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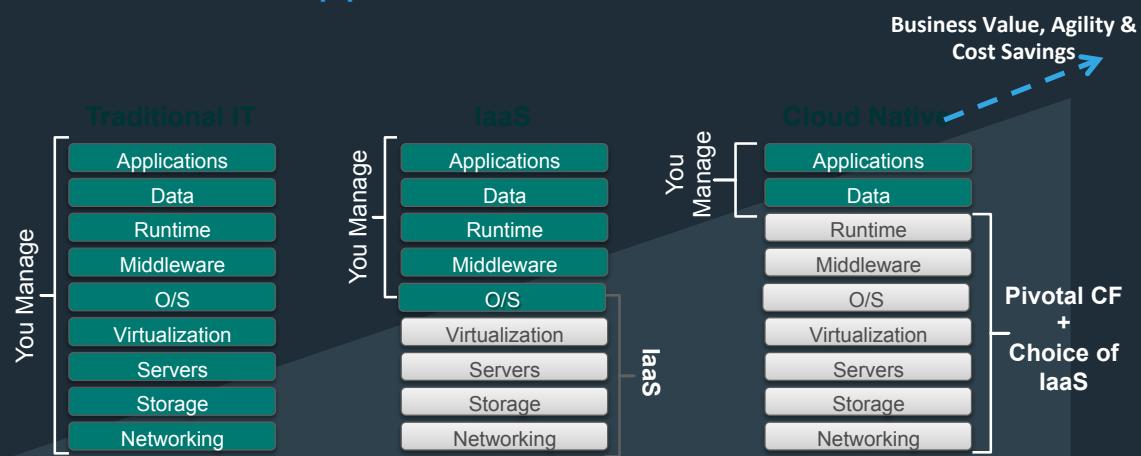
Cloud Native Workshop

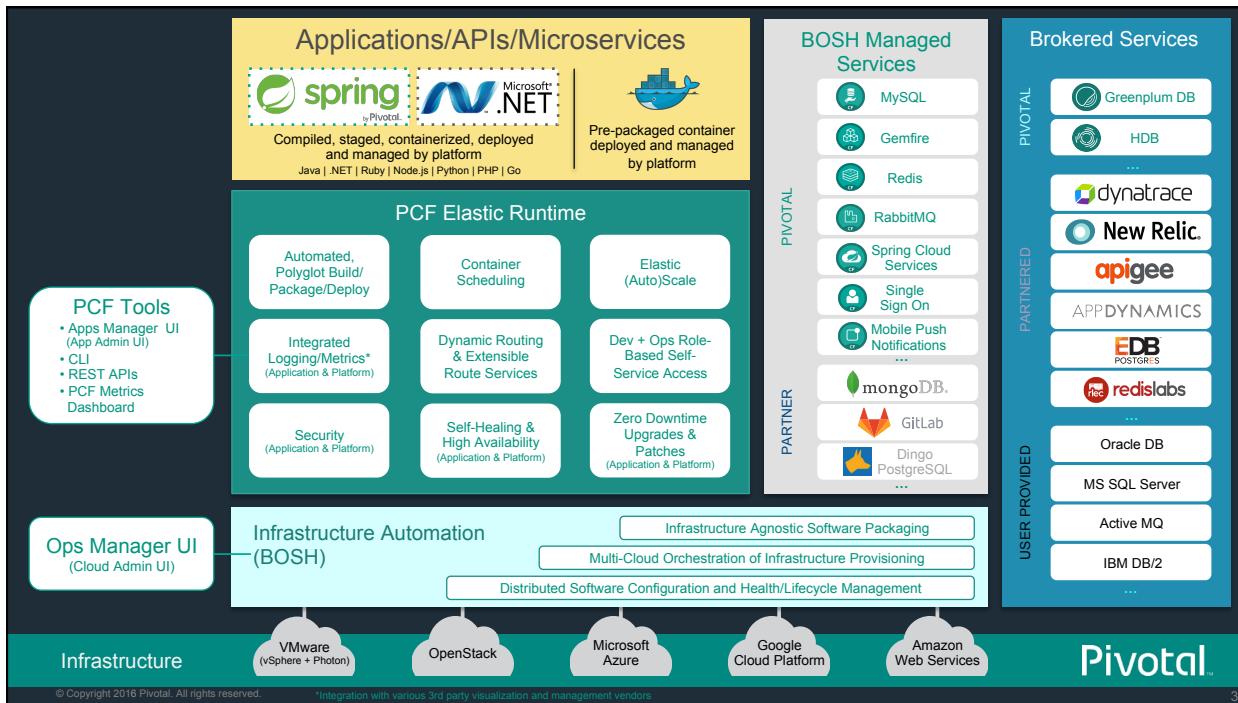
The Cloud Native Platform

Pivotal Cloud Foundry

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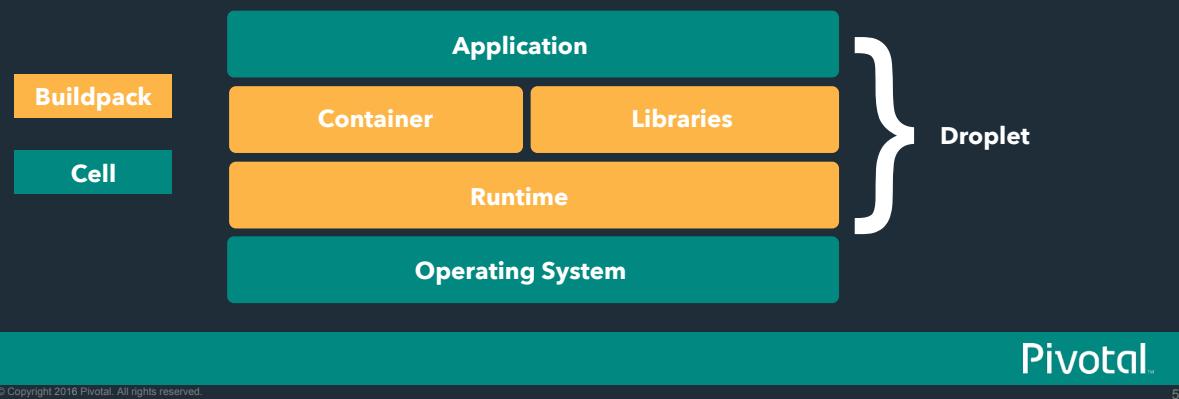
Cloud Native Application Platforms





Staging and Buildpacks

Buildpacks are responsible for preparing the machine image for an application.

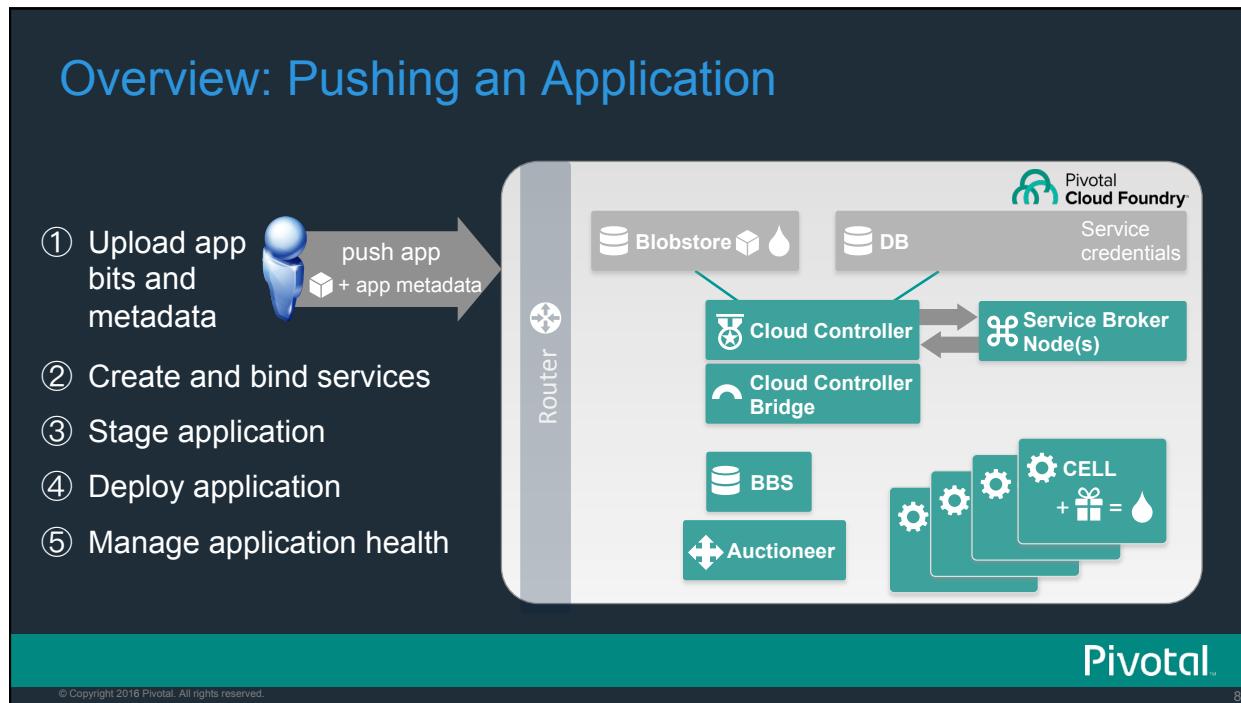
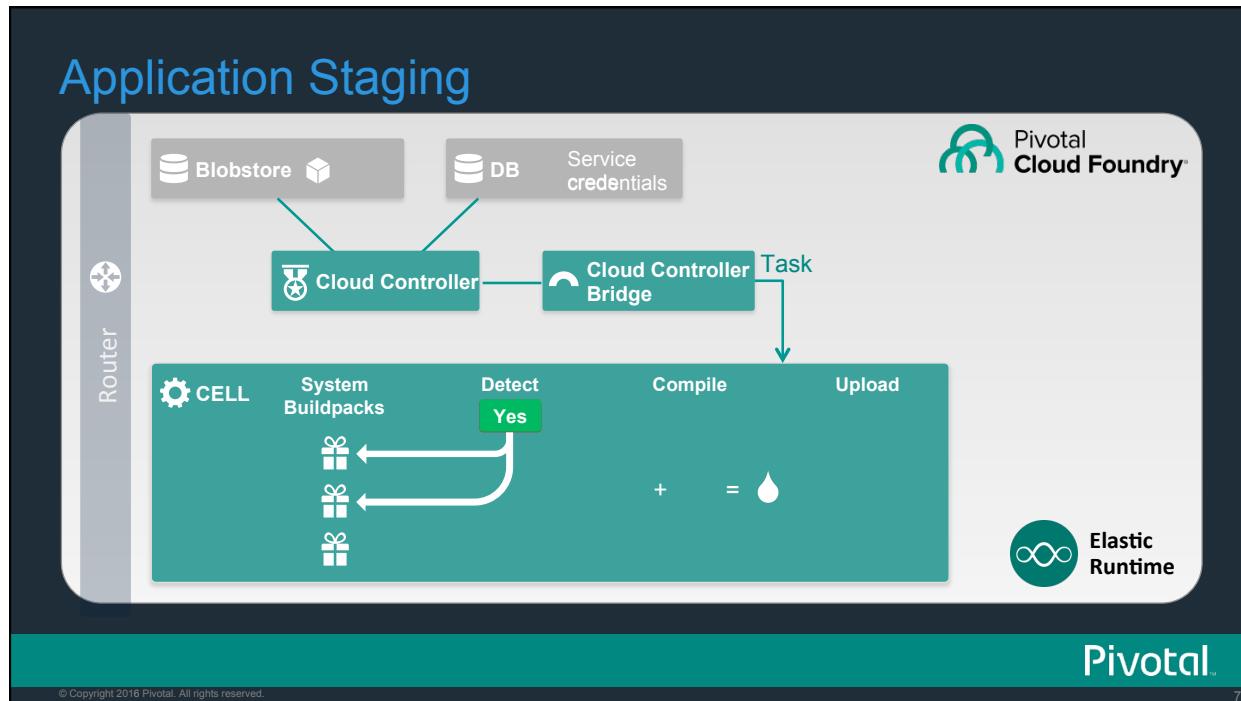


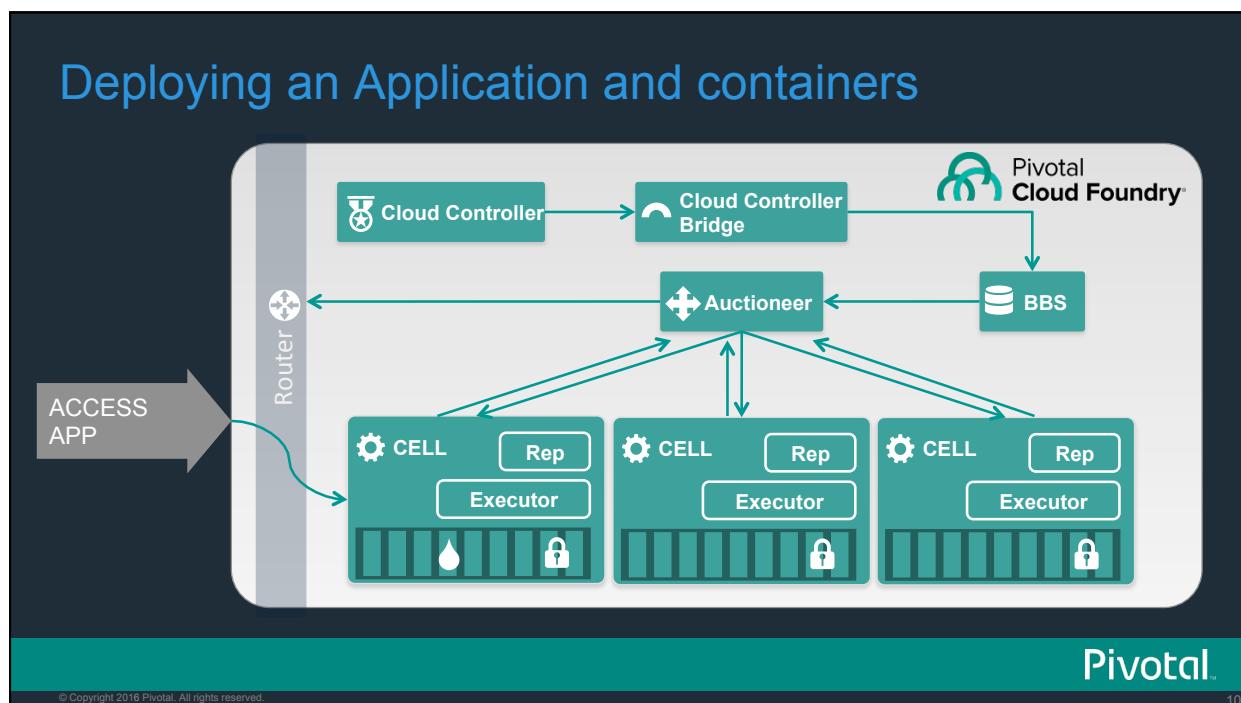
Buildpacks

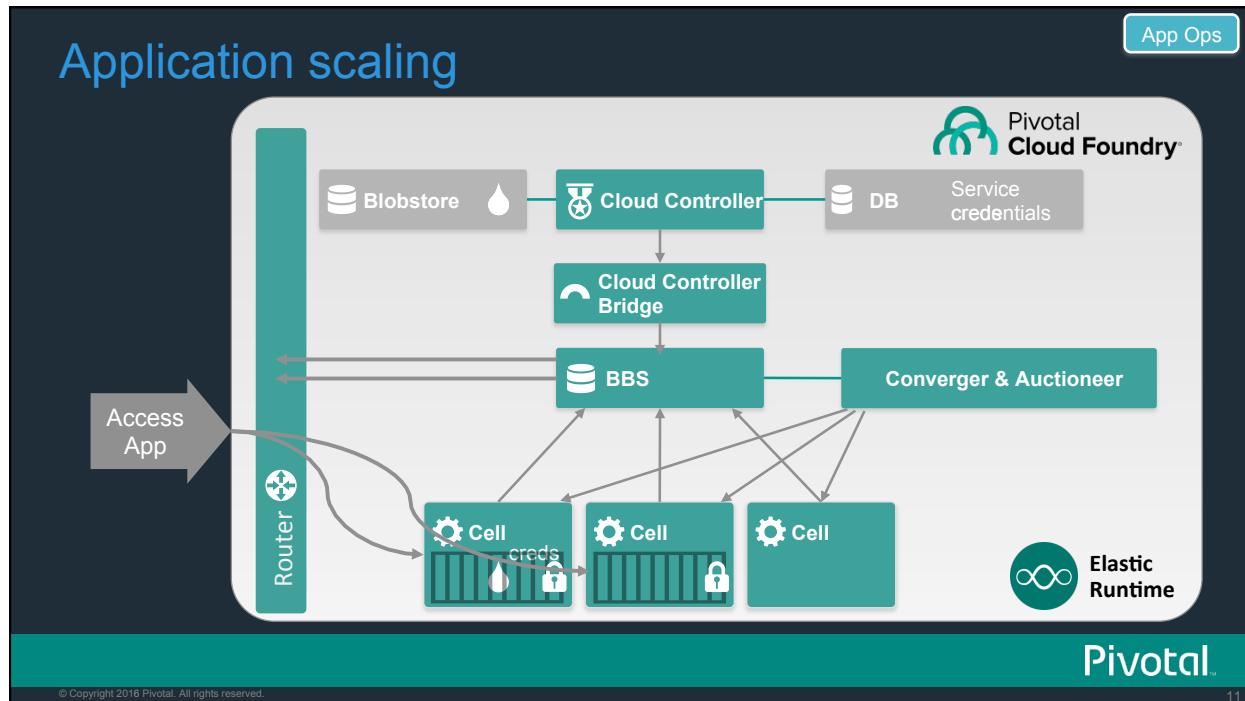
- Buildpacks installed into a Cloud Foundry instance or loaded from an external location at app deployment time
- Buildpacks provided by public Cloud Foundry
 - Java
 - Ruby
 - Node.js
 - Go
 - Python
 - PHP

[Cloud Foundry Community Buildpack](#)

Write your own







Pivotal Cloud Foundry

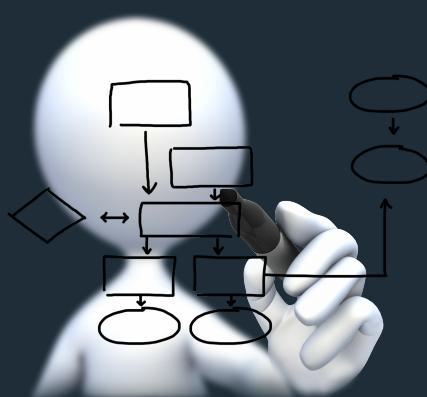
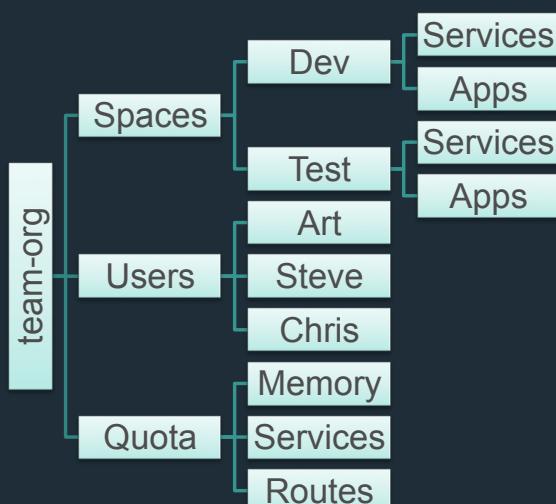
Multi-tenancy

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Orgs, Spaces, Users and Quotas



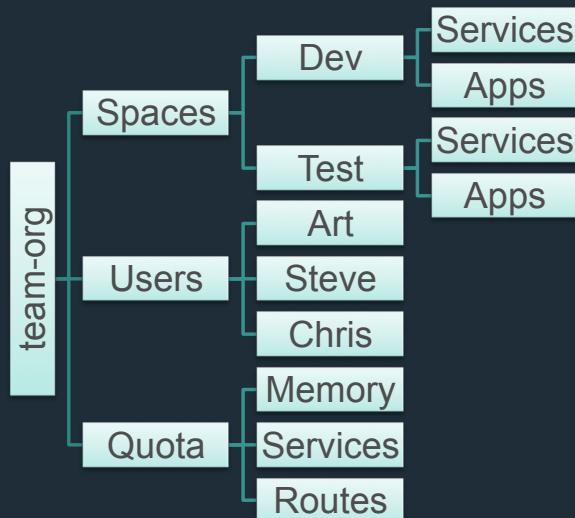
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Organizations

- Logical division within a Pivotal CF install / Foundation.
- Each organization has its own users and assigned quota
- User permissions / roles are specified per space within an organization
- Sub-divided into Spaces



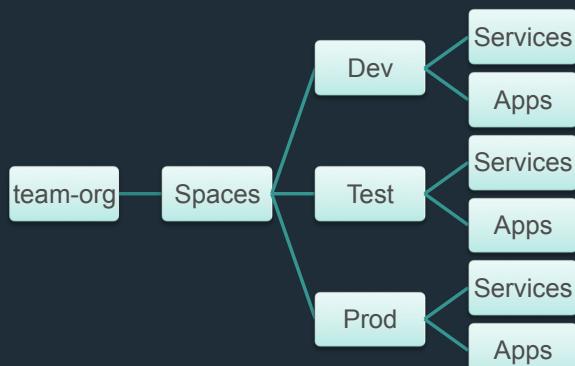
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Spaces

- Logical sub-division within an organization
- Users authorized at an organization level can have different roles per space
- Services and Applications are created / specified per Space
- Same Service can have different meanings per space



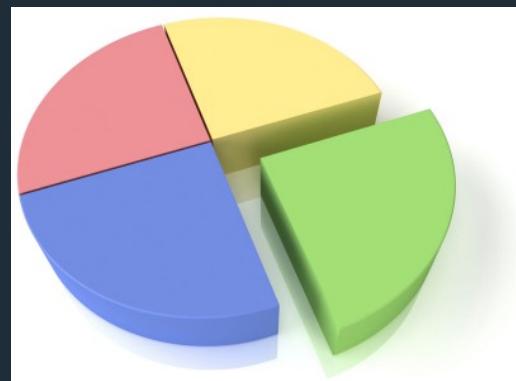
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Quotas and Plans

- Different quota limits (e.g. “small”, “enterprise”, “default”, “runaway”) can be assigned per Organization
- Quota defines
 - Total Memory
 - Total # of Services
 - Total # of Routes



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D E M O



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Cloud Foundry®

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Services

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What is a Service

- Allows resources to be easily provisioned on-demand
- Typically middleware, frameworks, and other “components” necessary for applications
- Can be a persistent, stateful layer



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Two Types of Services



- **Managed**
Fully integrated, with full lifecycle management
- **User-Provided**
Created and managed external to the platform

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Rapid self-service provisioning

Push button deployed service instance

- Bind to apps through easy to use interface
- Easy accessibility through Marketplace
- Common access control and audit trails across the breadth of services

Marketplace

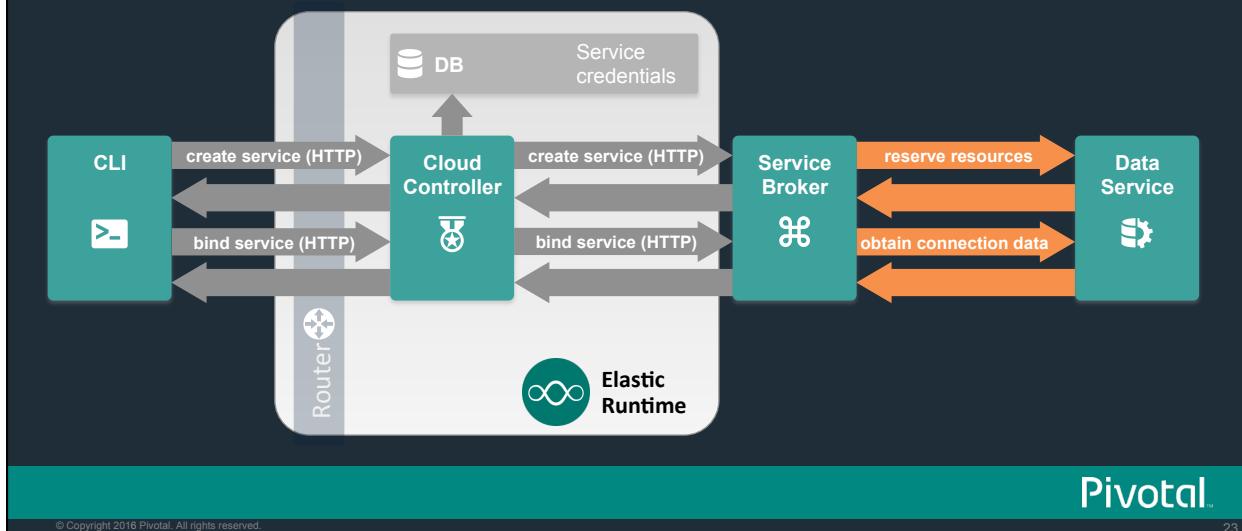


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Creating and Binding a Service



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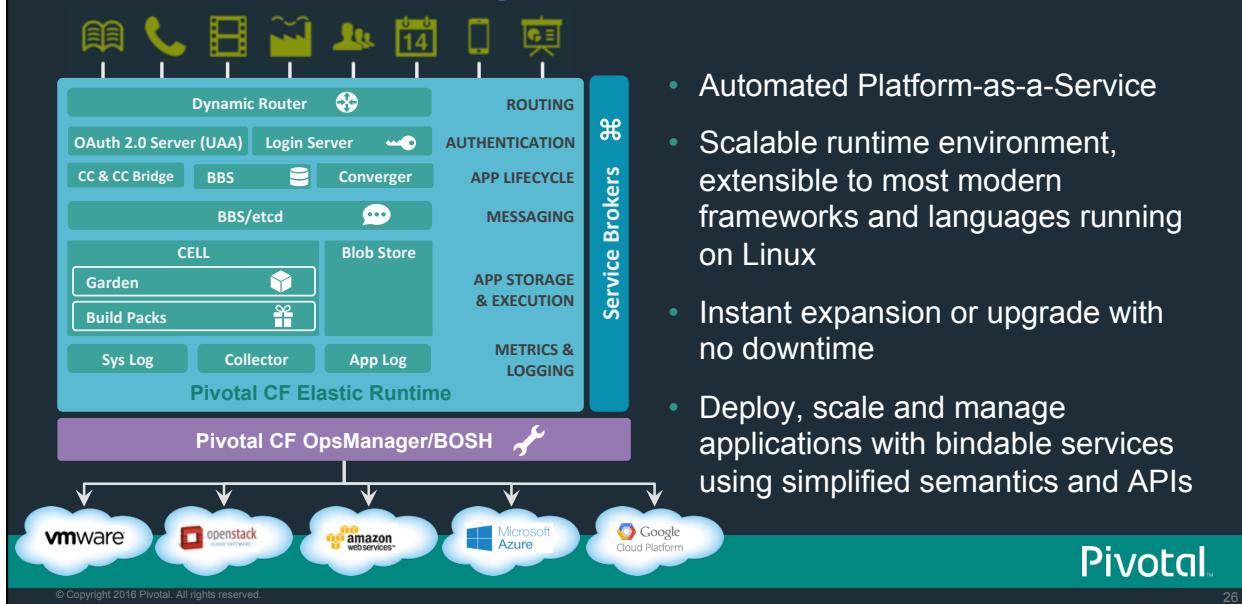
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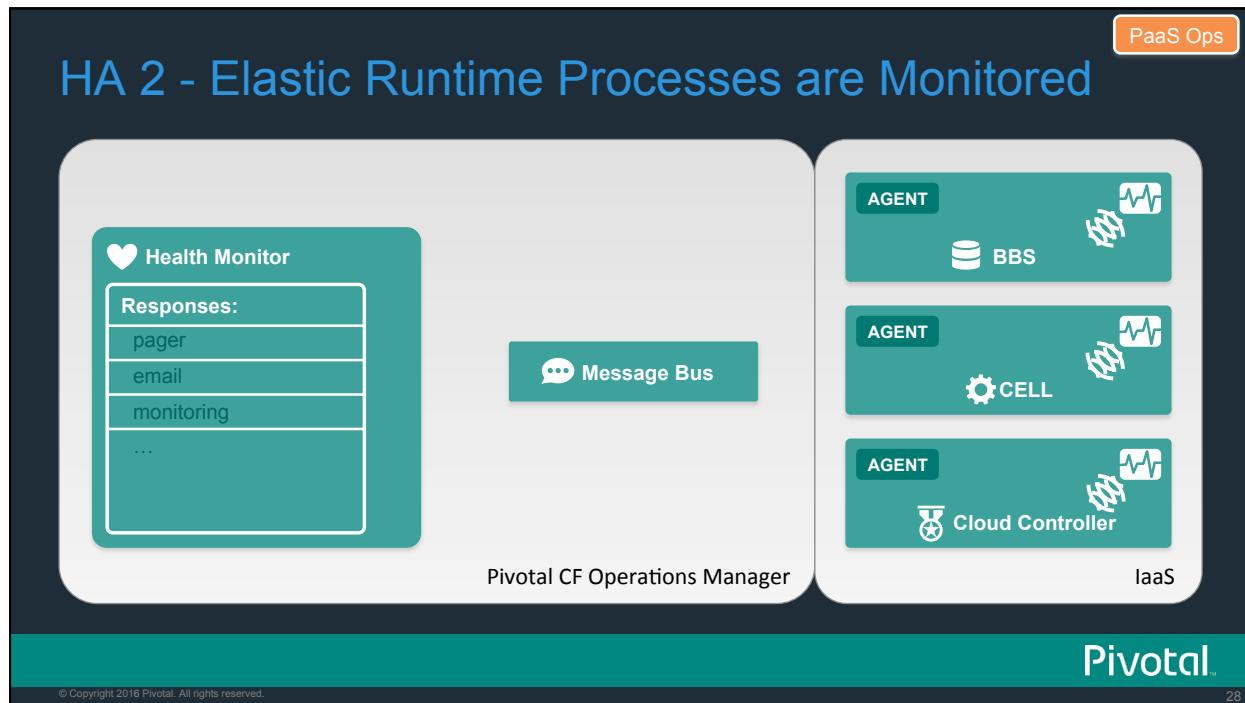
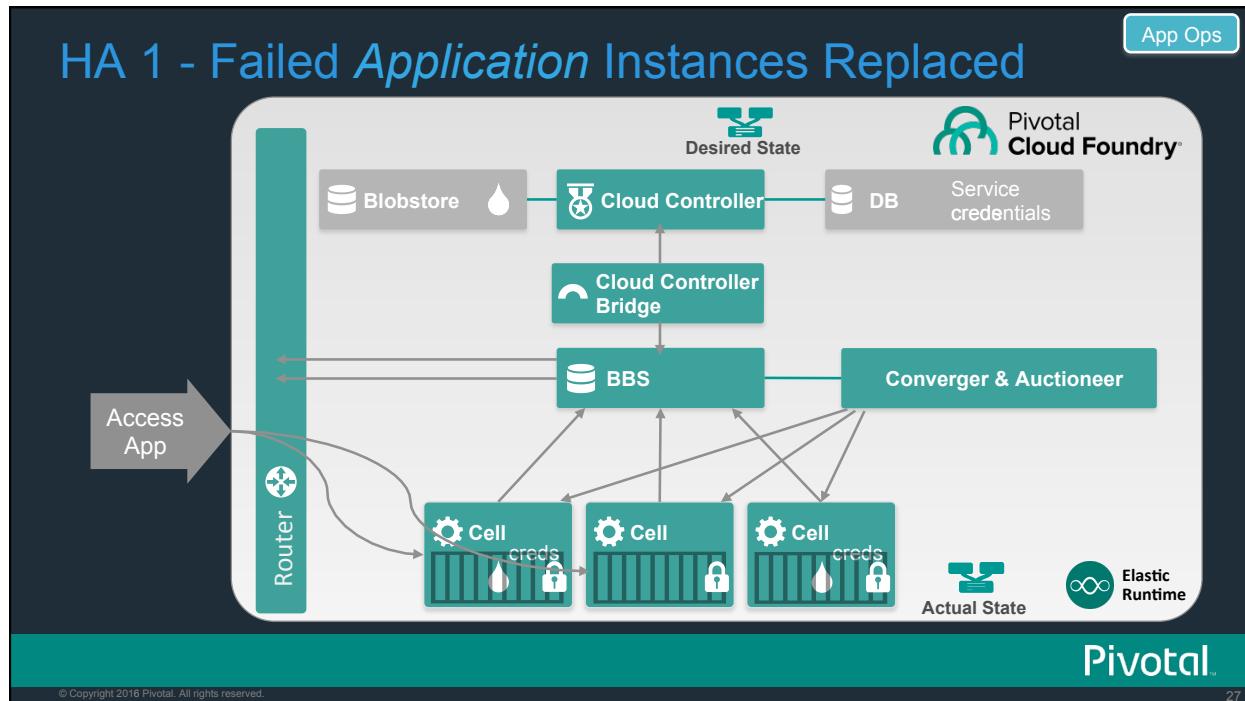
Architecture & 4 Layers of High Availability

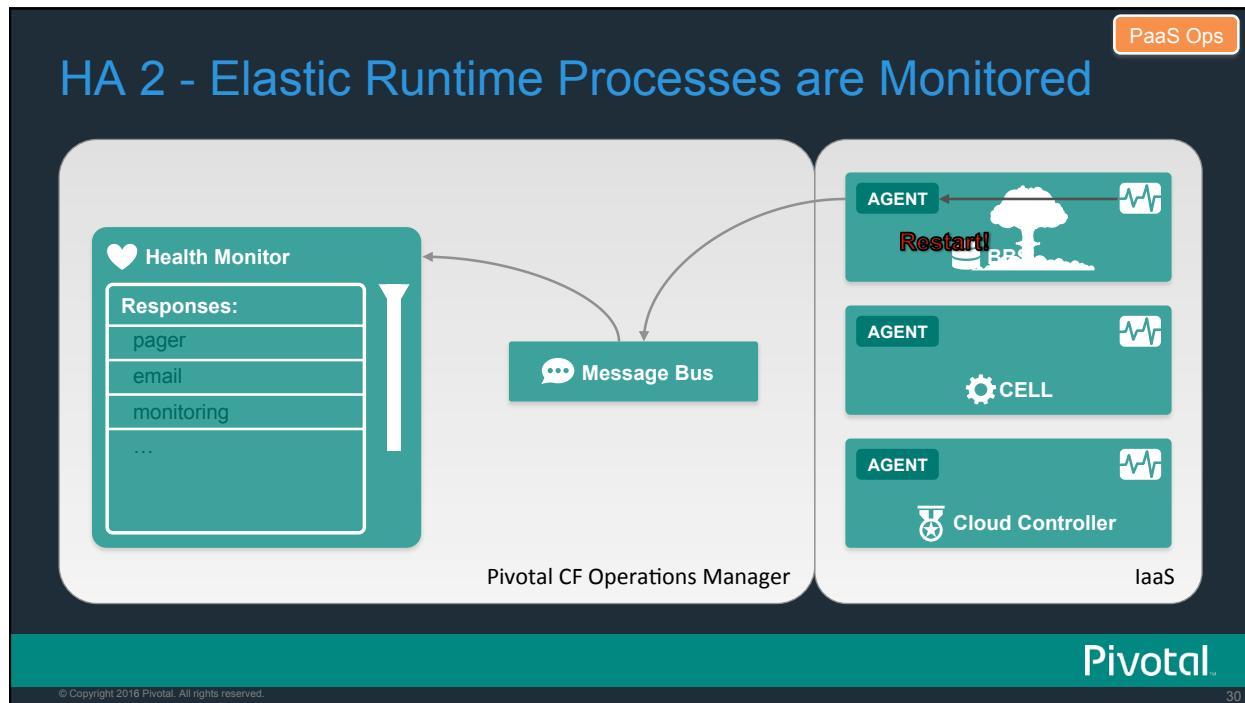
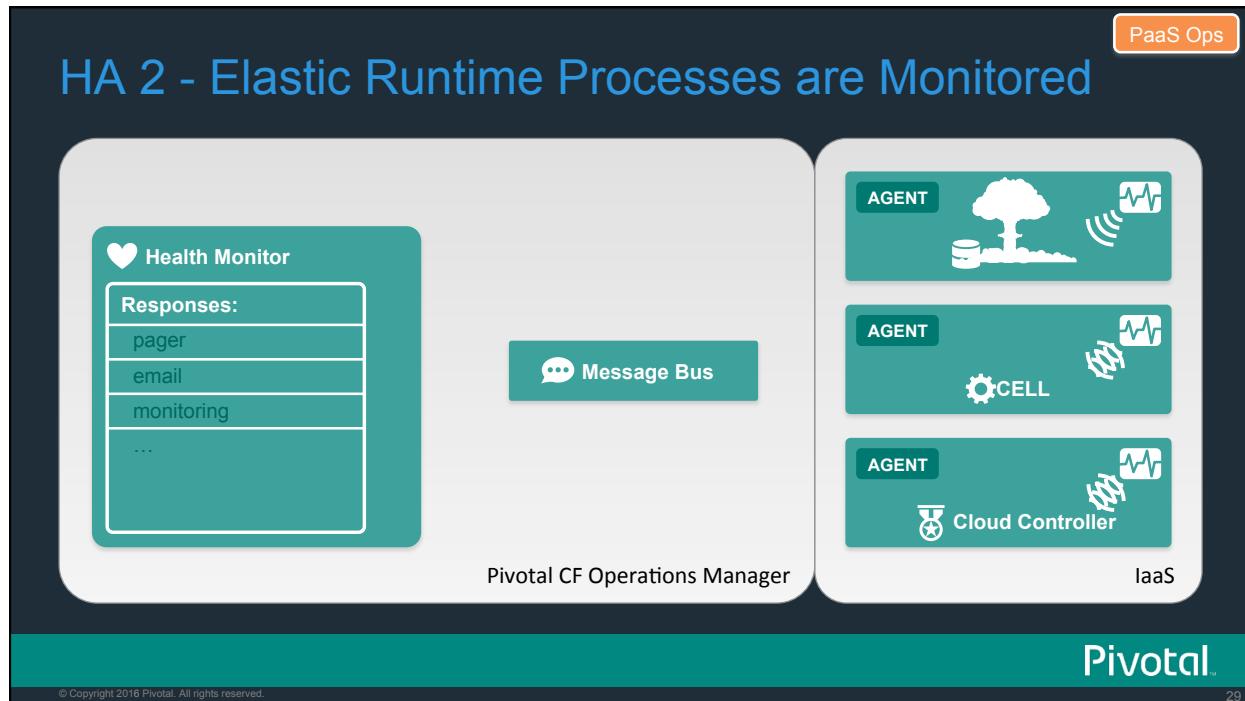
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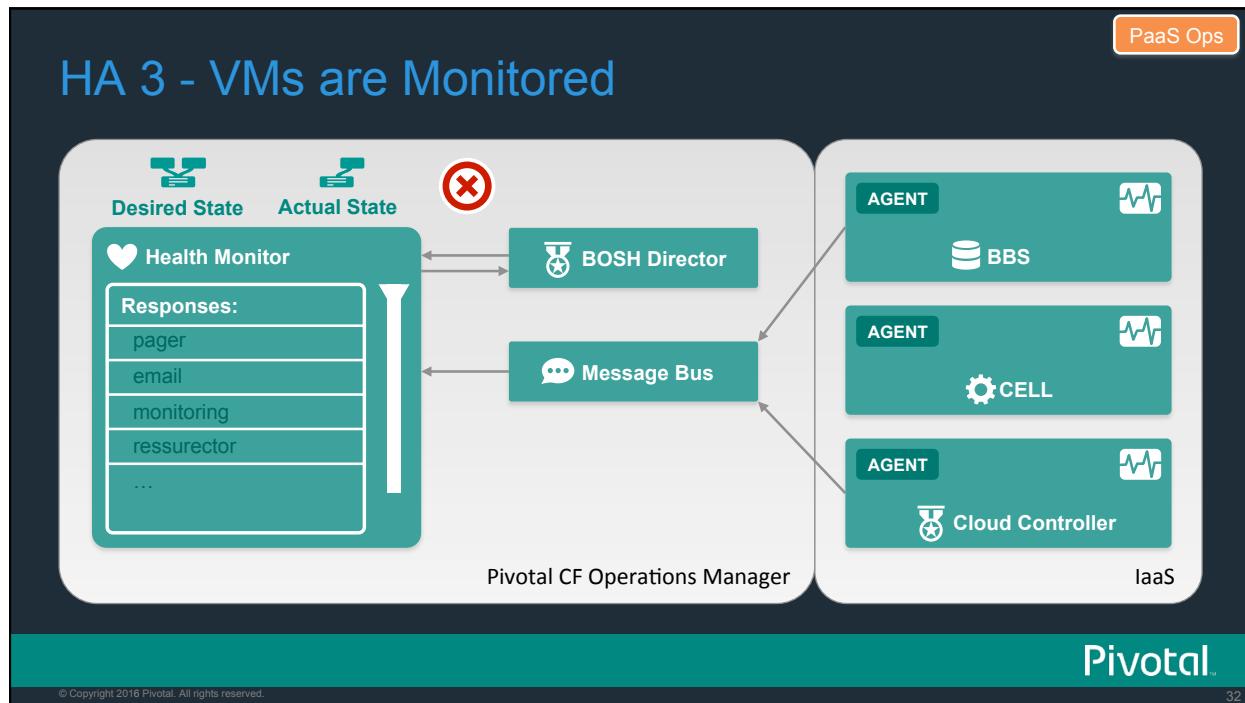
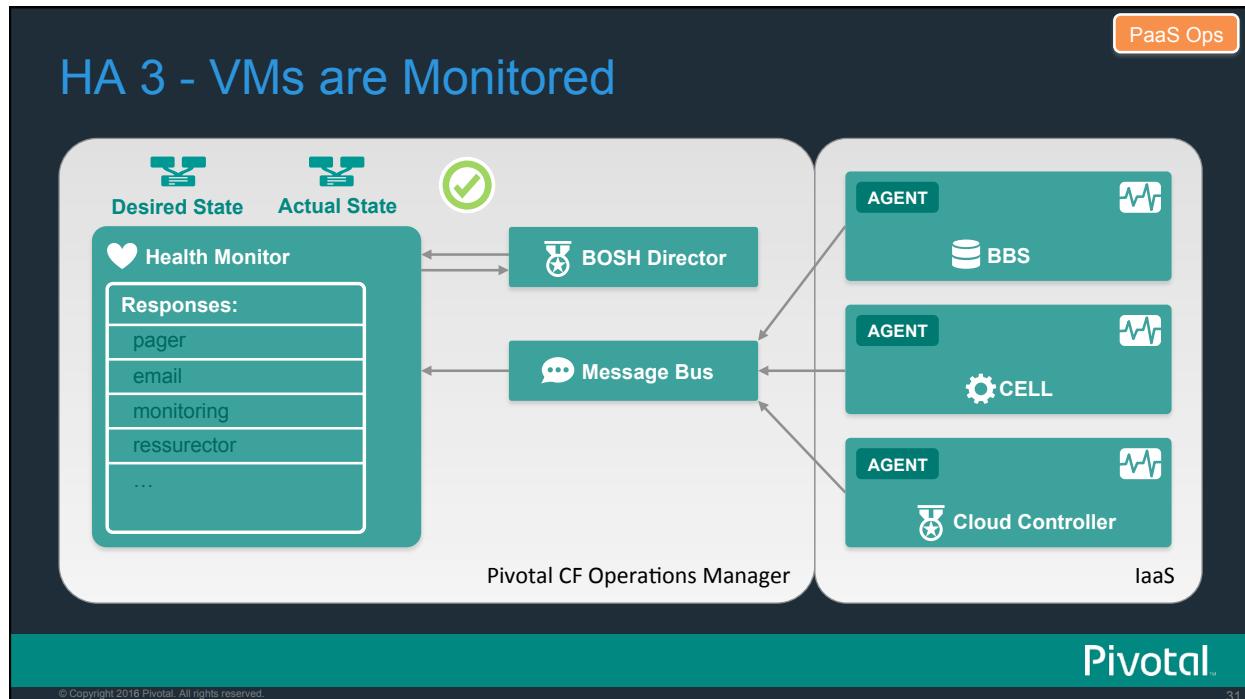
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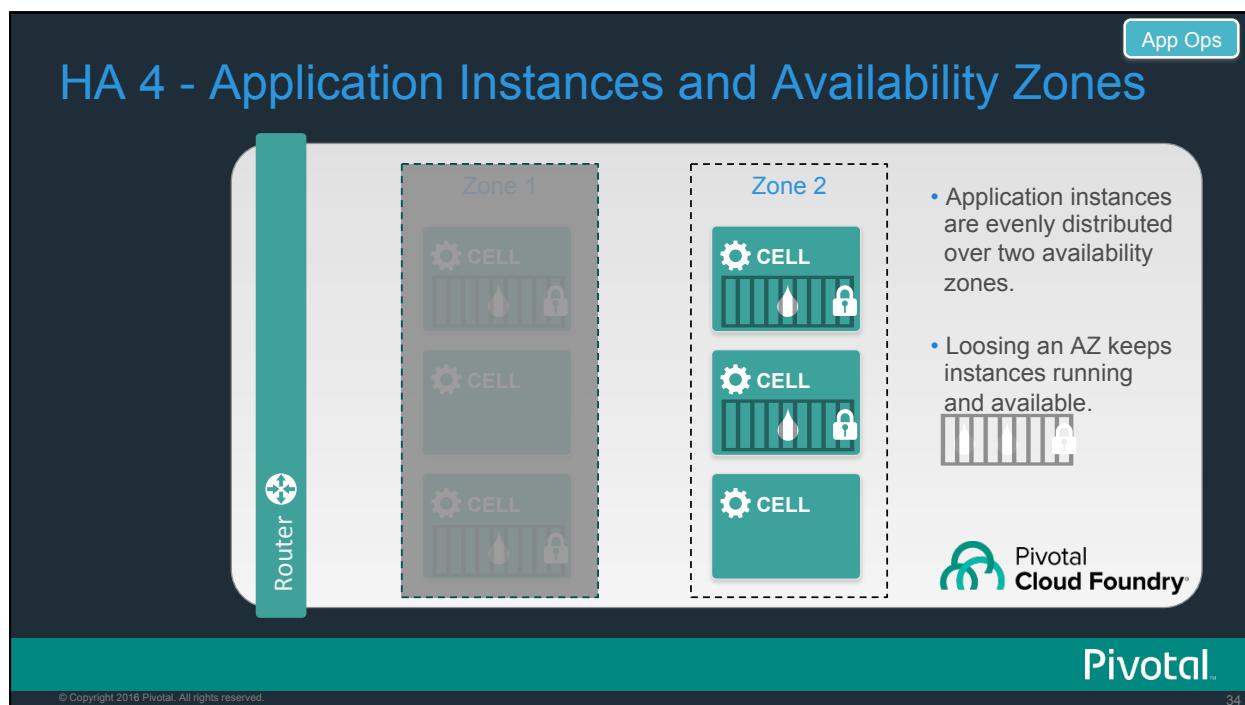
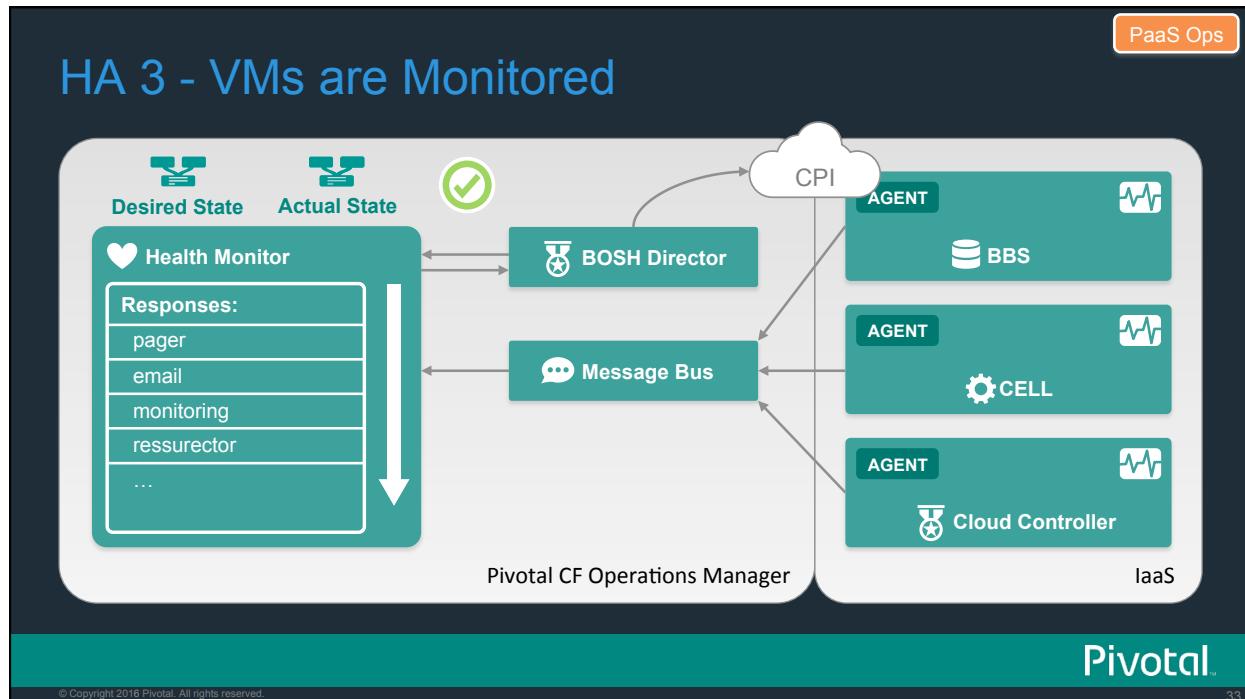
Elastic Runtime – High Level Architecture

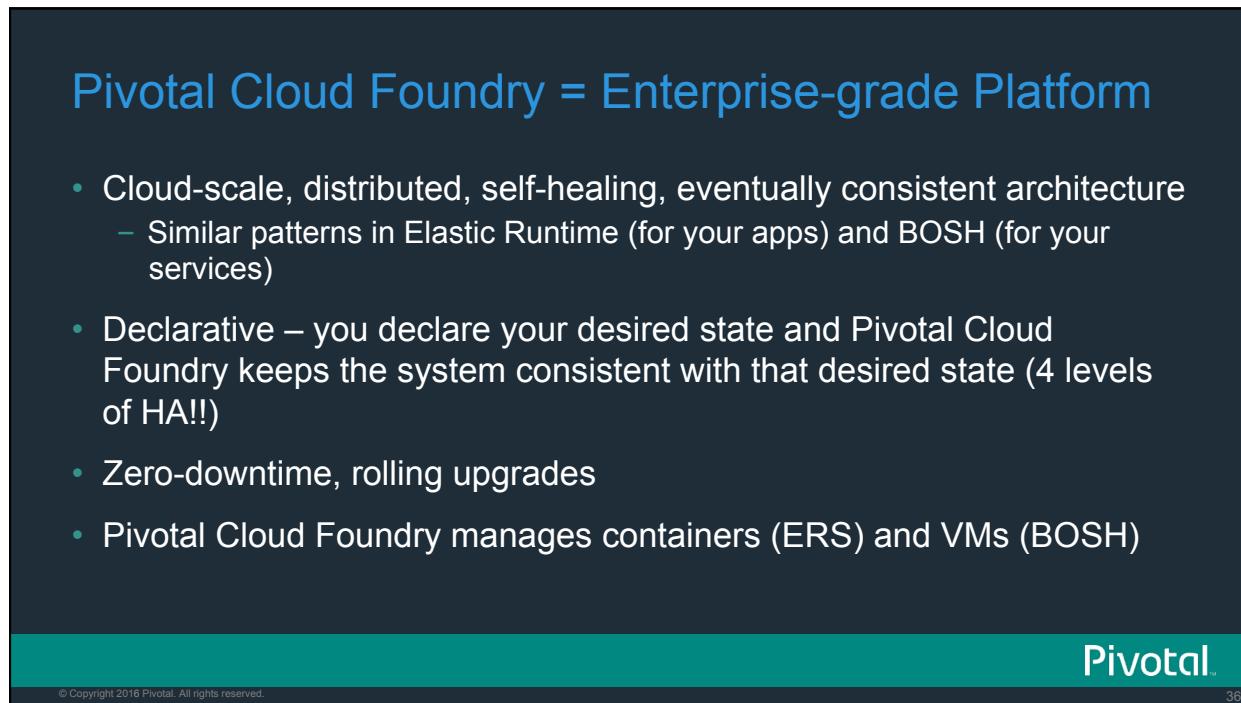
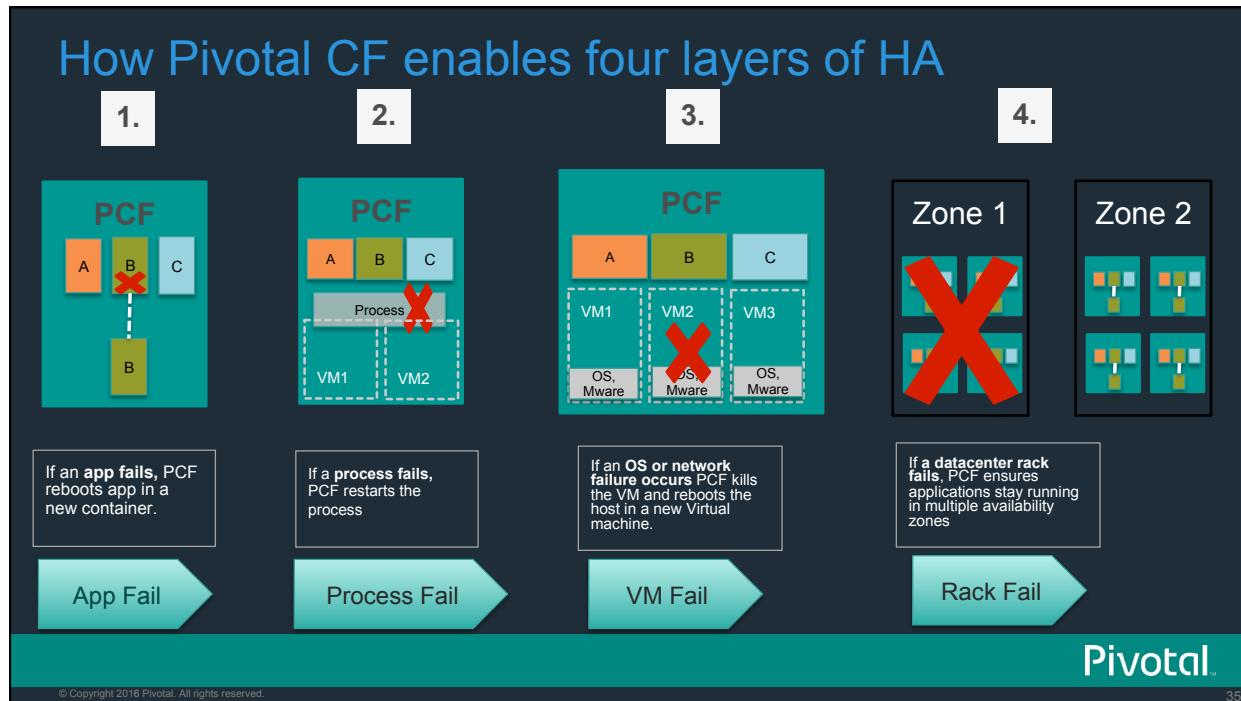














Pivotal Cloud Foundry

Auditing and Logging

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Visibility Through Logs and Metrics

Single source for all platform logs and metrics. Single view console that makes system and application monitoring visible and actionable

- First packet logging
 - Enables tool for external audit controls
- Aggregated Logging
 - HTTP Events, Counters, Gauges, Errors
 - Every `stdout` and `stderr` from all apps and platform components
 - Health gauges
- Snap-in best of breed application monitors
 - AppDynamics, New Relic, Splunk, etc.



Platform Operations Logging

The dashboard displays the following metrics:

- Response Times:** A stacked bar chart showing response times for p50, p75, and p95.
- Requests/sec avg:** A line chart showing average requests per second over time.
- Go routines:** A histogram showing the distribution of Go routines.
- Organizations:** 5
- Spaces:** 11
- Routes:** 25
- Running Applications:** 21
- Application Instances:** 26
- Service Instances:** 13
- Total Container Memory:** 15.9 GiB
- Used disk:** 21.0 GiB

PCF Metrics BETA

Platform Operations Logging Firehose

Overall Platform Health

- Resource Utilization
- Request Volumes / Latency

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Application Operations Logging & Metrics

The dashboard displays the following metrics for the 'attendees' application:

- Configuration:** Instances: 10, Memory Limit: 512 MB, Disk Limit: 512 MB, URL: http://attendees-cb.cfapps.io
- Container Metrics:** CPU: 207.5%, Memory: 74.6%, Disk: 31.5%
- Network Metrics:** Requests: 0, Errors: 0, Latency: 0ms

The right panel shows a log stream for the 'attendees' application with the following entries:

```

2016-10-05T12:51:59+01:00 [RTN/2] OUT attendees-cb.cfapps.io - [05/10/2016:12:51:59-211+0000] "GET /bluegreen-check HTTP/1.1" 200 8 17 "[http://attendees-cb.cfapps.io/basic]"
2016-10-05T12:51:59+01:00 [RTN/4] OUT attendees-cb.cfapps.io - [05/10/2016:12:51:59-211+0000] "GET /bluegreen-check HTTP/1.1" 200 8 17 "[http://attendees-cb.cfapps.io/basic]"
2016-10-05T12:51:59+01:00 [RTN/2] OUT attendees-cb.cfapps.io - [05/10/2016:12:51:59-211+0000] "GET /bluegreen-check HTTP/1.1" 200 8 17 "[http://attendees-cb.cfapps.io/basic]"
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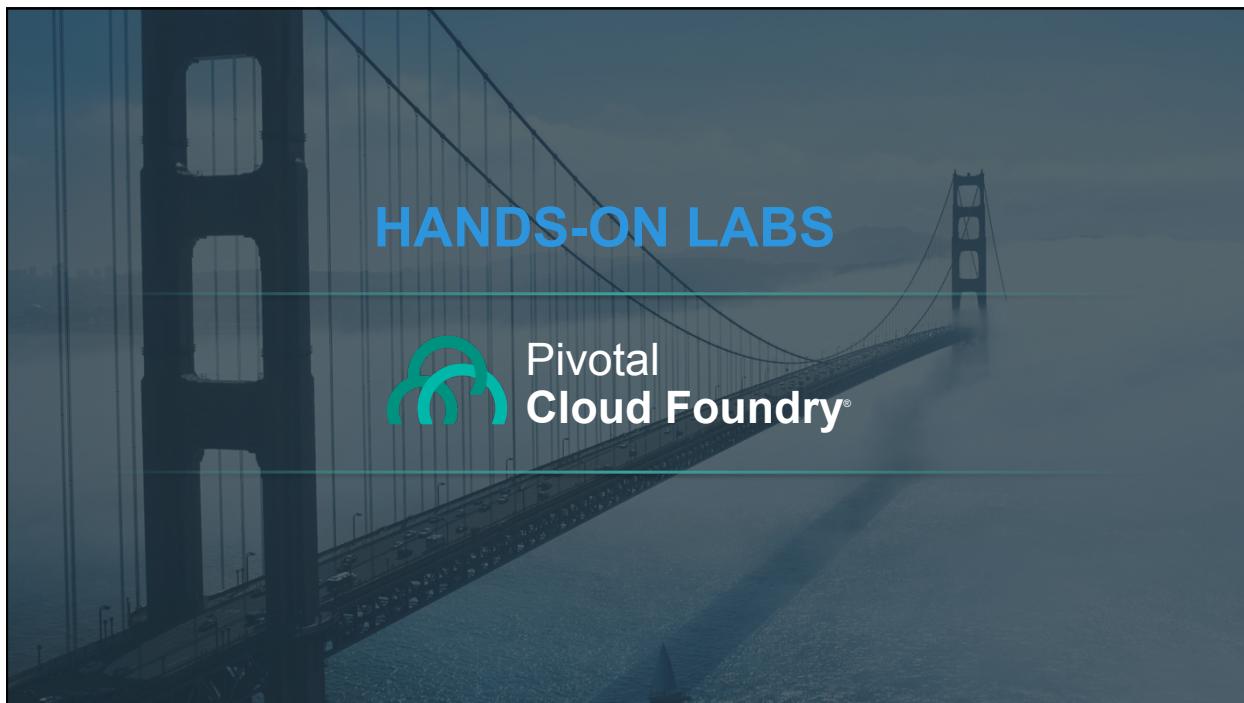
```

PCF Metrics BETA

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- Self-service Application Performance dashboards to monitor applications
- Per-application container and network metrics with associated log-streams with relevant router activity



Hands-on Lab Instructions

- Prerequisites
 - CF CLI installed
 - Git installed
 - git clone <https://github.com/cbusch-pivotal/stl-cloud-native-spring-workshop.git>
 - Download zip and unzip
 - <https://github.com/cbusch-pivotal/stl-cloud-native-spring-workshop/archive/master.zip>
- Lab instructions
 - <https://github.com/cbusch-pivotal/stl-cloud-native-spring-workshop>

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A NEW PLATFORM FOR A NEW ERA