

The background of the slide features a dark, semi-transparent image of the Golden Gate Bridge in San Francisco, with the city skyline visible in the distance.

Pivotal

# PCF Operations Workshop – Patching and Upgrades

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# Operations Workshop Agenda

- PCF Introduction
- Services Overview
- Platform Installation & Setup
- Role Based Access Control
- Platform & Application Scaling
- Platform & Application Health
- **Patching & Upgrades**
- Authentication and Authorization
- Advanced BOSH

# Platform Upgrades and Patches

- BOSH executes **Canary-style deployments** to minimize downtime
  - Also known as rolling upgrades
- A select number of “canary” VMs from the new release are deployed
- BOSH verifies new VMs have been deployed successfully
- Remaining VMs are deployed only if the upgrade of canary VMs succeeded
  - Otherwise the upgrade is halted

# Upgrade and patch with rolling “canary” deploys



A,B,M,N,X,Y - Application instances



- VM prior to update

# Upgrade and patch with rolling “canary” deploys



Apps redeployed to clear VMs

# Upgrade and patch with rolling “canary” deploys



Update introduced. If the tests pass, keep going

# Upgrade and patch with rolling “canary” deploys



Apps redeployed to updated VMs



# Upgrade and patch with rolling “canary” deploys



Remaining VMs updated same way

# Upgrade and patch with rolling “canary” deploys



Automated, No downtime  
Atomic rolling update

# Upgrade and patch with rolling “canary” deploys



# Elastic Runtime Patching

- The Elastic Runtime (ERT) needs a new stemcell to be applied for a proper upgrade
- The stemcell can easily be selected and applied from the ERT's Setting tab.

The screenshot shows the Pivotal Elastic Runtime Installation Dashboard. The 'Settings' tab is active. On the left, there is a sidebar with various configuration options: Assign AZs and Networks, Domains, Networking, Application Containers (selected), Application Developer Controls, Authentication and Enterprise SSO, Databases, Internal MySQL, File Storage, System Logging, Custom Branding, Apps Manager, and Email Notifications. The 'Application Containers' option is expanded, showing it requires BOSH stemcell version 3215 ubuntu-trusty and provides a link to 'Using light-bosh-stemcell-3215-aws-xen-hvm-ubuntu-trusty-go\_agent.tgz'. A large 'Import Stemcell' button is prominently displayed in the center of the page under the 'Stemcell' heading. The bottom of the screen includes a footer with copyright information and links to API Docs and the End User License Agreement.

Installation Dashboard  
Pivotal Elastic Runtime

Settings Status Credentials Logs

Assign AZs and Networks

Domains

Networking

Application Containers

Application Developer Controls

Authentication and Enterprise SSO

Databases

Internal MySQL

File Storage

System Logging

Custom Branding

Apps Manager

Email Notifications

Stemcell

A stemcell is a template from which Ops Manager creates the VMs needed for a wide variety of components and products.

cf requires BOSH stemcell version 3215 ubuntu-trusty

Using light-bosh-stemcell-3215-aws-xen-hvm-ubuntu-trusty-go\_agent.tgz

Import Stemcell

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# Canary-Style Deployment: Implications

- Elastic Runtime can be upgraded to new versions with no application downtime
  - “Apply changes” does not mean “wait for it to finish”
  - You will have limited ability to deploy applications during Elastic Runtime upgrades
- Installing or modifying other tiles does not affect the Elastic Runtime
- For the ops team- upgrade the system during working hours!