



Pivotal

PCF Operations Workshop – Patching and Upgrades

<Presenter>

<Title>

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



Daniel Jones
@EngineerBetter



Follow

Last week saw Pivotal Cloud Foundry doing 30-40 upgrades over 200 VMs. Took one pair a few days. Trad ops team would've taken 2 years.



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 'Installation Dashboard' for 'Pivotal Elastic Runtime'. The 'Settings' tab is active. On the left, there's a sidebar with various configuration options: 'Assign AZs and Networks', 'Domains', 'Networking', 'Application Containers' (which is checked), 'Application Developer Controls' (which is checked), 'Authentication and Enterprise SSO' (which is checked), 'Databases' (which is checked), 'Internal MySQL' (which is checked), 'File Storage' (which is checked), 'System Logging' (which is checked), 'Custom Branding' (which is checked), 'Apps Manager' (which is checked), and 'Email Notifications' (which is checked). The right side has a 'Stemcell' section with the following text:
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
Below this is a large 'Import Stemcell' button.

[API Docs](#) | [End User License Agreement](#)

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!