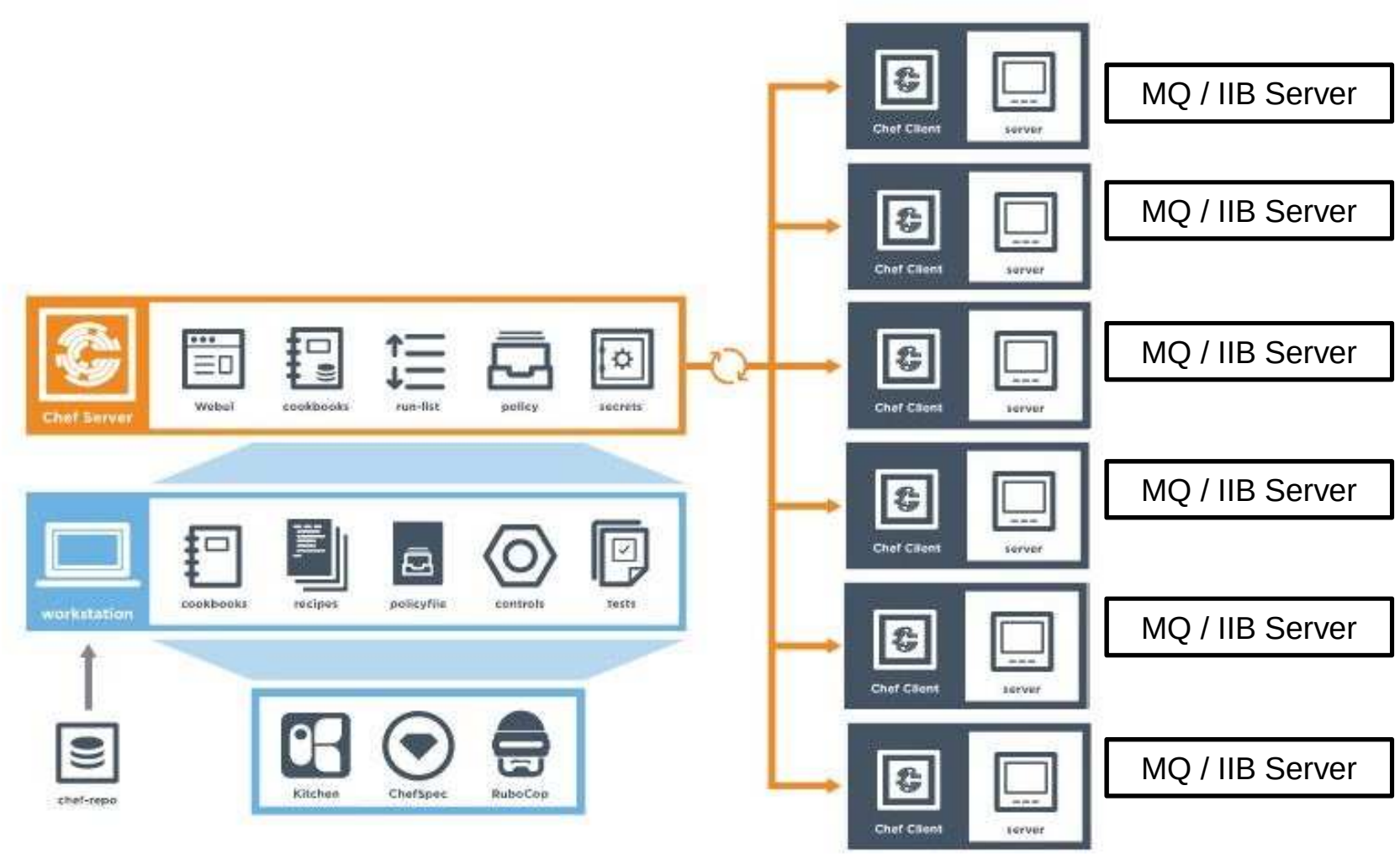
What is UrbanCode Deploy ?



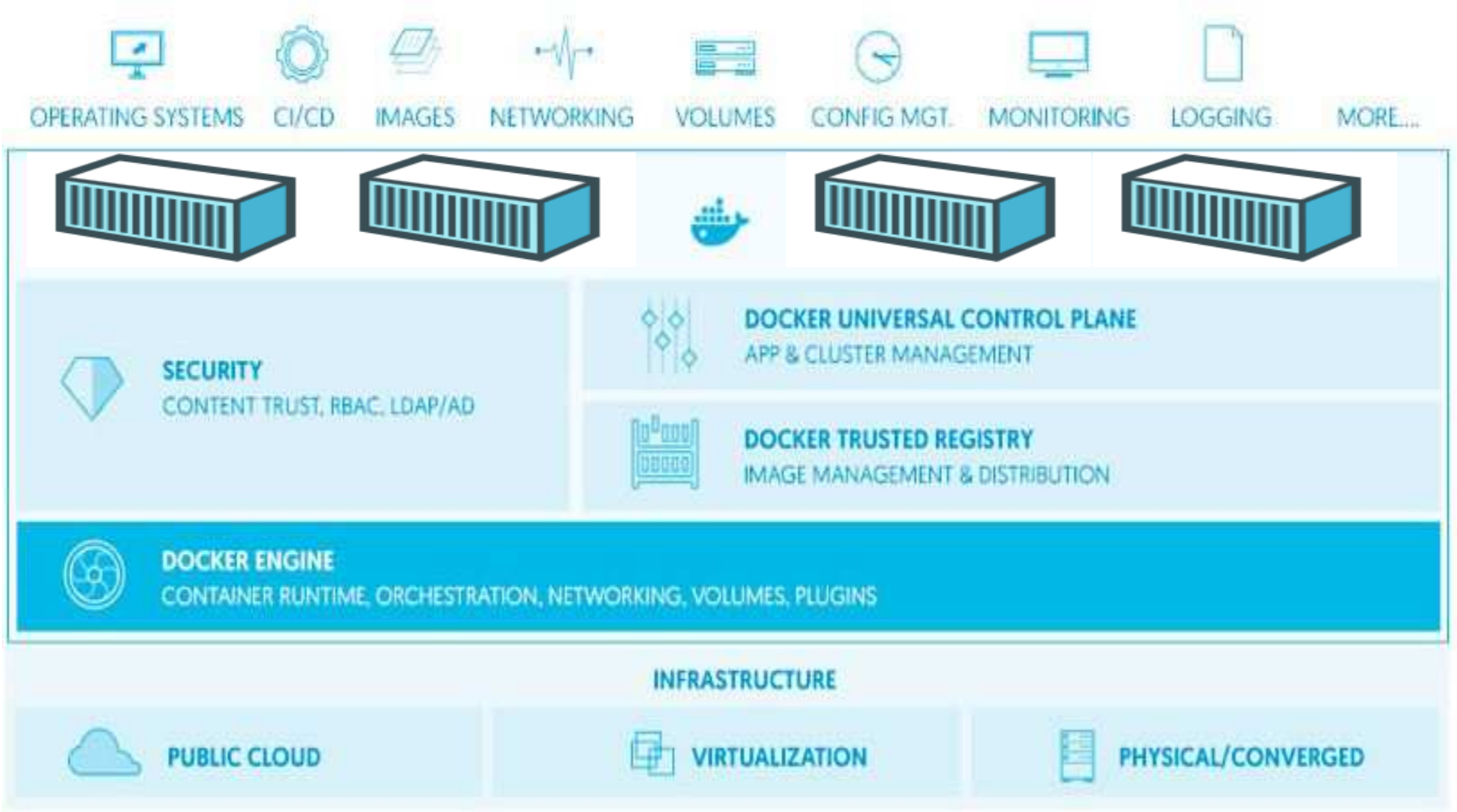
UrbanCode Deploy – IIB code deploy



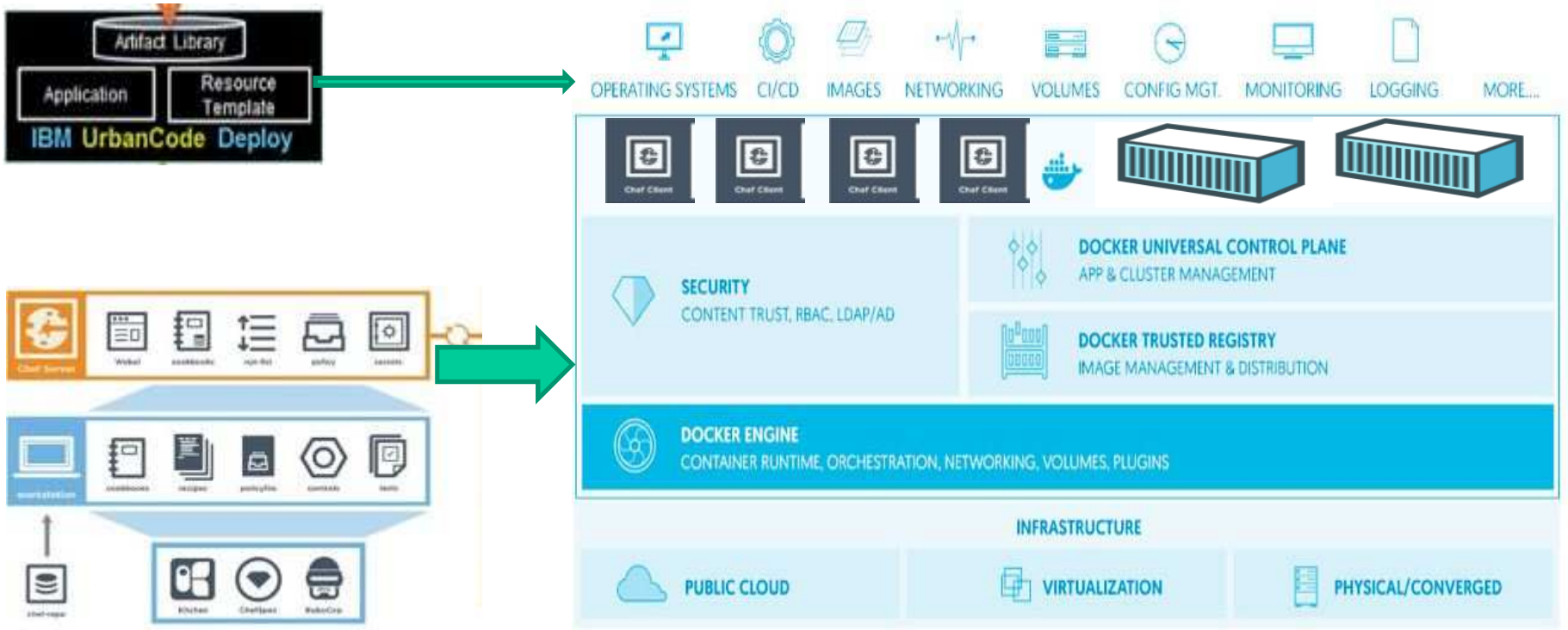
Chef – MQ & IIB Deploy Pattern



Docker CAAS – Deploy Pattern

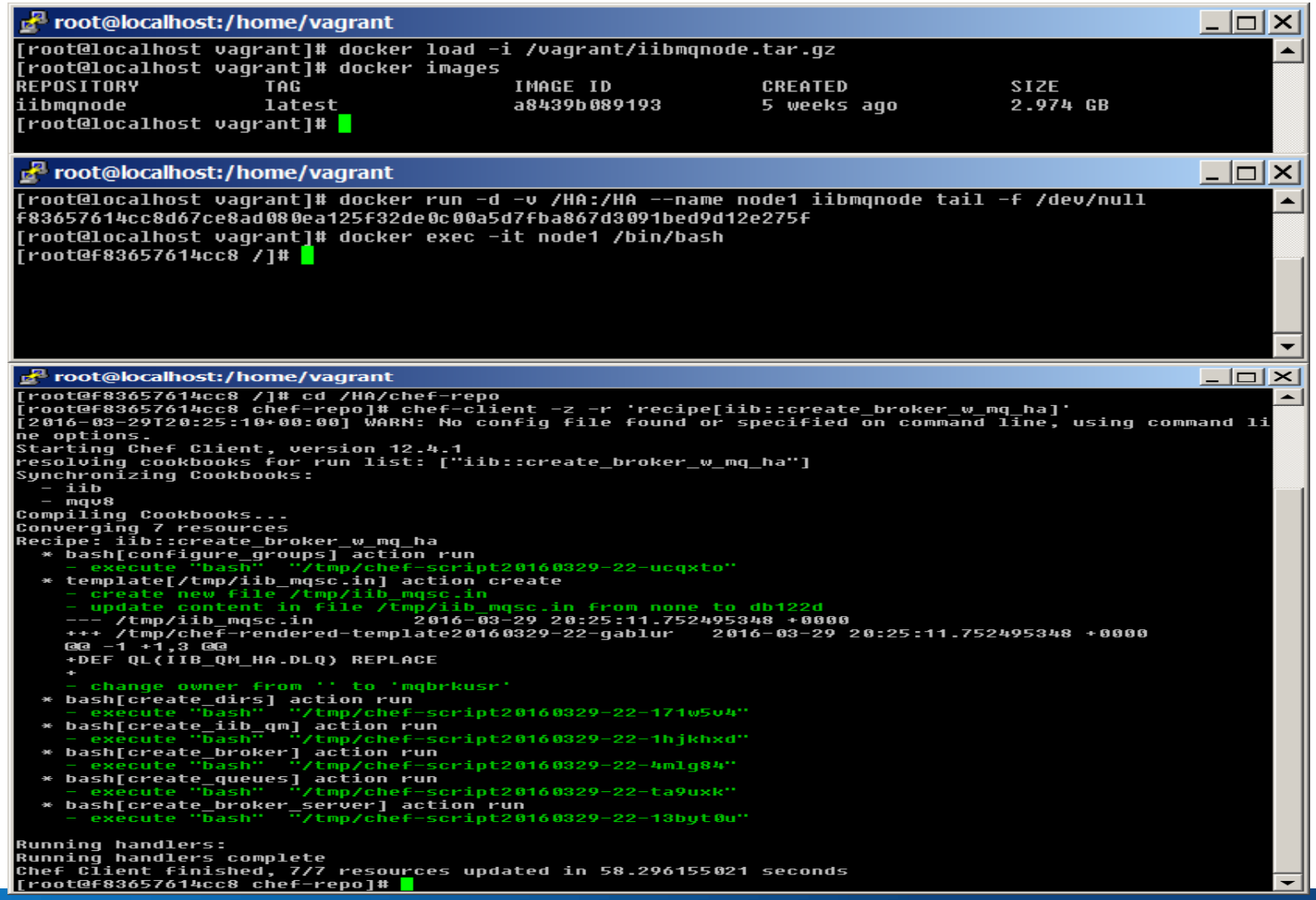


Chef + Docker + UCD – Deploy Pattern

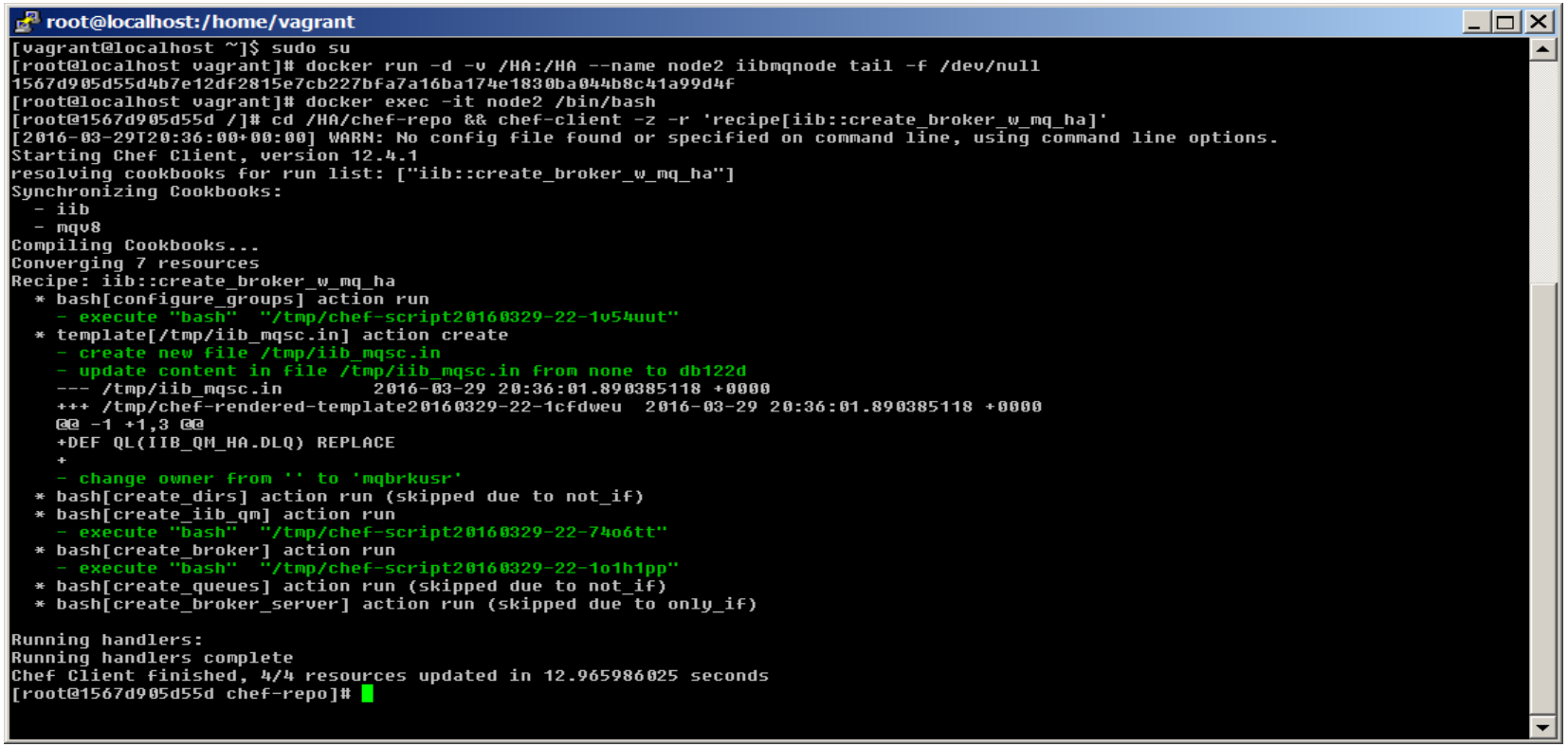


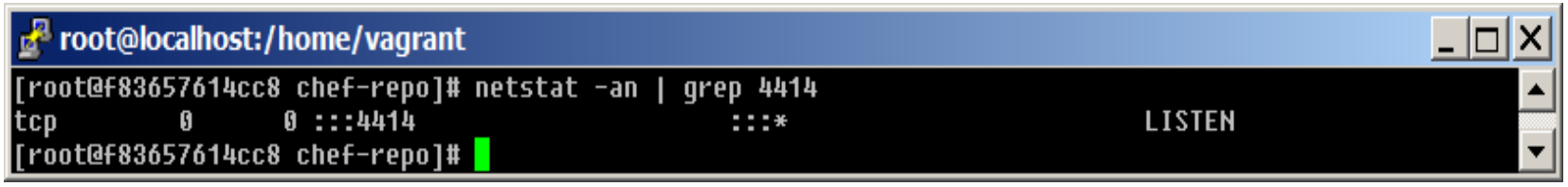
Demo

Demo – Docker Chef MQ – IIB

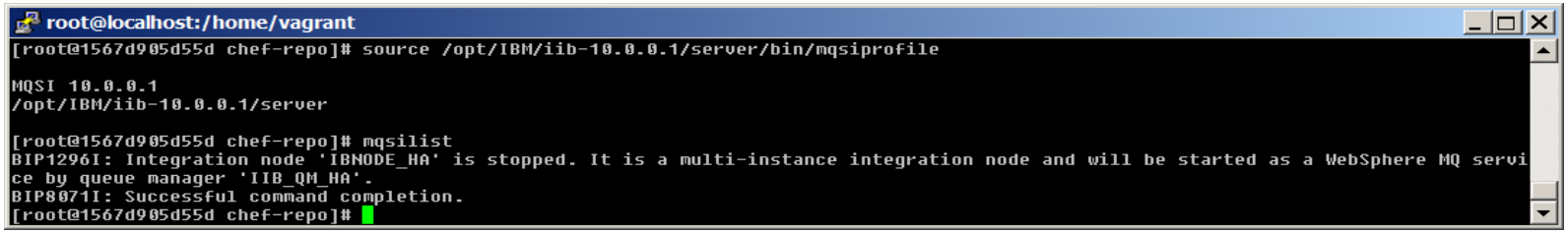


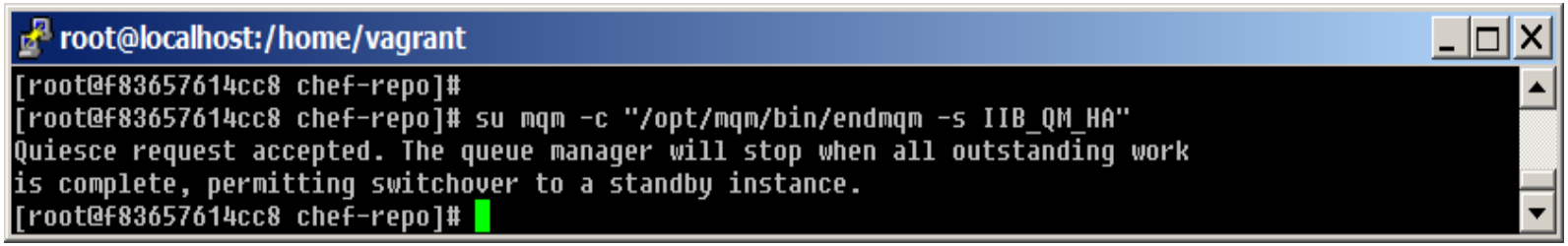
Demo – Docker Chef MQ – IIB

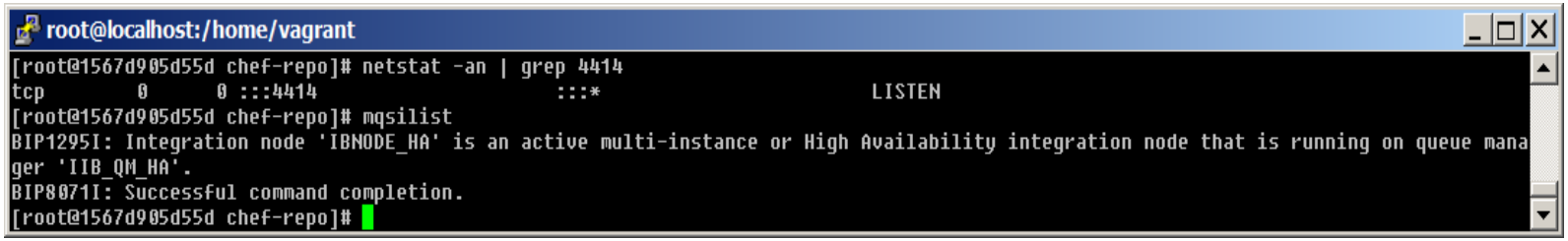




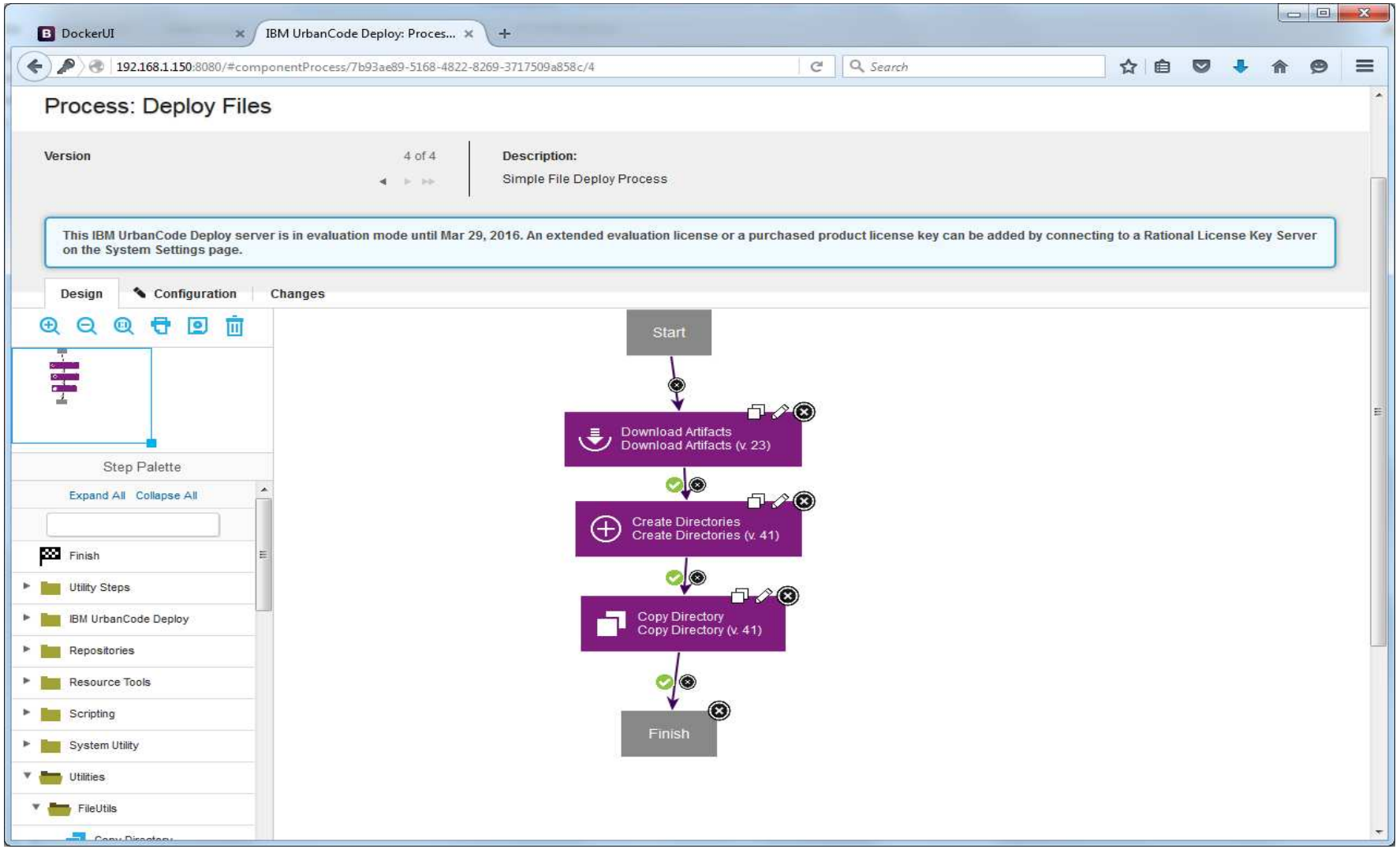
Demo – Docker Chef MQ – IIB



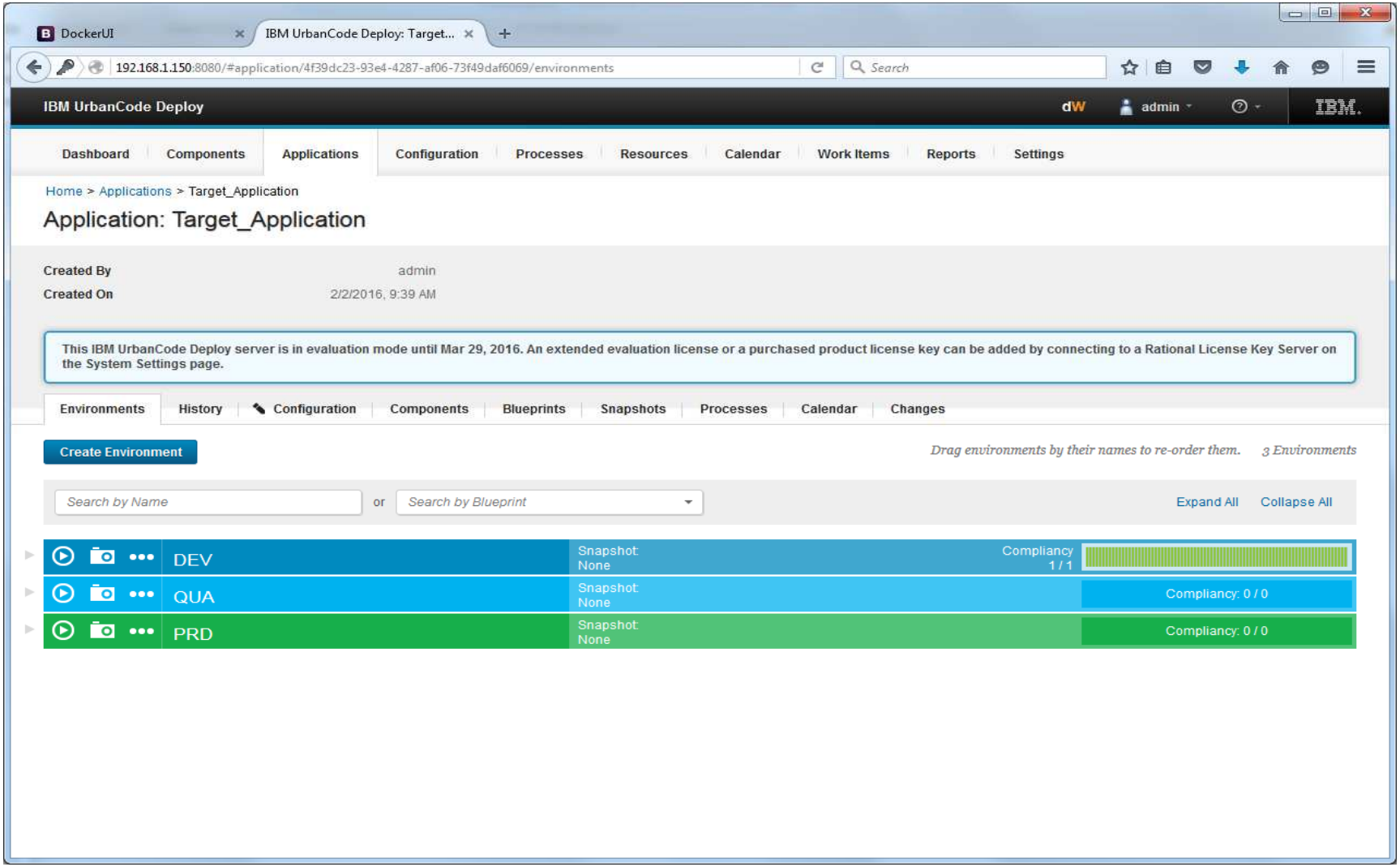




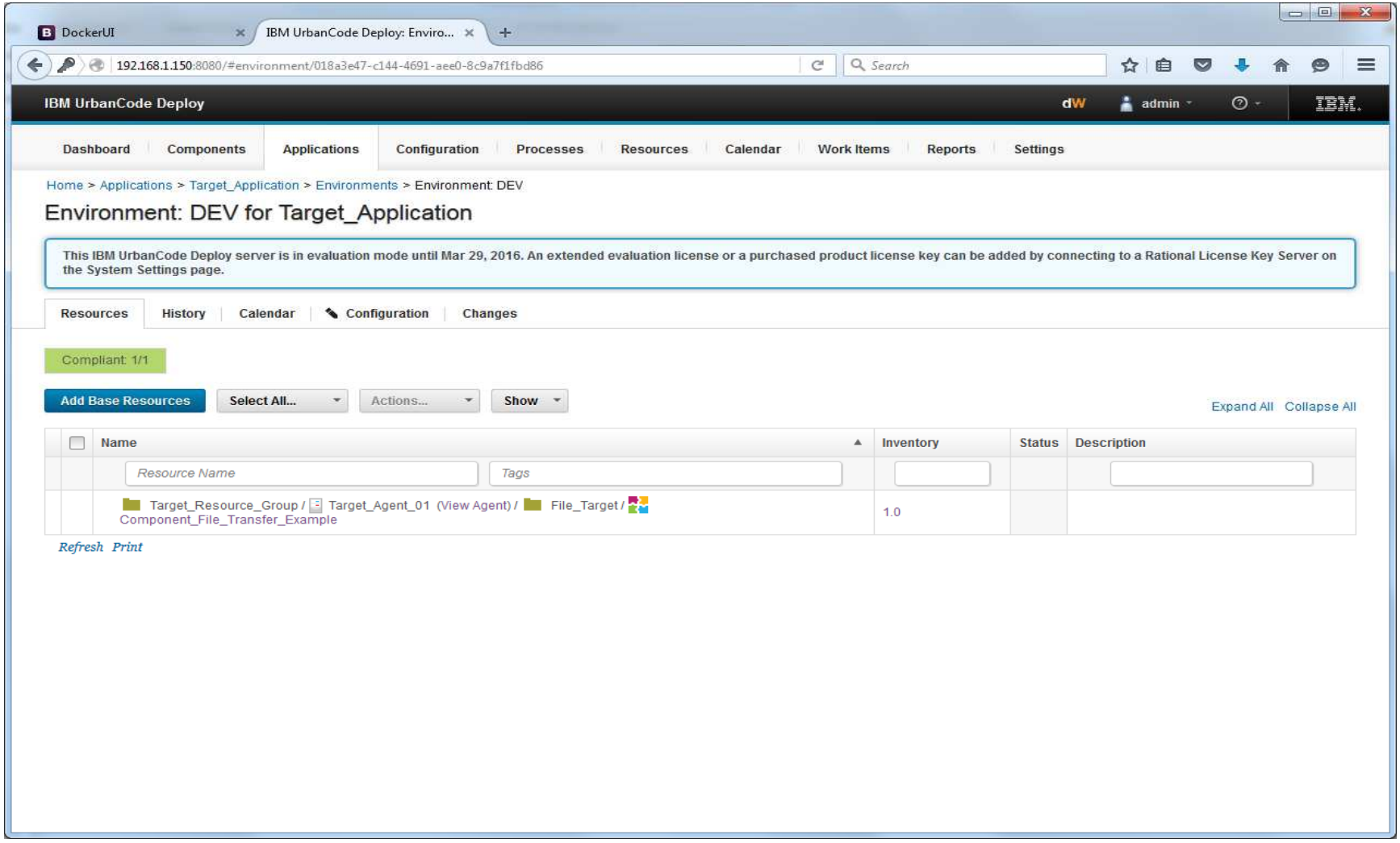
Demo – UCD - Process Designer



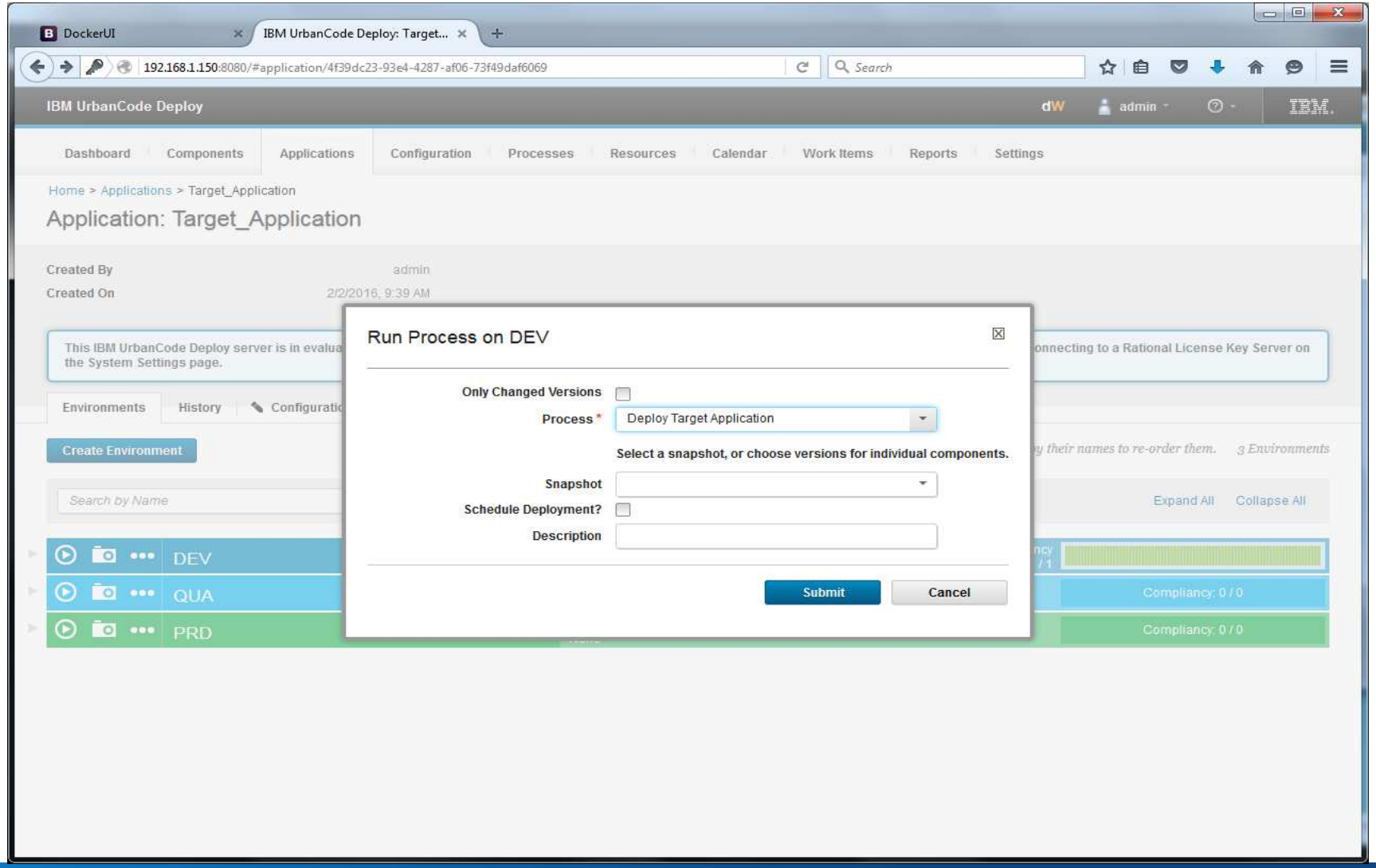
Demo- UCD - Application Environments



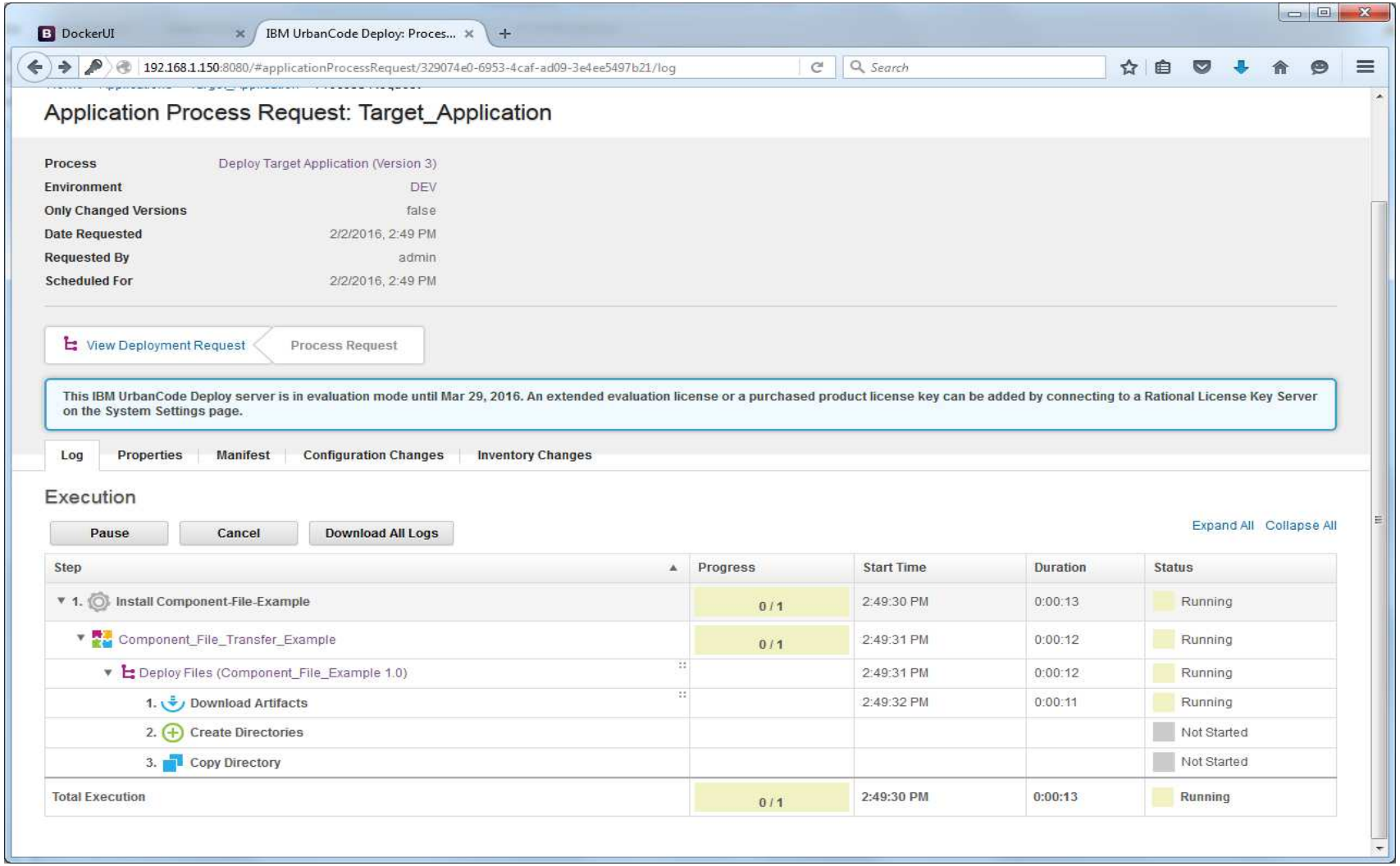
Demo – UCD - Resource Assigments



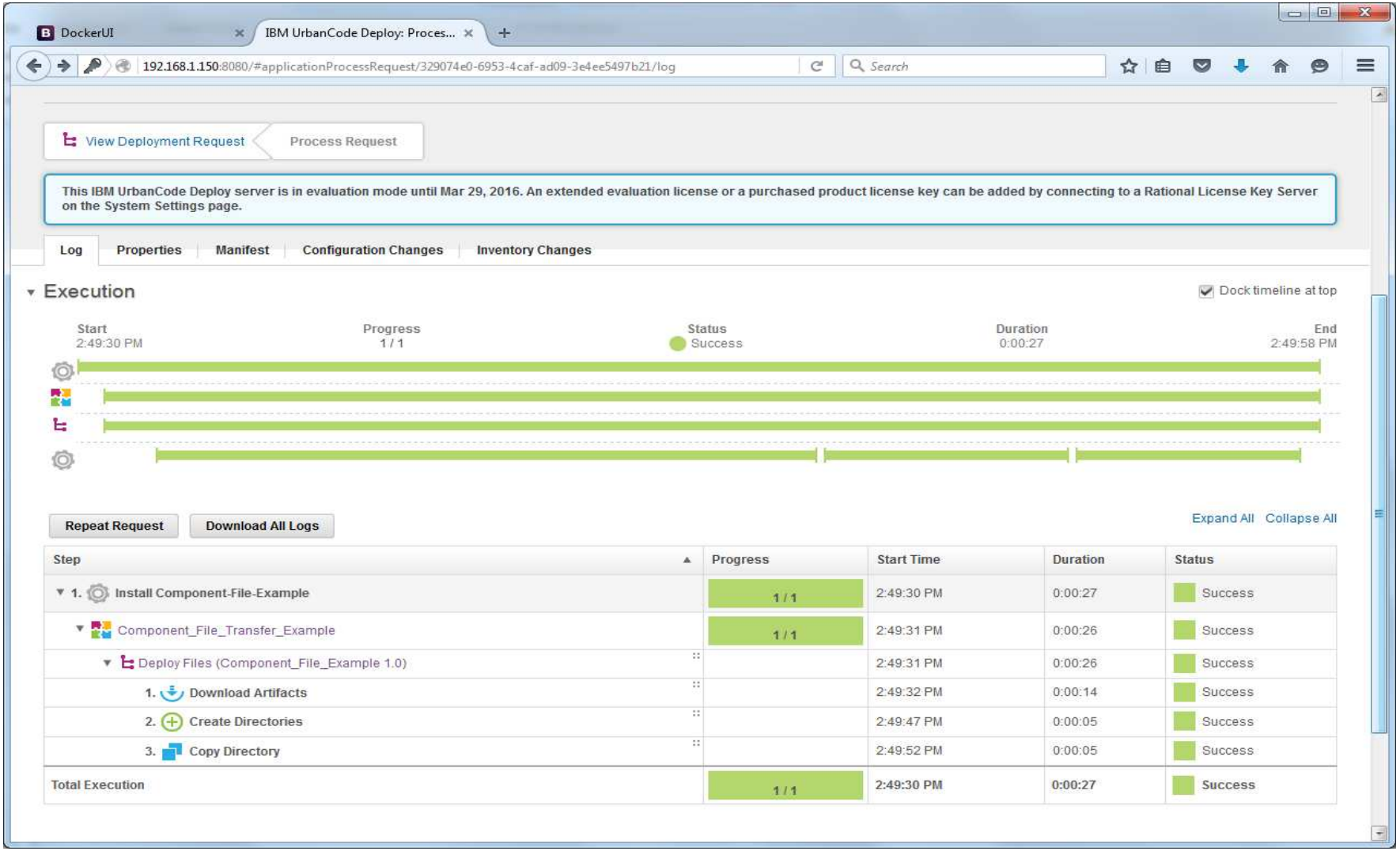
Demo – UCD - Deploy



Demo – UCD - Deployment in Progress



Demo – UCD - Deployment Complete



Questions & Answers