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PCF Operations Workshop – Platform Installation & Setup

<Presenter>

<Title>

Operations Workshop Agenda

- PCF Introduction
- Services Overview
- **Platform Installation & Setup**
- Role Based Access Control
- Platform & Application Scaling
- Platform & Application Health
- Patching & Updates
- Security
- Advanced BOSH

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The Sys Admin’s Dream Haiku

Here are my servers,

go make them a Cloud Foundry,

I do not care how

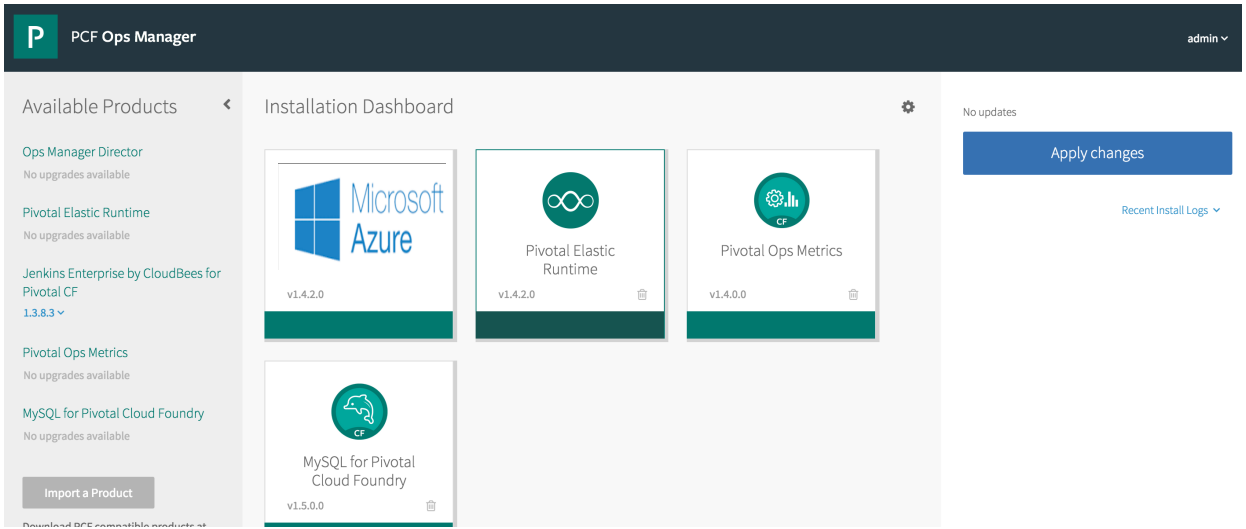
PCF Core Installation Components

BOSH

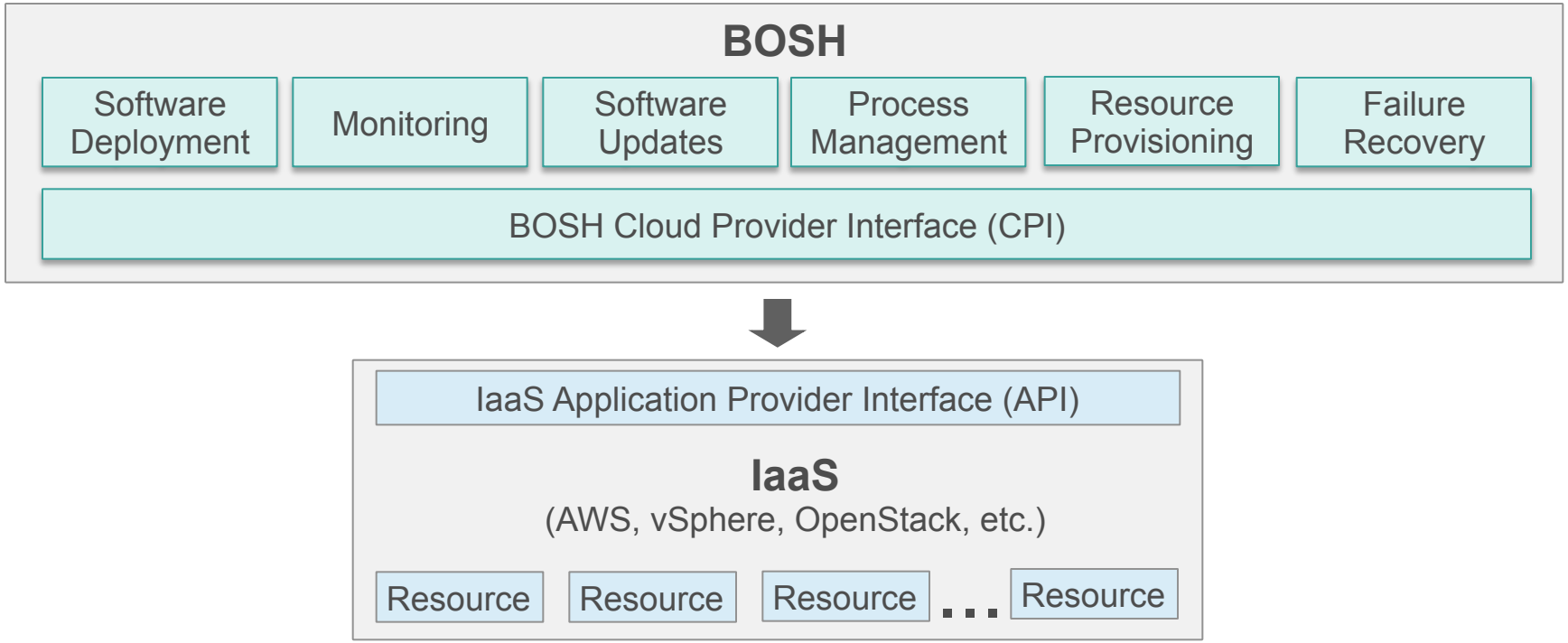
The outer shell for cloud software

Ops Manager and BOSH

- Ops Manager is a user interface on top of BOSH
- When you install or make changes in Ops Manager, BOSH-level changes are being made
  - Each tile is tied to a bosh deployment



BOSH Functionality



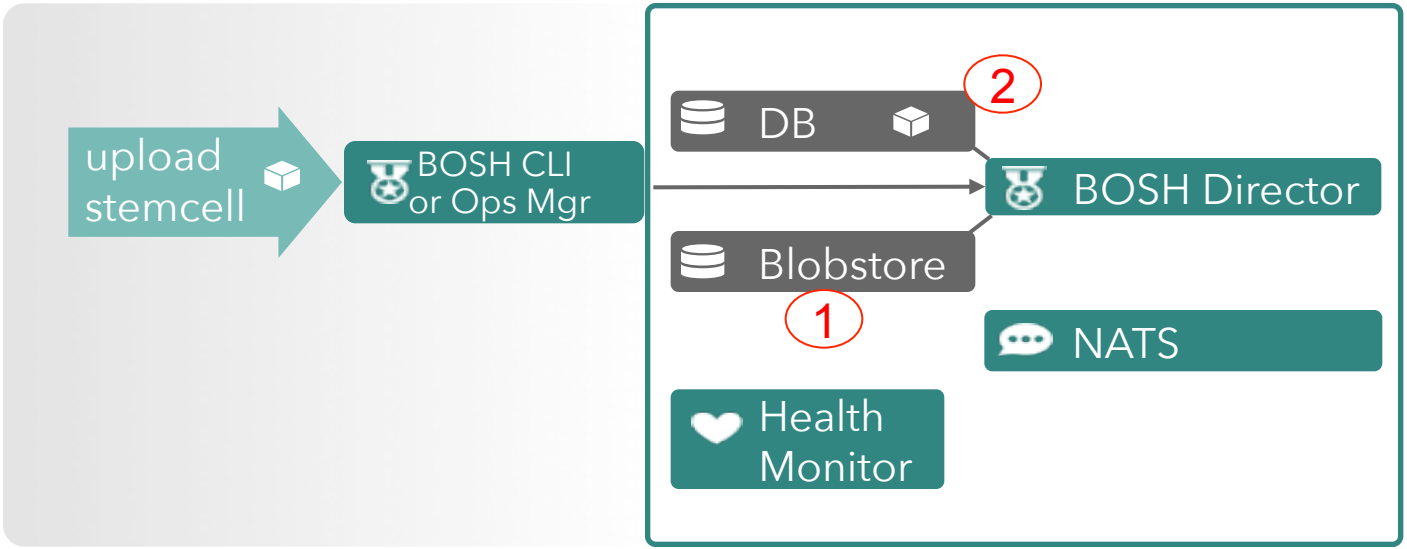
BOSH Deployment Components

- **Stemcell:** A template VM used for the cluster
- **Release:** Software and information on how to build the VMs in a cluster
- **Manifest:** Describes the cluster using configuration (YAML file)

Release

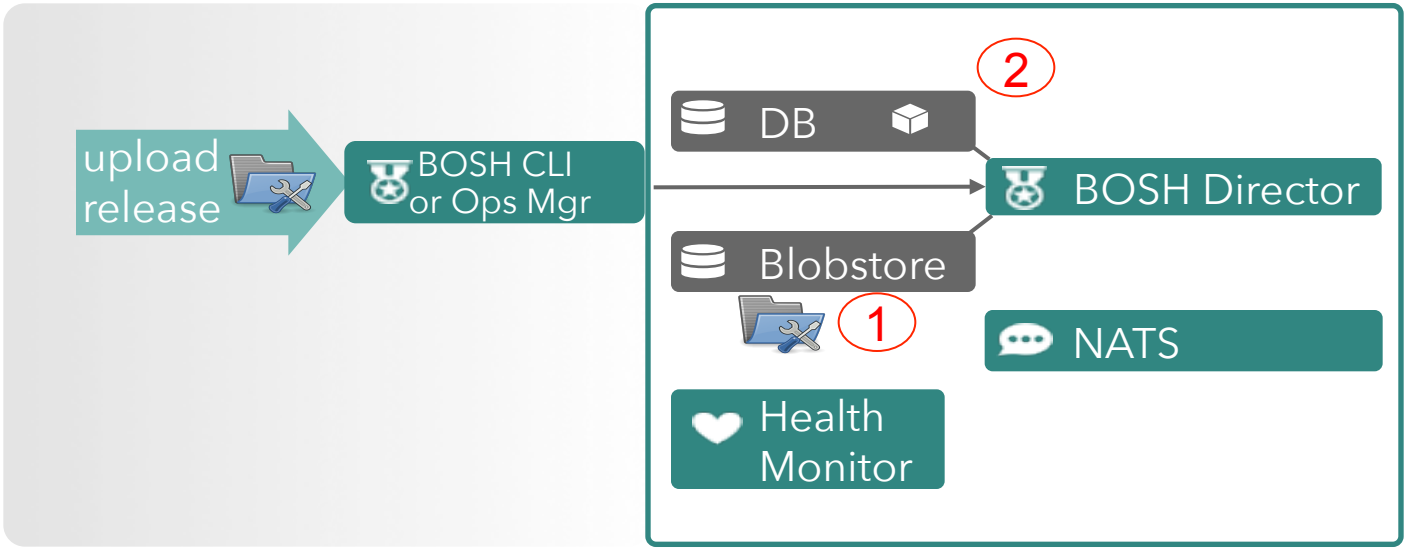
Manifest

BOSH Deployment (1 of 4)



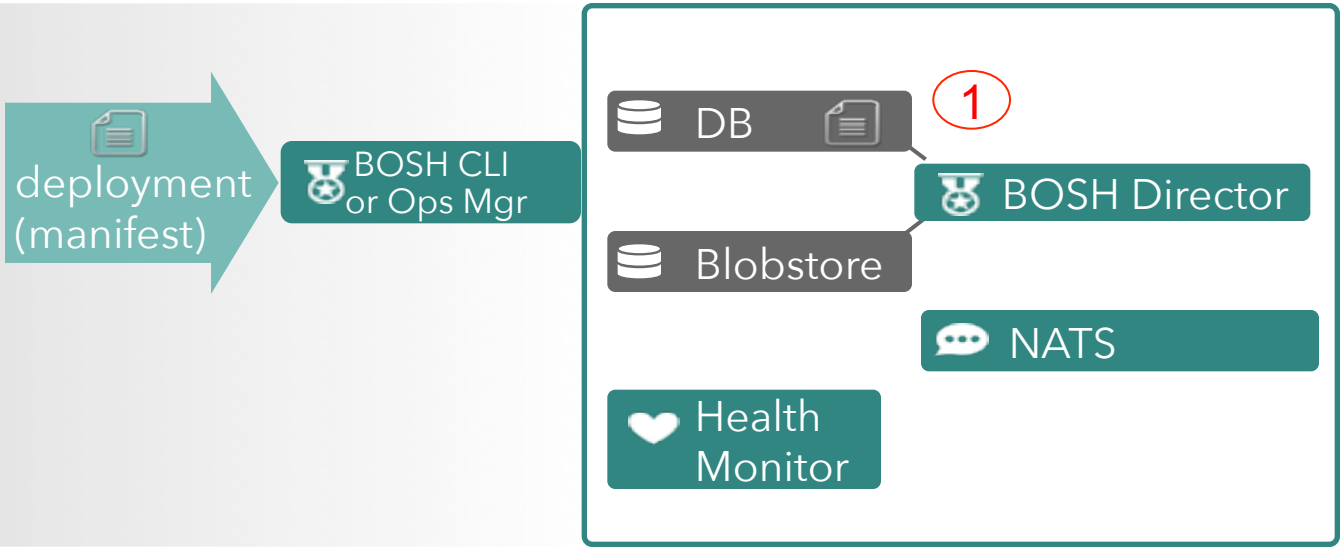
1. Upload stemcell (VM template) to blobstore
2. Register in director's DB

BOSH Deployment (2 of 4)



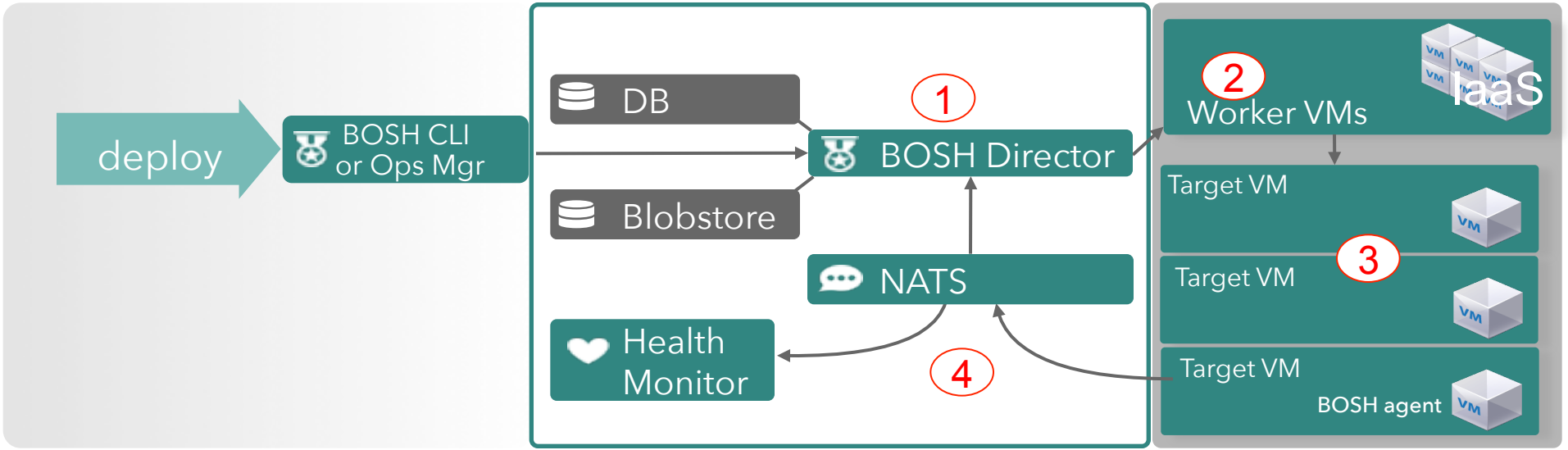
1. Upload release (software to install) into blobstore
2. Register in director's DB

BOSH Deployment (3 of 4)



1. Pass manifest (deployment instructions) to director

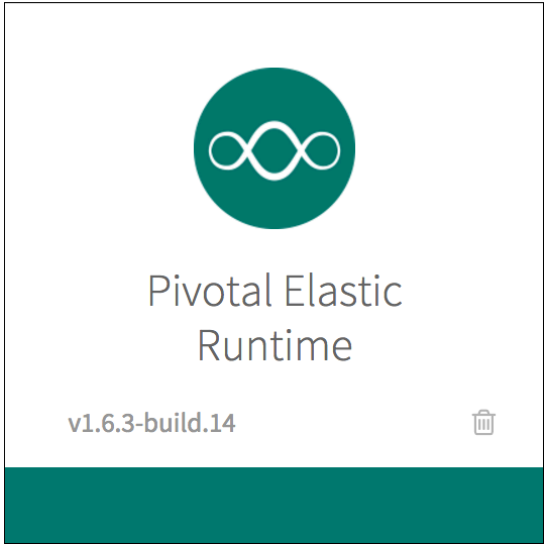
BOSH Deployment (4 of 4)



1. Director runs deployment
2. Drives worker VMs
3. Workers deploy desired VMs (from stemcells)
4. Director & HM updated with new system status

Elastic Runtime

- The Elastic Runtime is an example of the distributed software that BOSH can manage
- The Elastic Runtime is a set of components/VMs used to run highly available, scalable applications in containers



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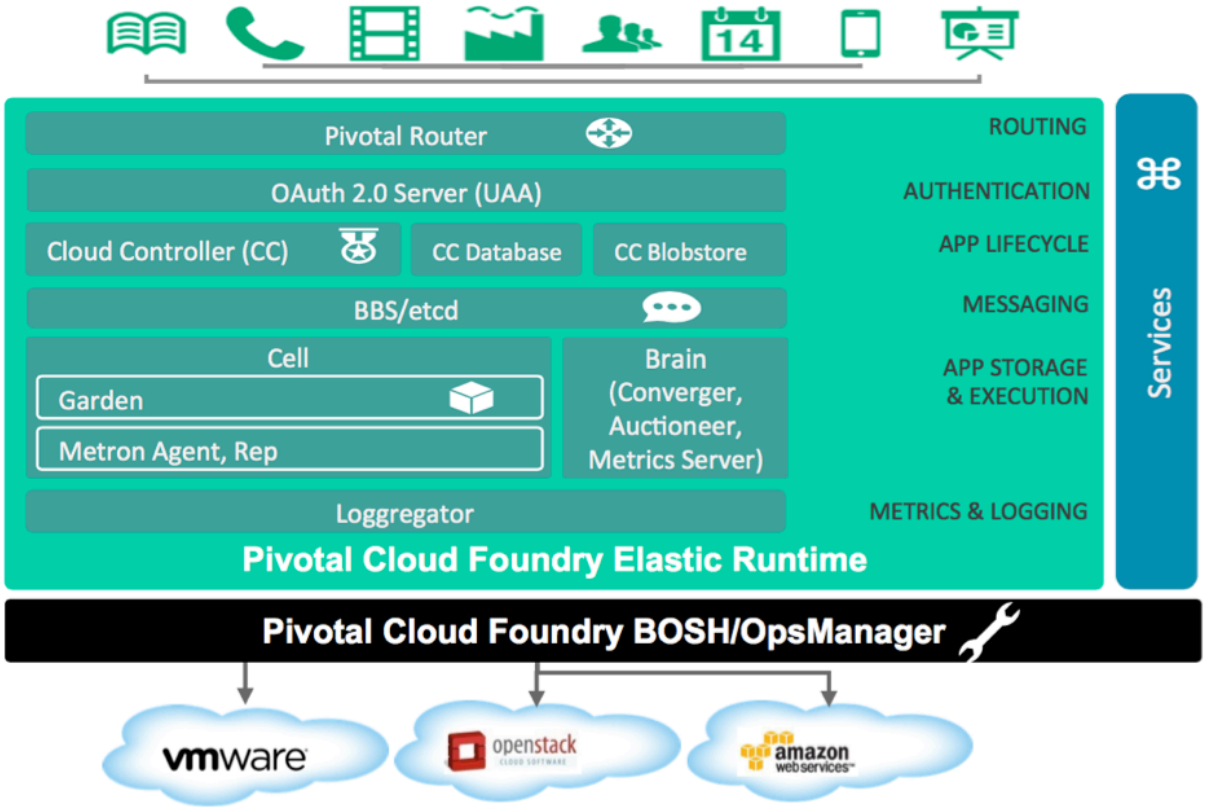
Elastic Runtime



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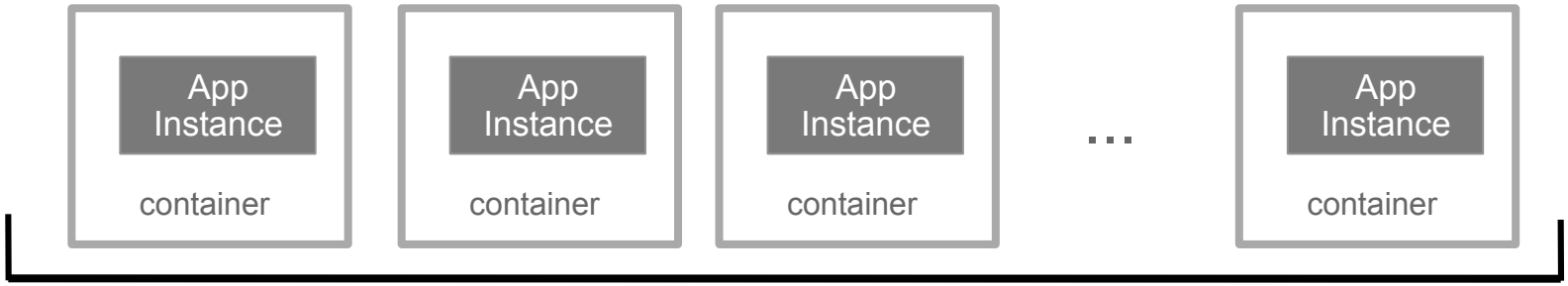
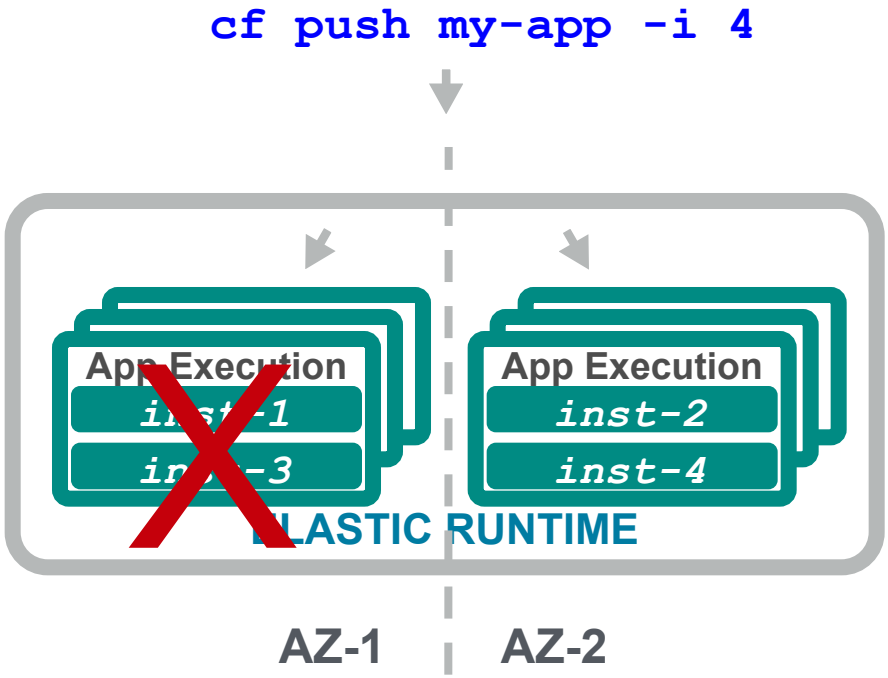
Application Instances Run Inside Containers



- Containers provide isolated environments for applications
- They are resource-friendly and start very quickly
- Application instances in Cloud Foundry run inside containers
  - One app instance per container
- See http://en.wikipedia.org/wiki/LXC (Linux containers)

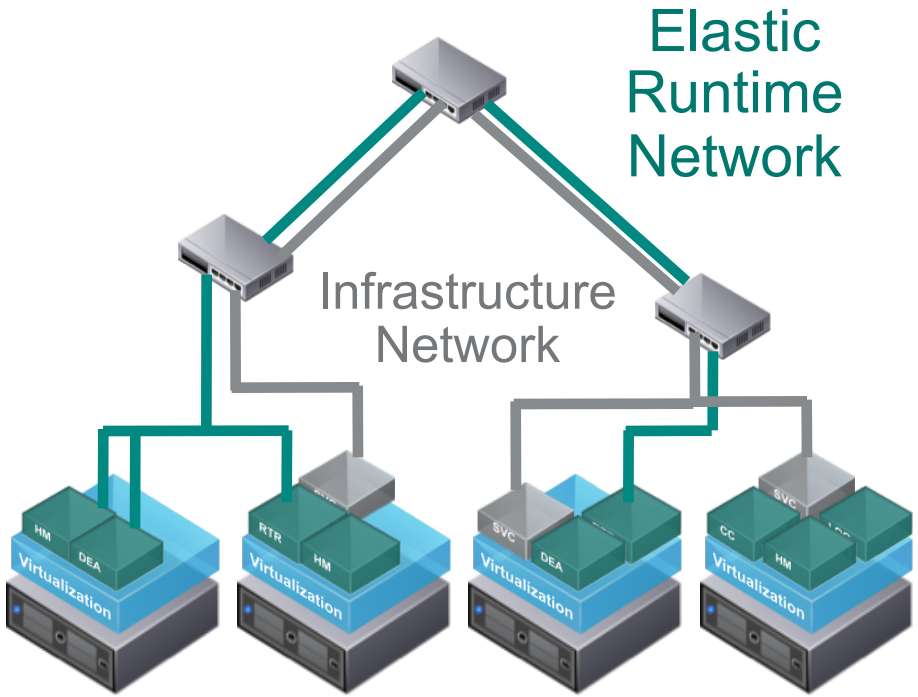
Multi-AZ Functionality

- PCF can automatically deploy applications and Elastic Runtime components to multiple Availability Zones
- Helps protect against hardware failures
- AZ Networks are configured during the installation of the Elastic Runtime tile



Networking Prerequisites

- Provide 2 isolated networks per availability zone:
  - 1 for Elastic Runtime components
  - 1 for Application Containers
- Operators define networks in Ops Manager
- Operators can assign separate networks for Services during installation of each Pivotal Cloud Foundry tile



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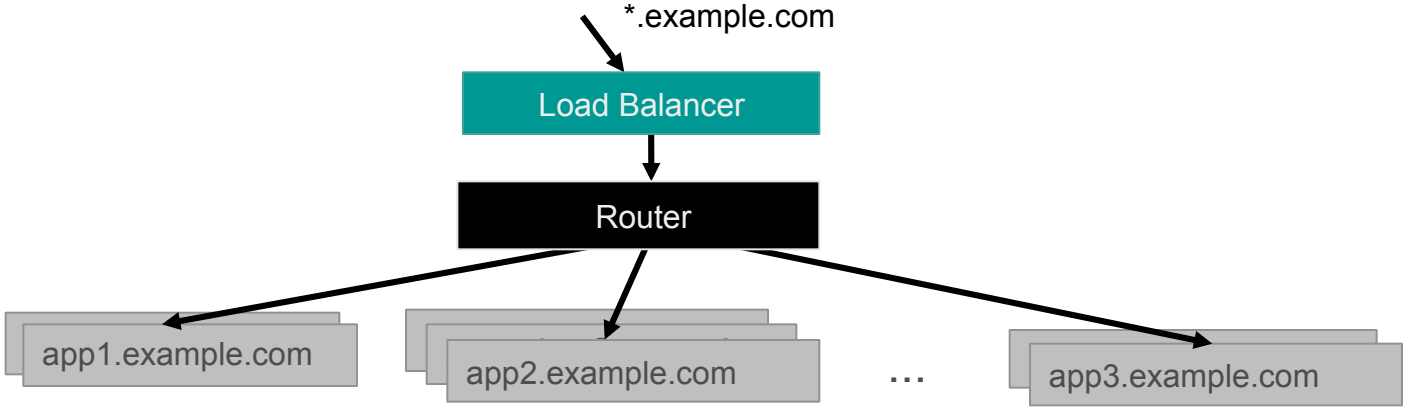
Load Balancer Configuration

- Configure a CNAME wildcard DNS entry that points to your load balancer, which points to Cloud Foundry's router
- The router uses the host to map to application instance(s)
- Additional Information on load balancer requirements located at: https://docs.pivotal.io/pivotalcf/1-7/opsguide/custom-load-balancer.html



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Firewall Prerequisites

- Ops Manager and Elastic Runtime require TCP ports to be opened in order to access platform services.
  - Ex: 443 from the load balancer to the platform
- Up-to-date requirements can be located at the following URL:
  - http://docs.pivotal.io/pivotalcf/1-7/customizing/config_firewall.html

PCF Installation

Ops Manager and Elastic Runtime - Installation Demo