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1. git Repository Clone

Lab 에서 사용할 Git Repository url

<https://github.com/Pivotal-Field-Engineering/pcf-ers-demo.git>

```
$ git clone https://github.com/Pivotal-Field-Engineering/pcf-ers-demo.git
```

```
Cloning into 'pcf-ers-demo'...
remote: Counting objects: 1012, done.
remote: Compressing objects: 100% (22/22), done.
remote: Total 1012 (delta 5), reused 23 (delta 4), pack-reused 981
Receiving objects: 100% (1012/1012), 5.10 MiB | 2.13 MiB/s, done.
Resolving deltas: 100% (341/341), done.
```

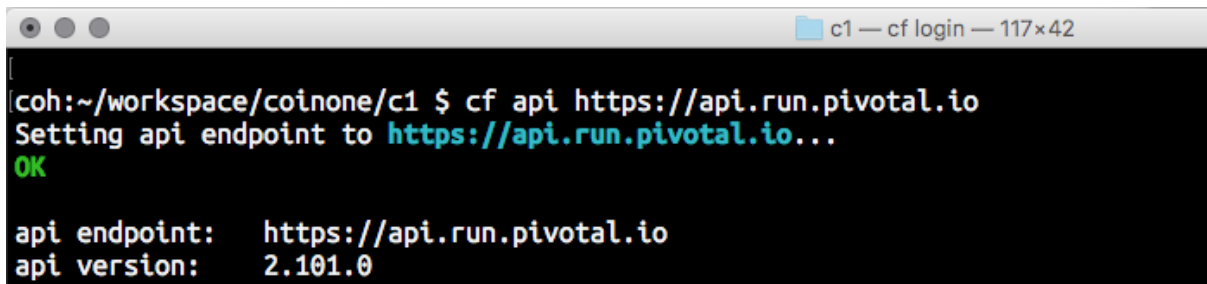
2. 데모 애플리케이션 빌드

```
coh:~/workspace/coinone/pcf-ers-demo $ ./mvnw clean install
[INFO] Scanning for projects...
[INFO]
[INFO] -----
[INFO] Building pcf-ers-demo1 0.0.1-SNAPSHOT
[INFO] -----
[INFO]
[INFO] --- git-commit-id-plugin:2.2.2:revision (default) @ pcf-ers-demo1 ---
[INFO] dotGitDirectory /Users/coh/workspace/coinone/pcf-ers-demo/.git
[INFO] git.build.user.name pivotal-choonghyun-oh
[INFO] git.build.user.email coh@pivotal.io
[INFO] git.branch master
[INFO] --always = true
[INFO] --dirty = -dirty
...
```

3. PWS 에 애플리케이션 배포

3.1. cf api 로 PWS api end-point 설정

```
$ cf api https://api.run.pivotal.io
```

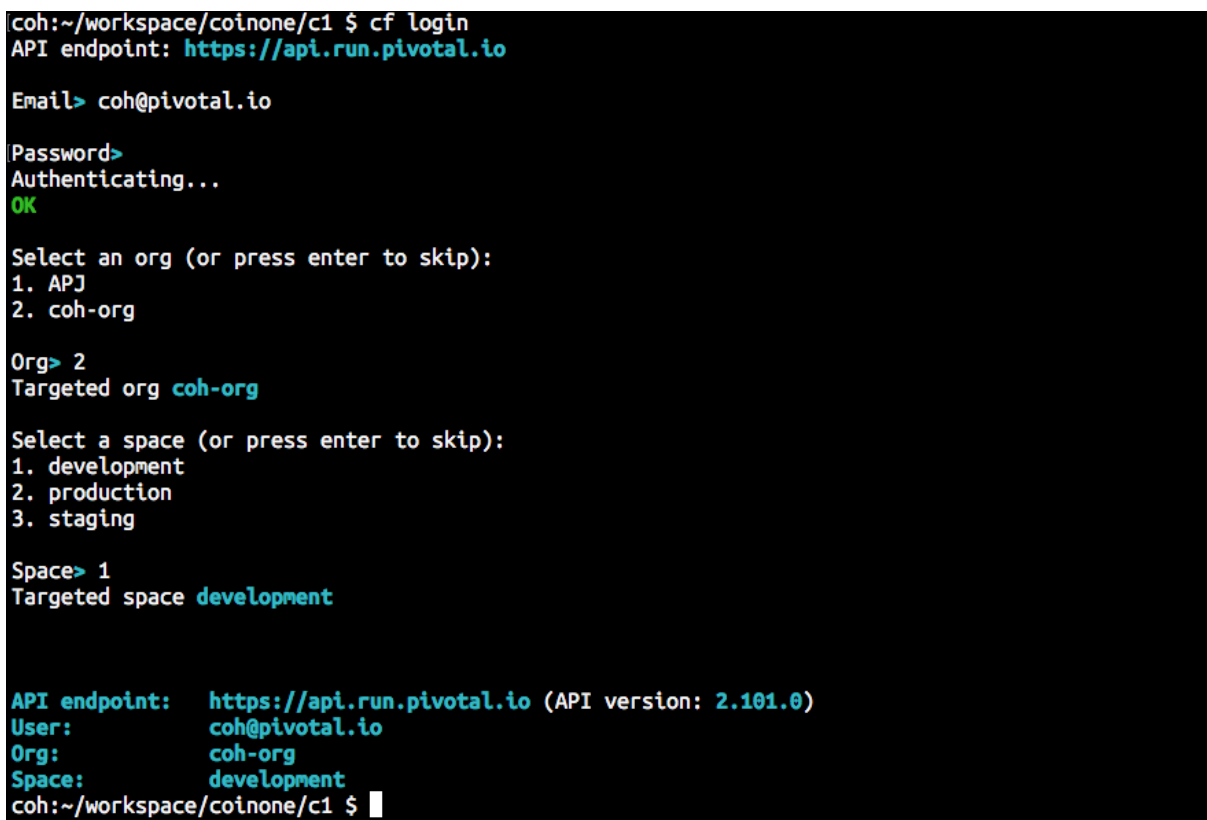


```
c1 — cf login — 117x42  
coh:~/workspace/coinone/c1 $ cf api https://api.run.pivotal.io  
Setting api endpoint to https://api.run.pivotal.io...  
OK  
api endpoint: https://api.run.pivotal.io  
api version: 2.101.0
```

3.2. PWS 계정 로그인

Org 와 Space 는 원하는 곳을 선택

```
$ cf login
```



```
coh:~/workspace/coinone/c1 $ cf login  
API endpoint: https://api.run.pivotal.io  
Email> coh@pivotal.io  
Password>  
Authenticating...  
OK  
Select an org (or press enter to skip):  
1. APJ  
2. coh-org  
Org> 2  
Targeted org coh-org  
Select a space (or press enter to skip):  
1. development  
2. production  
3. staging  
Space> 1  
Targeted space development  
  
API endpoint: https://api.run.pivotal.io (API version: 2.101.0)  
User: coh@pivotal.io  
Org: coh-org  
Space: development  
coh:~/workspace/coinone/c1 $
```

3.3. cf push 로 데모 애플리케이션 배포

- 3.3.1. manifest.yml 에서 애플리케이션 이름 변경(본인 식별 자를 Suffix 붙여 사용)
→ 아래 pws-coh 를 고유한 이름으로 변경

```
---
applications:
  #- name: attendees
  - name: pws-coh
    memory: 768M
    instances: 1
    # random-route: true
    path: target/pcf-ers-demo1-0.0.1-SNAPSHOT.jar
    # buildpack: java_buildpack
    services: []
    env:
      SPRING_PROFILES_ACTIVE: cloud
```

3.3.2. cf push

coh:~/workspace/coinone/pcf-ers-demo \$ cf push

Using manifest file /Users/coh/workspace/coinone/pcf-ers-demo/manifest.yml

Creating app pws-coh in org coh-org / space development as coh@pivotal.io...
OK

Creating route pws-coh.cfapps.io...
OK

Binding pws-coh.cfapps.io to pws-coh...
OK

Uploading pws-coh...
Uploading app files from: /var/folders/z3/kwcd43vn3s71f901r0ny2cvm0000gn/T/unzipped-app616434889
Uploading 679.5K, 143 files
Done uploading
OK

Starting app pws-coh in org coh-org / space development as coh@pivotal.io...

Downloading binary_buildpack...
Successfully created container
Downloading staticfile_buildpack...
Downloading java_buildpack...
Downloading go_buildpack...
Downloading dotnet_core_buildpack...
Downloaded go_buildpack
Downloading ruby_buildpack...
Downloaded dotnet_core_buildpack
Downloading python_buildpack...
Downloaded java_buildpack
Downloading dotnet_core_buildpack_beta...
Downloaded python_buildpack
Downloading php_buildpack...
Downloaded staticfile_buildpack
Downloading nodejs_buildpack...
Downloaded dotnet_core_buildpack_beta
Downloaded ruby_buildpack
Downloaded nodejs_buildpack

```
Downloaded binary_buildpack
Downloaded php_buildpack
Creating container
Downloading app package...
Downloaded app package (34.4M)
----> Java Buildpack v4.5 (offline) | https://github.com/cloudfoundry/java-buildpack.git#ffefb9
----> Downloading Jvmkill Agent 1.10.0_RELEASE from https://java-buildpack.cloudfoundry.org/jvmkill/trusty/x86_64/jvmkill-1.10.0_RELEASE.so (found in cache)
----> Downloading Open Jdk JRE 1.8.0_141 from https://java-buildpack.cloudfoundry.org/openjdk/trusty/x86_64/openjdk-1.8.0_141.tar.gz (found in cache)
    Expanding Open Jdk JRE to .java-buildpack/open_jdk_jre (1.3s)
----> Downloading Open JDK Like Memory Calculator 3.9.0_RELEASE from https://java-buildpack.cloudfoundry.org/memory-calculator/trusty/x86_64/memory-calculator-3.9.0_RELEASE.tar.gz (found in cache)
    Loaded Classes: 17708, Threads: 300
----> Downloading Client Certificate Mapper 1.2.0_RELEASE from https://java-buildpack.cloudfoundry.org/client-certificate-mapper/client-certificate-mapper-1.2.0_RELEASE.jar (found in cache)
----> Downloading Container Security Provider 1.8.0_RELEASE from https://java-buildpack.cloudfoundry.org/container-security-provider/container-security-provider-1.8.0_RELEASE.jar (found in cache)
----> Downloading Spring Auto Reconfiguration 1.12.0_RELEASE from https://java-buildpack.cloudfoundry.org/auto-reconfiguration/auto-reconfiguration-1.12.0_RELEASE.jar (found in cache)
Exit status 0
Uploading droplet, build artifacts cache...
Uploading build artifacts cache...
Uploading droplet...
Uploaded build artifacts cache (129B)
Uploaded droplet (80.7M)
Uploading complete
Stopping instance 883dff0-7d9c-4b0b-ac5d-bfacf6f2d735
Destroying container
Successfully destroyed container

0 of 1 instances running, 1 starting
0 of 1 instances running, 1 starting
1 of 1 instances running

App started

OK

App pws-coh was started using this command `JAVA_OPTS="-agentpath:$PWD/.java-buildpack/open_jdk_jre/bin/jvmkill-1.10.0_RELEASE=printHeapHistogram=1 -Djava.io.tmpdir=$TMPDIR -Djava.ext.dirs=$PWD/.java-buildpack/container_security_provider:$PWD/.java-buildpack/open_jdk_jre/lib/ext -Djava.security.properties=$PWD/.java-buildpack/security_providers/java.security $JAVA_OPTS" && CALCULATED_MEMORY=$(( $PWD/.java-buildpack/open_jdk_jre/bin/java-buildpack-memory-calculator-3.9.0_RELEASE -totMemory=$MEMORY_LIMIT -stackThreads=300 -loadedClasses=18417 -poolType=metaspace -vmOptions="$JAVA_OPTS" ) && echo JVM Memory Configuration: $CALCULATED_MEMORY && JAVA_OPTS="$JAVA_OPTS $CALCULATED_MEMORY" && SERVER_PORT=$PORT eval exec $PWD/.java-buildpack/open_jdk_jre/bin/java $JAVA_OPTS -cp $PWD/. org.springframework.boot.loader.JarLauncher`

Showing health and status for app pws-coh in org coh-org / space development as coh@pivotal.io...
OK

requested state: started
instances: 1/1
usage: 768M x 1 instances
urls: pws-coh.cfapps.io
last uploaded: Wed Jan 17 16:20:27 UTC 2018
stack: cflinuxfs2
buildpack: client-certificate-mapper=1.2.0_RELEASE container-security-provider=1.8.0_RELEASE java-buildpack=v4.5-offline-https://github.com/cloudfoundry/java-buildpack.git#ffefb9 java-main java-opts jvmkill-agent=1.10.0_RELEASE open-jdk-like-jre=1.8.0_1...

state   since           cpu    memory    disk      details
#0  running  2018-01-18 01:21:46 AM  121.0%  272.3M of 768M  162.2M of 1G
```

3.3.3. 데모 애플리케이션 확인

PWS 에 배포한 App url 확인

The screenshot shows a web browser window with the address bar displaying `pws-coh.cfapps.io`. The browser tabs include "To-Read-PaaS", "PCF Training - Inside...", "Installation Dashboarc", "Spring Engineering", "CLOUDFOUNDRY", "Inside PaaS Support", and "scan". The application header is blue with the Cloud Foundry logo and navigation links: "Cloud Foundry Basic Demo", "Scale & HA", "Services", "Blue Green", and "SpringBoot".

Welcome to the Cloud Foundry Basic Demo!

The purpose of this application is to demonstrate some basic capabilities of the Pivotal Cloud Foundry Platform, in particular the Pivotal Elastic Runtime Service which is the core component responsible for running the application workloads as containers.

Application Components and Architecture

Currently the application is one deployment with the UI and backend packaged inside the same artifact - Spring Boot jar. However, logically the UI/client is completely separate from the backend services.

```
graph LR
    subgraph client
        UI["UI  
(thymeleaf / bootstrap /  
Spring Boot, MVC and Cloud  
Connectors)"]
        Model
        Service["Service  
(Feign / Ribbon)"]
    end
    subgraph microservice
        attendees["attendees  
(spring boot, Data, Cloud  
Connectors)"]
    end
    client -- "REST (http/soap)" --> attendees
```

How to use this Application

Each menu item above links to a page that helps demonstrate a set of capabilities. The last item, Spring Boot, highlights the Spring Framework

Application Environment Information

Application Name: pws-coh
Instance Index: 0
Container Address: 10.246.166.244:8080
Cell Address: 10.10.149.155:61069
Java Version: 1.8.0_141

Services

None

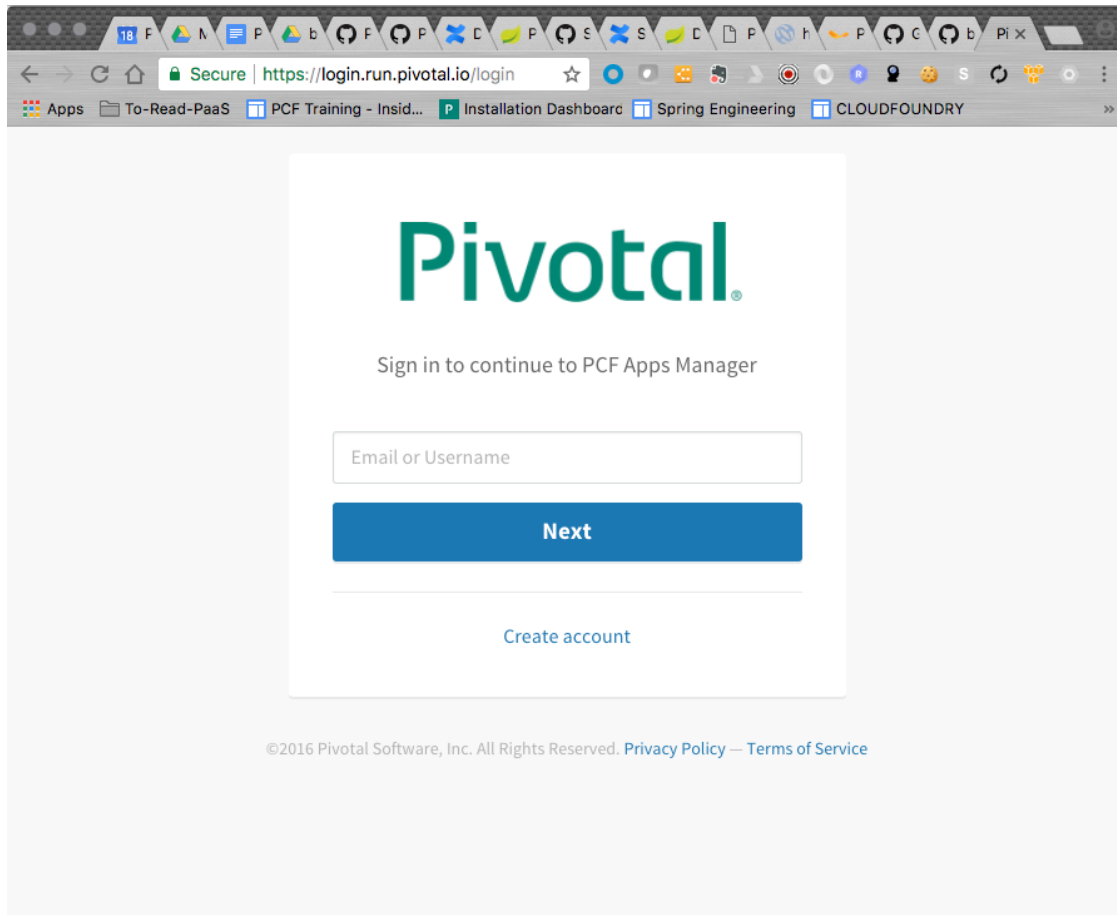
1. Description

2. Demonstrations

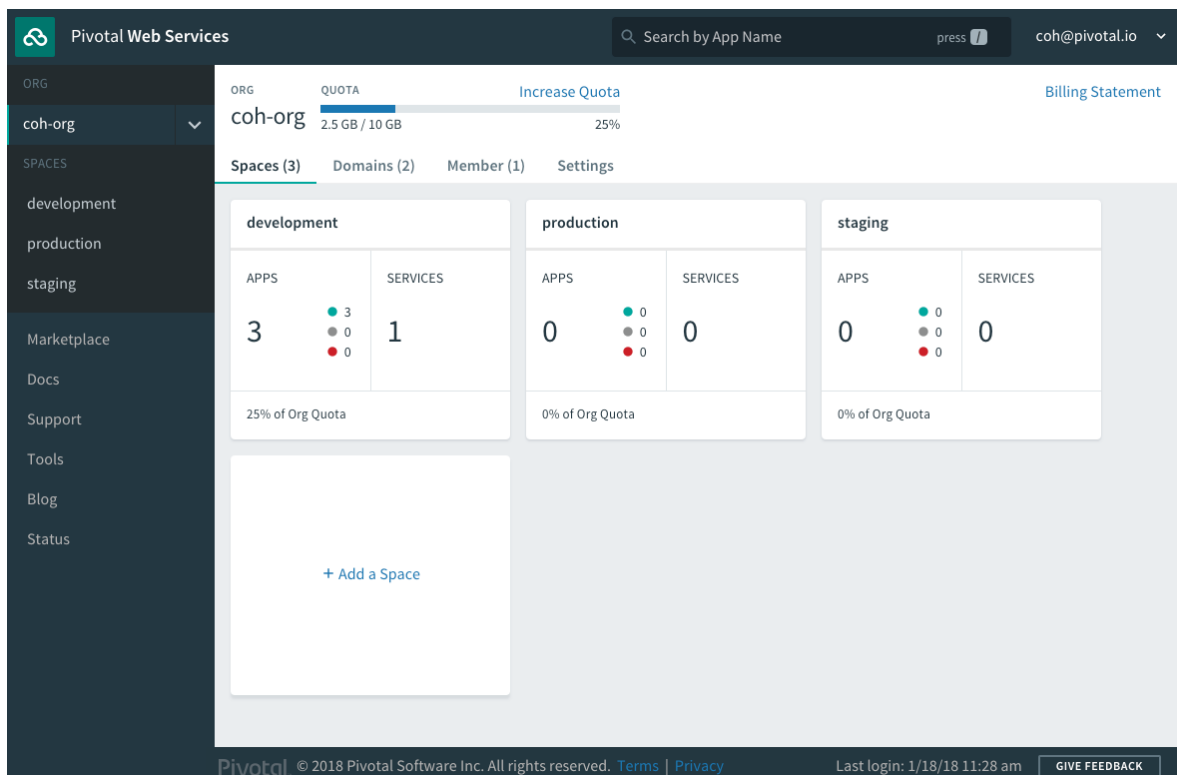
4. PWS Apps Manager 둘러보기

URL: <https://console.run.pivotal.io>

ID/PW: 본인 등록 이메일/암호



로그인 후 초기 화면



ORG

- 개인 또는 복수의 협업자가 소유하고 사용할 수 있는 개발 공간
- org 에 할당된 리소스, 애플리케이션을 공유하고 관리
- 사용자 그룹을 구성하는 논리적인 단위
- 일반적으로 회사, 부서, 애플리케이션 제품, 프로젝트 단위로 구성
- 복수 개 spaces를 가질 수 있음

SPACE

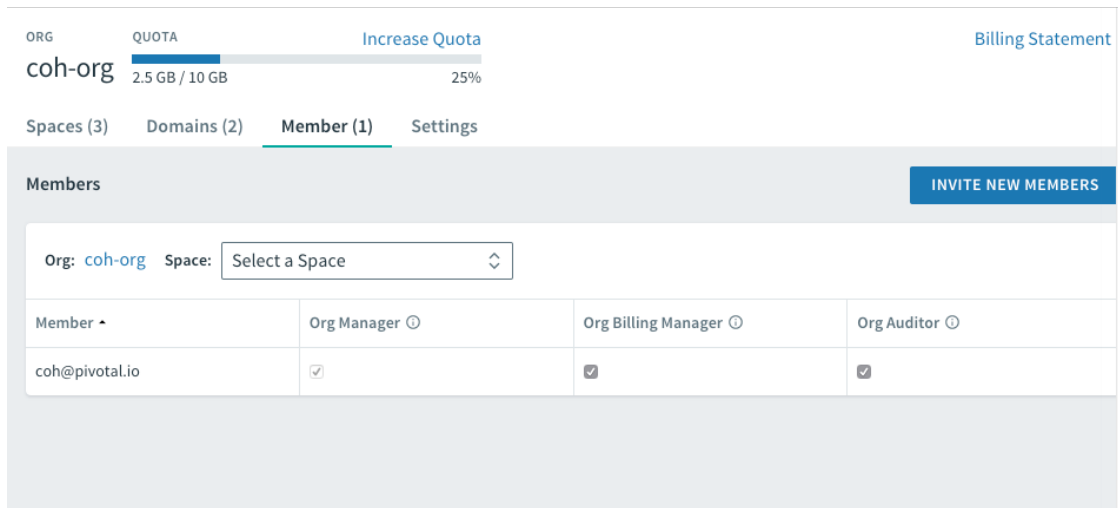
- 모든 앱과 서비스는 space 에 소속됨, org 는 최소 한개의 space 를 가져야 함
- 앱 개발, 배포, 관리를 위한 공간을 제공
- ORG 하위에서 사용자와 리소스를 구성하는 단위
- 일반적으로 development, staging, production 과 같이 구분
- 애플리케이션과 서비스는 스페이스로 구분하여 관리

Roles and permission

- 사용자는 한 개 이상의 Role 을 가질 수 있음

ORG Roles:

Org Manager, Org Billing Manager, Org Auditor



The screenshot shows the 'coh-org' management page. At the top, there's a 'QUOTA' section with a progress bar showing '2.5 GB / 10 GB' (25%) and a link to 'Increase Quota'. A 'Billing Statement' link is on the right. Below this are tabs for 'Spaces (3)', 'Domains (2)', 'Member (1)', and 'Settings'. The 'Member (1)' tab is active, showing a 'Members' section with an 'INVITE NEW MEMBERS' button. Below the button is a form to select an 'Org' (coh-org) and a 'Space' (Select a Space). A table lists members with checkboxes for assigning roles: Org Manager, Org Billing Manager, and Org Auditor.

| Member | Org Manager | Org Billing Manager | Org Auditor |
|----------------|-------------------------------------|-------------------------------------|-------------------------------------|
| coh@pivotal.io | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Space Roles:

Space Manager, Space Developer, Space Auditor

ORG **coh-org** QUOTA 2.5 GB / 10 GB 25% [Increase Quota](#) [Billing Statement](#)

Spaces (3) Domains (2) **Member (1)** Settings

Members [INVITE NEW MEMBERS](#)

Org: coh-org Space: development

| Member | Space Manager | Space Developer | Space Auditor |
|----------------|-------------------------------------|-------------------------------------|-------------------------------------|
| coh@pivotal.io | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

Apps Manager 둘러보기

Pivotal Web Services [press](#) coh@pivotal.io

ORG coh-org

SPACES development production staging **Marketplace** Docs Support Tools Blog Status

SPACE development RUNNING 3 STOPPED 0 CRASHED 0

1 Apps (3) **2** Service (1) **3** Routes (8) **4** Member (1) **5** Settings

Apps

| Status | Name | Instances | Memory | Last Push | Route |
|---------|-----------------|-----------|--------|--------------|---|
| Running | c1-coh 6 | 1 | 1 GB | 16 hours ago | https://c1-coh.cfapps.io |
| Running | pcf-coh | 1 | 768 MB | a day ago | https://pcf-coh.cfapps.io |
| Running | pws-coh | 1 | 768 MB | 11 hours ago | https://pws-coh.cfapps.io |

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5. Scale out / Scale up

App Manager 에서 App 을 선택하고 Instance 개수를 2 개로 변경 후, “Scale App”을 클릭하여 인스턴스를 2 개로 **Scale out**.

“Instances” 테이블에 App Health 가 “Up”으로 변경될 때까지 대기

The screenshot displays the Pivotal Cloud Foundry App Manager interface for an application named 'pws-coh'. The application is currently in a 'Starting' state. The 'Scaling' section shows the 'Instances' count set to 2, with 'Memory Limit' at 768 MB and 'Disk Limit' at 1 GB. The 'Autoscaling' toggle is turned off. A red box highlights the 'Instances' input field, and another red box highlights the 'SCALE APP' button. Red arrows point from the 'Instances' field to the 'SCALE APP' button. The 'Events' section on the left shows a log of actions: 'Scaled app instances to 2' at 03:28:54 AM UTC, 'Started app' at 04:20:41 PM UTC, and 'Updated app' at 04:20:19 PM UTC. Below the scaling controls, the 'Instances' table is visible, showing two instances. The first instance (ID 0) has an 'APP HEALTH' of 'Up' and is running. The second instance (ID 1) is in a 'STARTING...' state. A red box highlights the 'Instances' table.

APP pws-coh [Stop] [Refresh] ● Starting [VIEW APP](#)

Git: 8e06d02 [View](#)
Buildpack: N/A

Overview Services Route (1) Logs Tasks Trace Threads Settings

Events Last Push: 12:28 PM 01/18/18

Scaling

Instances Memory Limit Disk Limit

☐ Autoscaling [CANCEL](#) [SCALE APP](#)

Instances [View in PCF Metrics](#)

| # | APP HEALTH | CPU | Memory | Disk | Uptime | |
|-----|-------------|-----|-----------|-----------|-------------|---|
| > 0 | ↑ Up | 14% | 269.71 MB | 162.19 MB | 11 hr 7 min | ⋮ |
| > 1 | STARTING... | | | | | |

“Start Load Test”를 클릭하여 두개의 instance 가 서비스 제공하는지 확인

Cloud Foundry Basic Demo

Scale & HA

Services

Blue Green

SpringBoot

Scale & High Availability

Ok, you have the application running. Now let's understand some of the basic capabilities you get to every application in PCF.

Attention! Before clicking on *kill* you may want to ensure you have at least 2 application instances (HA) configured. Otherwise be ready to wait a minute or so until PCF auto-recovers the application.

The application instance and container showed is not the one necessarily being killed (unless you have one instance, of course). PCF will load balance the request, however, we designed the application to return with the application information prior to terminating itself.

Start Load Test

Write File

Refresh

Kill

Application Environment Information

1. Description

Pivotal Cloud Foundry Elastic Runtime is the core platform service responsible for running application as containers. The services runs applications written in different languages and frameworks. The container runtime engine provides container image construction, load distribution, access management, high availability, health monitoring among many other services. [Learn more.](#)

PCF Elastic Runtime, as a distribute system, is composed of many microservices that work together to provide platform capabilities.

In the diagram above we have depicted some core component of the PCF Elastic

App instance 2 개로 Traffic 이 분산되어 처리하는지 확인

→ 확인 후 “Stop Load Test” 클릭하여 중지

Cloud Foundry Basic Demo

Scale & HA

Services

Blue Green

SpringBoot

Scale & High Availability

Ok, you have the application running. Now let's understand some of the basic capabilities you get to every application in PCF.

Load Distribution

pws-coh-0 - 54.54545454545454%

pws-coh-1 - 45.45454545454545%

Attention! Before clicking on *kill* you may want to ensure you have at least 2 application instances (HA) configured. Otherwise be ready to wait a minute or so until PCF auto-recovers the application.

The application instance and container showed is not the one necessarily being killed (unless you have one instance, of course). PCF will load balance the request, however, we designed the application to return with the application information prior to terminating itself.

Stop Load Test

Write File

Refresh

Kill

Application Environment Information

Application Name: pws-coh

Instance Index: 0

Container Address: 10.246.166.244:8080

Cell Address: 10.10.149.155:61069

Java Version: 1.8.0_141

Services

None

1. Description

2. Demonstrations

App Manager 에서 App instance 1 개로 Scale-in

The screenshot shows the Pivotal Cloud Foundry App Manager interface for the application 'pws-coh'. The 'Scaling' tab is active, displaying the current number of instances as 1. The 'Memory Limit' is set to 768 MB and the 'Disk Limit' is set to 1 GB. The 'Autoscaling' toggle is turned off. A red box highlights the 'Instances' input field, and another red box highlights the 'SCALE APP' button. Red arrows point from these boxes to the 'Instances' input field in the table below. The table shows the current instance status: 0 instances are running, and 1 instance is starting. The instance details table shows the following data:

| # | APP HEALTH | CPU | Memory | Disk | Uptime |
|-----|------------|-----|-----------|-----------|--------------|
| > 0 | ↑ Up | 0% | 266.64 MB | 162.19 MB | 11 hr 19 min |

cf CLI 를 사용하여 App instance Scale Up

Disk 와 Memory 를 변경할 수 있으며, 변경 시 Application 재 시작 필요

\$ cf scale -m 1G pws-coh

This will cause the app to restart. Are you sure you want to scale pws-coh?> y

Scaling app pws-coh in org coh-org / space development as coh@pivotal.io...

OK

Stopping app pws-coh in org coh-org / space development as coh@pivotal.io...

OK

Starting app pws-coh in org coh-org / space development as coh@pivotal.io...

0 of 1 instances running, 1 starting

1 of 1 instances running

App started

OK

App pws-coh was started using this command `JAVA_OPTS="-agentpath:\$PWD/.java-buildpack/open_jdk_jre/bin/jvmskill-1.10.0_RELEASE=printHeapHistogram=1 -Djava.io.tmpdir=\$TMPDIR -Djava.ext.dirs=\$PWD/.java-buildpack/container_security_provider:\$PWD/.java-buildpack/open_jdk_jre/lib/ext -Djava.security.properties=\$PWD/.java-buildpack/security_providers/java.security \$JAVA_OPTS" && CALCULATED_MEMORY=\$(\$PWD/.java-buildpack/open_jdk_jre/bin/java-buildpack-memory-calculator-3.9.0_RELEASE -totMemory=\$MEMORY_LIMIT -stackThreads=300 -loadedClasses=18417 -poolType=metaspace -vmOptions="\$JAVA_OPTS") && echo JVM Memory Configuration: \$CALCULATED_MEMORY && JAVA_OPTS="\$JAVA_OPTS \$CALCULATED_MEMORY" && SERVER_PORT=\$PORT eval exec \$PWD/.java-buildpack/open_jdk_jre/bin/java \$JAVA_OPTS -cp \$PWD/. org.springframework.boot.loader.JarLauncher`

Showing health and status for app pws-coh in org coh-org / space development as coh@pivotal.io...

OK

requested state: started

instances: 1/1

usage: 1G x 1 instances

urls: pws-coh.cfapps.io

last uploaded: Wed Jan 17 16:20:27 UTC 2018

stack: cflinuxfs2

buildpack: client-certificate-mapper=1.2.0_RELEASE container-security-provider=1.8.0_RELEASE java-buildpack=v4.5-offline-https://github.com/cloudfoundry/java-buildpack.git#ffeefb9 java-main java-opts jvmkill-agent=1.10.0_RELEASE open-jdk-like-jre=1.8.0_1...

| | state | since | cpu | memory | disk | details |
|----|---------|------------------------|--------|--------------|--------------|---------|
| #0 | running | 2018-01-18 12:44:14 PM | 105.6% | 378.5M of 1G | 162.2M of 1G | |

6. Application Container 에 ssh 접속하기

Application Debugging/Troubleshooting 시 ssh 로 애플리케이션 컨테이너에 접속하여 file system 또는 process 를 확인

\$ cf apps

Getting apps in org coh-org / space development as coh@pivotal.io...

OK

| name | requested state | instances | memory | disk | urls |
|---------|-----------------|-----------|--------|------|-------------------|
| c1-coh | started | 1/1 | 1G | 1G | c1-coh.cfapps.io |
| pcf-coh | started | 1/1 | 768M | 1G | pcf-coh.cfapps.io |
| pws-coh | started | 1/1 | 1G | 1G | pws-coh.cfapps.io |

\$ cf ssh pws-coh

vcap@55eb4baa-c522-4332-6c85-fd9b:~\$

vcap@55eb4baa-c522-4332-6c85-fd9b:~\$

vcap@55eb4baa-c522-4332-6c85-fd9b:~\$

vcap@55eb4baa-c522-4332-6c85-fd9b:~\$

vcap@55eb4baa-c522-4332-6c85-fd9b:~\$ pwd

/home/vcap

vcap@55eb4baa-c522-4332-6c85-fd9b:~\$

vcap@55eb4baa-c522-4332-6c85-fd9b:~\$ ps -e f

| PID | TTY | STAT | TIME | COMMAND |
|-----|-----|------|------|---------|
|-----|-----|------|------|---------|

| | | | | |
|-----|---|------|------|--|
| 101 | ? | S<sl | 0:00 | /etc/cf-assets/healthcheck/healthcheck -port=8080 -timeout=1000ms -liveness-interval=30s |
|-----|---|------|------|--|

| | | | | |
|----|---|------|------|--|
| 20 | ? | S<sl | 0:00 | /tmp/lifecycle/diego-sshd --allowedKeyExchanges= --address=0.0.0.0:2222 -- |
|----|---|------|------|--|

allowUnauthenticatedClients=false --inheritDaemonEnv

| | | | | |
|-----|-------|-----|------|--------------|
| 255 | pts/0 | S<s | 0:00 | _ /bin/bash |
|-----|-------|-----|------|--------------|

| | | | | |
|-----|-------|-----|------|------------|
| 279 | pts/0 | R<+ | 0:00 | _ ps -e f |
|-----|-------|-----|------|------------|

| | | | | |
|----|---|------|------|---|
| 19 | ? | S<sl | 1:08 | /home/vcap/app/.java-buildpack/open_jdk_jre/bin/java -agentpath:/home/vcap/app/.java- |
|----|---|------|------|---|

buildpack/open_jdk_jre/bin/jvmkill-1.10.0

| | | | | |
|---|---|------|------|---------------------------------------|
| 1 | ? | S<sl | 0:00 | /var/vcap/packages/runc/bin/runc init |
|---|---|------|------|---------------------------------------|

vcap@55eb4baa-c522-4332-6c85-fd9b:~\$

Container file system에 파일 만들기

화면에서 “Write File”을 클릭하면, container의 /home/vcap/app/ers-ssh-demo.log 파일이 생성된다. 이 파일은 App Container가 재 시작하면 사라진다.

Scale & High Availability

Ok, you have the application running. Now let's understand some of the basic capabilities you get to every application in PCF.

Wrote/updated file `/home/vcap/app/ers-ssh-demo.log`. SSH into the container to see.

Attention! Before clicking on `kill` you may want to ensure you have at least 2 application instances (HA) configured. Otherwise be ready to wait a minute or so until PCF auto-recovers the application.

The application instance and container showed is not the one necessarily being killed (unless you have one instance, of course). PCF will load balance the request, however, we designed the application to return with the application information prior to terminating itself.

Start Load Test

Write File

Refresh

Kill

Application Environment Information

Application Name: pws-coh

Instance Index: 0

Container Address: 10.241.235.216:8080

Cell Address: 10.10.149.8:61045

Java Version: 1.8.0_141

Services

None

1. Description

2. Demonstrations

Provided to you by Pivotal!

```
vcap@55eb4baa-c522-4332-6c85-fd9b:~/app$ ls -la
total 4
drwxr-xr-x 1 vcap root  96 Jan 18 04:03 .
drwxr-xr-x 1 vcap vcap 93 Jan 17 16:20 ..
drwxr-xr-x 4 vcap vcap 32 Jan 17 16:20 BOOT-INF
-rw-r--r-- 1 vcap vcap 18 Jan 18 04:03 ers-ssh-demo.log
drwxr-xr-x 7 vcap vcap 155 Jan 17 16:20 .java-buildpack
drwxr-xr-x 3 vcap vcap 30 Jan 17 16:20 META-INF
drwxr-xr-x 3 vcap vcap 29 Jan 17 16:20 org
vcap@55eb4baa-c522-4332-6c85-fd9b:~/app$
```

App 재 시작 후 파일 시스템 확인

```
$ cf restart pws-coh
```

Stopping app pws-coh in org coh-org / space development as coh@pivotal.io...

OK

Starting app pws-coh in org coh-org / space development as coh@pivotal.io...

0 of 1 instances running, 1 starting

1 of 1 instances running

App started

OK

Showing health and status for app pws-coh in org coh-org / space development as coh@pivotal.io...

OK

requested state: started

instances: 1/1

usage: 1G x 1 instances
urls: pws-coh.cfapps.io
last uploaded: Wed Jan 17 16:20:27 UTC 2018
stack: cflinuxfs2
buildpack: client-certificate-mapper=1.2.0_RELEASE container-security-provider=1.8.0_RELEASE java-buildpack=v4.5-offline-https://github.com/cloudfoundry/java-buildpack.git#ffeefb9 java-main java-opts jvmkill-agent=1.10.0_RELEASE open-jdk-like-jre=1.8.0_1...

| | state | since | cpu | memory | disk | details |
|----|---------|------------------------|--------|--------------|--------------|---------|
| #0 | running | 2018-01-18 01:08:43 PM | 167.5% | 374.3M of 1G | 162.2M of 1G | |

\$ cf ssh pws-coh

vcap@e52ef119-60f0-404f-598b-2a1e:~\$

vcap@e52ef119-60f0-404f-598b-2a1e:~\$ cd app

vcap@e52ef119-60f0-404f-598b-2a1e:~/app\$ ls -la

total 0

drwxr-xr-x 1 vcap root 72 Jan 17 16:20 .

drwx----- 1 vcap vcap 93 Jan 17 16:20 ..

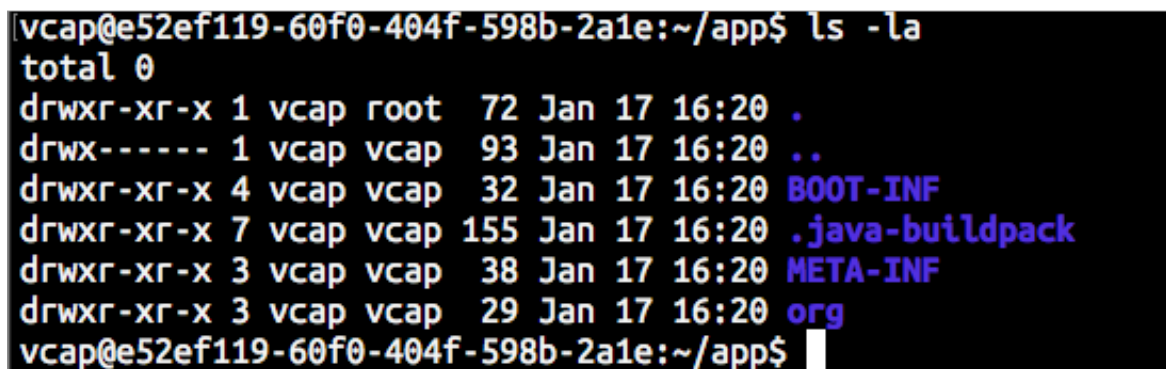
drwxr-xr-x 4 vcap vcap 32 Jan 17 16:20 BOOT-INF

drwxr-xr-x 7 vcap vcap 155 Jan 17 16:20 .java-buildpack

drwxr-xr-x 3 vcap vcap 38 Jan 17 16:20 META-INF

drwxr-xr-x 3 vcap vcap 29 Jan 17 16:20 org

App container 파일 시스템에 작성한 파일은 영속성 없음



```
vcap@e52ef119-60f0-404f-598b-2a1e:~/app$ ls -la
total 0
drwxr-xr-x 1 vcap root 72 Jan 17 16:20 .
drwx----- 1 vcap vcap 93 Jan 17 16:20 ..
drwxr-xr-x 4 vcap vcap 32 Jan 17 16:20 BOOT-INF
drwxr-xr-x 7 vcap vcap 155 Jan 17 16:20 .java-buildpack
drwxr-xr-x 3 vcap vcap 38 Jan 17 16:20 META-INF
drwxr-xr-x 3 vcap vcap 29 Jan 17 16:20 org
vcap@e52ef119-60f0-404f-598b-2a1e:~/app$
```

7. High Availability

PCF 는 4-Level High Availability 를 제공하며 그 중 Application Container 가 crash 되었을 때 즉시 재 시작하는 기능 확인

App 인스턴스 2개로 Scale Out

“Instances” 테이블에 App Health 가 “Up”으로 변경될 때까지 대기

APP pws-coh Starting

VIEW APP

Git: 8e06d02 Buildpack: N/A

Overview Services Route (1) Logs Tasks Trace Threads Settings

Events Last Push: 12:28 PM 01/18/18

Scaling

Instances: 2

Memory Limit: 768 MB

Disk Limit: 1 GB

Autoscaling

SCALE APP

Instances

| # | APP HEALTH | CPU | Memory | Disk | Uptime |
|-----|-------------|-----|-----------|-----------|-------------|
| > 0 | Up | 14% | 269.71 MB | 162.19 MB | 11 hr 7 min |
| > 1 | STARTING... | | | | |

애플리케이션 화면에서 “Kill”을 클릭하여 App Instance 강제 종료

Cloud Foundry Basic Demo **Scale & HA** Services Blue Green SpringBoot ▾

Scale & High Availability

Ok, you have the application running. Now let's understand some of the basic capabilities you get to every application in PCF.

Attention! Before clicking on *kill* you may want to ensure you have at least 2 application instances (HA) configured. Otherwise be ready to wait a minute or so until PCF auto-recovers the application.

The application instance and container showed is not the one necessarily being killed (unless you have one instance, of course). PCF will load balance the request, however, we designed the application to return with the application information prior to terminating itself.

Start Load Test Write File Refresh **Kill**

Application Environment Information

Application Name: pws-coh
Instance Index: 1
Container Address: 10.247.63.234:8080
Cell Address: 10.10.148.110:61000
Java Version: 1.8.0_141

Services

None

1. Description

2. Demonstrations

Provided to you by Pivotal

Kill 클릭 후 Browser 를 Refresh 해서 1 개의 다른 인스턴스로 서비스가 되는지 확인

Apps Manager 또는 cf CLI 로 강제 종료된 App instance 가 재 시작되는지 확인

APP pws-coh [Stop] [Refresh] [Start] Starting

Overview Services Route (1) Logs Tasks Trace Threads Settings

VIEW APP [Link]

Git: 8e06d02 [Link] Buildpack: N/A

Last Push: 01:29 PM 01/18/18

Events

- App crashed** 01/18/2018 at 05:57:52 AM UTC
- Scaled app instances to 2 coh@pivotal.io 01/18/2018 at 04:29:03 AM UTC
- Started app coh@pivotal.io 01/18/2018 at 04:08:12 AM UTC
- Stopped app coh@pivotal.io 01/18/2018 at 04:08:08 AM UTC
- Started app coh@pivotal.io 01/18/2018 at 03:43:43 AM UTC
- Stopped app coh@pivotal.io 01/18/2018 at 03:43:36 AM UTC
- Scaled app memory to 1024MB coh@pivotal.io 01/18/2018 at 03:43:35 AM UTC

Scaling

Instances: 2 Memory Limit: 1 GB Disk Limit: 1 GB

☐ Autoscaling

Instances

| # | APP HEALTH | CPU | Memory | Disk | Uptime |
|-----|-------------|-----|----------|-----------|--------|
| > 0 | STARTING... | | | | |
| > 1 | ↑ Up | 2% | 386.7 MB | 162.19 MB | 25 min |

View in PCF Metrics [Link]

8. Service Binding

- 애플리케이션에서 사용하는 Backend Service(DB, QUEUE, ...)는 Bind(Attach)하여 사용
- Application 소스 또는 Properties가 아닌 환경변수로 접속 정보 및 Credential을 전달 받아 사용

App Instance가 2개 이상일 때, in-memory db에 데이터를 적재하는 경우 접속한 App Instance에 따라 다른 결과를 전달

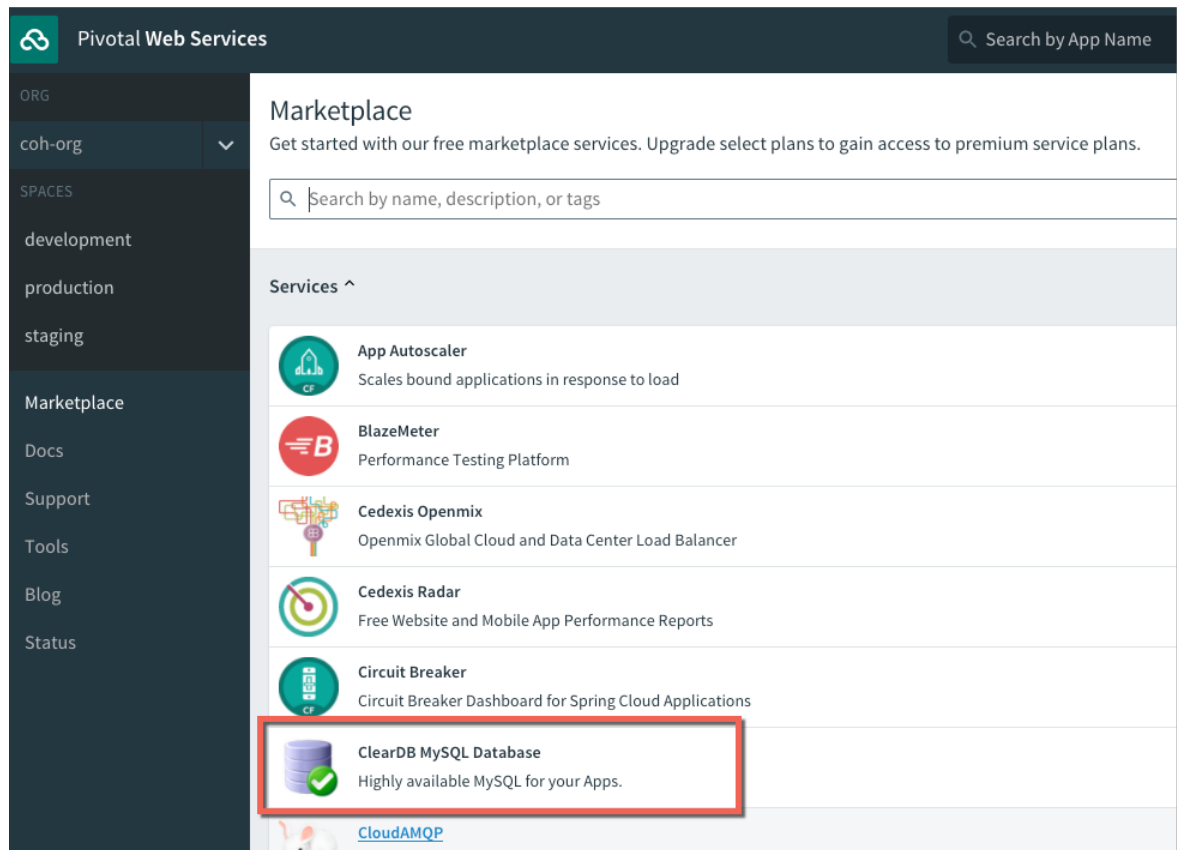
The screenshot shows the 'Services' page in the Cloud Foundry Basic Demo. The 'Attendees Database Tool' is highlighted with a red box. It contains a form with 'First Name', 'Last Name', and 'Email' fields, an 'Add' button, and a table with columns 'First Name', 'Last Name', and 'Email Address'. The table has one row: 'choonghyun', 'oh', 'coh@pivotal.io'. Below the table are 'Refresh' and 'Erase All Records' buttons. A red arrow points from the 'Services' tab in the top navigation bar to the 'Attendees Database Tool' box. Another red arrow points from the 'Add' button to the 'Refresh' button. On the right, the 'Application Environment Information' section shows 'Application Name: pws-coh', 'Instance Index: 1' (circled in red), 'Container Address: 10.252.32.6:8080', 'Cell Address: 10.10.148.151:61024', and 'Java Version: 1.8.0_141'. Below this is a 'Services' section with 'None' and two tabs: '1. Description' and '2. Demonstrations'.

아래와 같이 다른 인스턴스로 접속 데이터 불일치 (Refresh 몇 차례 클릭)

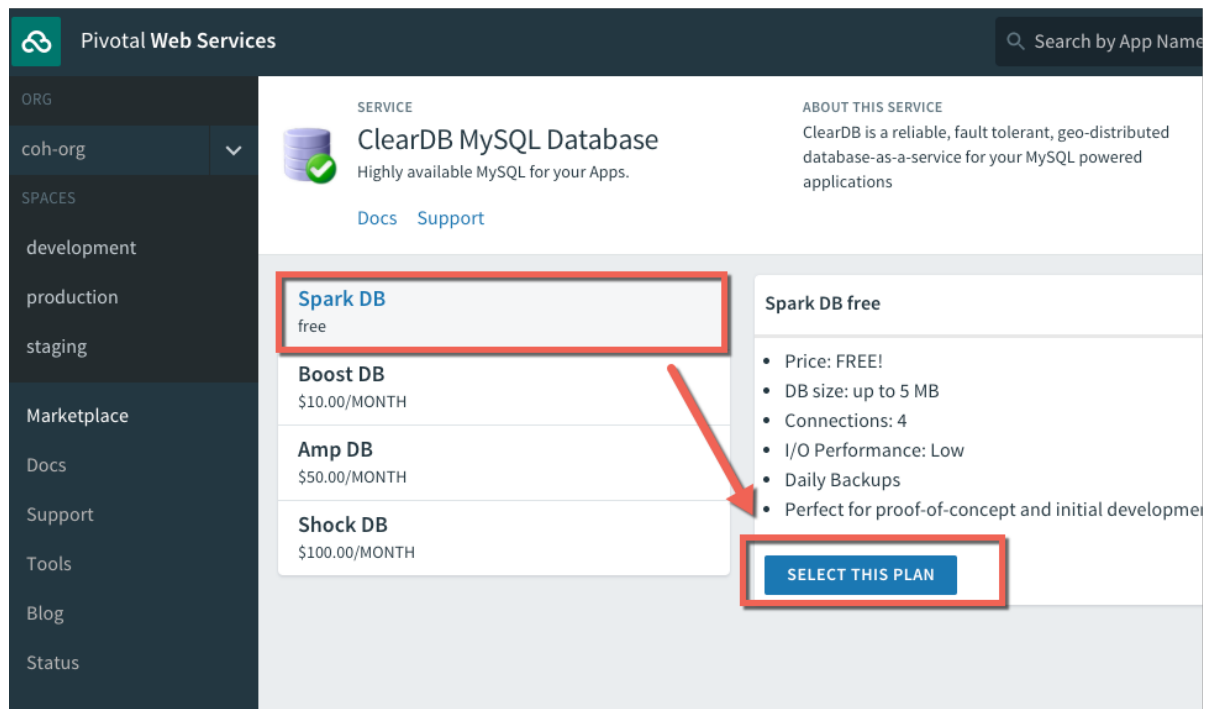
This screenshot shows the same 'Services' page as the previous one, but after a refresh. The 'Attendees Database Tool' is still highlighted with a red box. The 'Refresh' button is now circled in red, and a red arrow points from it to the table. The table is now empty. The 'Application Environment Information' section shows 'Application Name: pws-coh', 'Instance Index: 0' (circled in red), 'Container Address: 10.244.45.29:8080', 'Cell Address: 10.10.149.18:61016', and 'Java Version: 1.8.0_141'. The 'Services' section remains the same with 'None' and two tabs: '1. Description' and '2. Demonstrations'.

MySQL Service 인스턴스 만들기

- Marketplace에서 “ClaerDB MySQL Database” 선택




- “Spark DB” plan 선택



- Instance 구성 및 Binding application 선택

SERVICE



ClearDB MySQL Database

Highly available MySQL for your Apps.

[Docs](#)
[Support](#)

ABOUT THIS SERVICE

ClearDB is a reliable, fault tolerant, geo-distributed database-as-a-service for your MySQL powered applications

COMPANY

SuccessBricks, Inc. DBA ClearDB

Spark DB

free

- Price: FREE!
- DB size: up to 5 MB
- Connections: 4
- I/O Performance: Low
- Daily Backups
- Perfect for proof-of-concept and initial development.

Instance Configuration

Instance Name

mysql-coh

Add To Space

development

Bind To App (Optional)

pws-coh

SHOW ADVANCED OPTIONS

CANCEL

CREATE

- **Application Restaging**
Attach한 서비스 정보를 App 환경변수로 Inject

\$ cf restage pws-coh

```
Restaging app pws-coh in org coh-org / space development as coh@pivotal.io...
Downloading binary_buildpack...
Downloaded nodejs_buildpack
Downloading nodejs_buildpack...
Downloading go_buildpack...
Downloading dotnet_core_buildpack...
Downloading php_buildpack...
Downloaded php_buildpack
Downloading staticfile_buildpack...
Downloaded binary_buildpack
Downloading java_buildpack...
Downloaded dotnet_core_buildpack
Downloading dotnet_core_buildpack_beta...
Downloaded dotnet_core_buildpack_beta
Downloading python_buildpack...
Downloaded staticfile_buildpack
Downloading ruby_buildpack...
Downloaded java_buildpack
Downloaded python_buildpack
Downloaded ruby_buildpack
Downloaded go_buildpack
Creating container
Successfully created container
Downloading build artifacts cache...
Downloading app package...
Downloaded build artifacts cache (129B)
Downloaded app package (34.4M)
-----> Java Buildpack v4.5 (offline) | https://github.com/cloudfoundry/java-buildpack.git#ffeefb9
-----> Downloading Jvmkill Agent 1.10.0_RELEASE from https://java-
buildpack.cloudfoundry.org/jvmkill/trusty/x86_64/jvmkill-1.10.0_RELEASE.so (found in cache)
-----> Downloading Open Jdk JRE 1.8.0_141 from https://java-
```

```
buildpack.cloudfoundry.org/openjdk/trusty/x86_64/openjdk-1.8.0_141.tar.gz (found in cache)
  Expanding Open Jdk JRE to .java-buildpack/open_jdk_jre (1.5s)
----> Downloading Open JDK Like Memory Calculator 3.9.0_RELEASE from https://java-
buildpack.cloudfoundry.org/memory-calculator/trusty/x86_64/memory-calculator-
3.9.0_RELEASE.tar.gz (found in cache)
  Loaded Classes: 17708, Threads: 300
----> Downloading Client Certificate Mapper 1.2.0_RELEASE from https://java-
buildpack.cloudfoundry.org/client-certificate-mapper/client-certificate-mapper-1.2.0_RELEASE.jar
(found in cache)
----> Downloading Container Security Provider 1.8.0_RELEASE from https://java-
buildpack.cloudfoundry.org/container-security-provider/container-security-provider-1.8.0_RELEASE.jar
(found in cache)
----> Downloading Spring Auto Reconfiguration 1.12.0_RELEASE from https://java-
buildpack.cloudfoundry.org/auto-reconfiguration/auto-reconfiguration-1.12.0_RELEASE.jar (found in
cache)
Exit status 0
Uploading droplet, build artifacts cache...
Uploading build artifacts cache...
Uploading droplet...
Uploaded build artifacts cache (129B)
Uploaded droplet (80.7M)
Uploading complete
Stopping instance 2d36382e-9a40-4a9f-90f9-44f470c59d49
Destroying container
Successfully destroyed container

1 of 2 instances running, 1 starting

App started

OK

App pws-coh was started using this command `JAVA_OPTS="-agentpath:$PWD/.java-
buildpack/open_jdk_jre/bin/jvmskill-1.10.0_RELEASE=printHeapHistogram=1 -Djava.io.tmpdir=$TMPDIR
-Djava.ext.dirs=$PWD/.java-buildpack/container_security_provider:$PWD/.java-
buildpack/open_jdk_jre/lib/ext -Djava.security.properties=$PWD/.java-
buildpack/security_providers/java.security $JAVA_OPTS" && CALCULATED_MEMORY=$(($PWD/.java-
buildpack/open_jdk_jre/bin/java-buildpack-memory-calculator-3.9.0_RELEASE -
totMemory=$MEMORY_LIMIT -stackThreads=300 -loadedClasses=18417 -poolType=metaspace -
vmOptions="$JAVA_OPTS") && echo JVM Memory Configuration: $CALCULATED_MEMORY &&
JAVA_OPTS="$JAVA_OPTS $CALCULATED_MEMORY" && SERVER_PORT=$PORT eval exec $PWD/.java-
buildpack/open_jdk_jre/bin/java $JAVA_OPTS -cp $PWD/.
org.springframework.boot.loader.JarLauncher`


Showing health and status for app pws-coh in org coh-org / space development as coh@pivotal.io...
OK

requested state: started
instances: 2/2
usage: 1G x 2 instances
urls: pws-coh.cfapps.io
last uploaded: Wed Jan 17 16:20:27 UTC 2018
stack: cflinuxfs2
buildpack: client-certificate-mapper=1.2.0_RELEASE container-security-provider=1.8.0_RELEASE java-
```

```
buildpack=v4.5-offline-https://github.com/cloudfoundry/java-buildpack.git#ffeefb9 java-main java-opts  
jvmskill-agent=1.10.0_RELEASE open-jdk-like-jre=1.8.0_1...
```

| | state | since | cpu | memory | disk | details |
|----|---------|------------------------|--------|--------------|--------------|---------|
| #0 | running | 2018-01-18 03:38:34 PM | 222.9% | 370.2M of 1G | 162.2M of 1G | |
| #1 | running | 2018-01-18 03:38:37 PM | 142.1% | 280M of 1G | 162.2M of 1G | |

App의 Services 접속 후 Services 항목 확인

 Cloud Foundry Basic Demo Scale & HA Services Blue Green SpringBoot ▾

Services

By now we understand a bit about how applications are being managed in PCF, what about services? Let's think of services as external application dependencies like a datastore or messaging system. But it can represent many other things that we would not typically think of it.

Remember the application diagram from the main page?

We often hear about **The Twelve-Factor App** as a great methodology for building modern applications. Pivotal Cloud Foundry Service strategy is very much like [IV - Backing Services factor](#). Services are *attached*, in PCF case, *bound* to applications.

Attendees Database Tool

First Name

Last Name

Email

Add

| First Name | Last Name | Email Address |
|------------|-----------|---------------|
|------------|-----------|---------------|

Refresh

Erase All Records

Application Environment Information

Application Name: pws-coh
Instance Index: 1
Container Address: 10.240.55.96:8080
Cell Address: 10.10.148.20:61056
Java Version: 1.8.0_141

Services

cleardb: mysql-coh

1. Description

2. Demonstrations

Provided to you by Pivotal!

데이터 등록 및 인스턴스 변동 시 데이터 확인



Services

By now we understand a bit about how applications are being managed in PCF, what about services? Let's think of services as external application dependencies like a datastore or messaging system. But it can represent many other things that we would not typically think of it.

Remember the application diagram from the main page?

We often hear about **The Twelve-Factor App** as a great methodology for building modern applications. Pivotal Cloud Foundry Service strategy is very much like [IV - Backing Services factor](#). Services are *attached*, in PCF case, *bound* to applications.

Attendees Database Tool

First Name

Last Name

Email

Add

| First Name | Last Name | Email Address |
|-------------------|-----------|----------------|
| choonghyun | oh | coh@pivotal.io |
| Refresh | | |
| Erase All Records | | |

Application Environment Information

Application Name: pws-coh

Instance Index: 1

Container Address: 10.240.55.96:8080

Cell Address: 10.10.148.20:61056

Java Version: 1.8.0_141

Services

cleardb: mysql-coh

1. Description

2. Demonstrations

Provided to you by Pivotal!

9. Blue/Green Deployment

App 무 중단 배포 기법 및 A/B Testing으로 활용

사전 준비: App instance 개수는 1개

```
$ cf scale -i 1 pws-coh
```

```
Scaling app pws-coh in org coh-org / space development as coh@pivotal.io...  
OK
```

애플리케이션 Version 2 배포

```
$ cf push pws-coh-v2
```

```
Using manifest file /Users/coh/workspace/coinone/pcf-ers-demo/manifest.yml
```

```
Creating app pws-coh-v2 in org coh-org / space development as coh@pivotal.io...  
OK
```

```
Creating route pws-coh-v2.cfapps.io...  
OK
```

```
Binding pws-coh-v2.cfapps.io to pws-coh-v2...  
OK
```

```
Uploading pws-coh-v2...  
Uploading app files from: /var/folders/z3/kwcd43vn3s71f901r0ny2cvm0000gn/T/unzipped-  
app731681166  
Uploading 679.5K, 143 files  
Done uploading  
OK
```

```
Starting app pws-coh-v2 in org coh-org / space development as coh@pivotal.io...
```

```
Downloading nodejs_buildpack...  
Downloading php_buildpack...  
Downloading go_buildpack...  
Downloading binary_buildpack...  
Downloaded go_buildpack  
Downloading python_buildpack...  
Downloaded binary_buildpack  
Downloading java_buildpack...  
Downloaded php_buildpack  
Downloaded nodejs_buildpack  
Downloading dotnet_core_buildpack...  
Downloading dotnet_core_buildpack_beta...  
Downloaded dotnet_core_buildpack  
Downloading ruby_buildpack...  
Downloaded python_buildpack  
Downloading staticfile_buildpack...  
Downloaded dotnet_core_buildpack_beta  
Downloaded ruby_buildpack
```


Downloaded staticfile_buildpack
Downloaded java_buildpack
Creating container
Successfully created container
Downloading app package...
Downloaded app package (34.4M)
-----> Java Buildpack v4.5 (offline) | <https://github.com/cloudfoundry/java-buildpack.git#ffeefb9>
-----> Downloading Jvmskill Agent 1.10.0_RELEASE from https://java-buildpack.cloudfoundry.org/jvmskill/trusty/x86_64/jvmskill-1.10.0_RELEASE.so (found in cache)
-----> Downloading Open Jdk JRE 1.8.0_141 from https://java-buildpack.cloudfoundry.org/openjdk/trusty/x86_64/openjdk-1.8.0_141.tar.gz (found in cache)
Expanding Open Jdk JRE to .java-buildpack/open_jdk_jre (1.2s)
-----> Downloading Open JDK Like Memory Calculator 3.9.0_RELEASE from https://java-buildpack.cloudfoundry.org/memory-calculator/trusty/x86_64/memory-calculator-3.9.0_RELEASE.tar.gz (found in cache)
Loaded Classes: 17708, Threads: 300
-----> Downloading Client Certificate Mapper 1.2.0_RELEASE from https://java-buildpack.cloudfoundry.org/client-certificate-mapper/client-certificate-mapper-1.2.0_RELEASE.jar (found in cache)
-----> Downloading Container Security Provider 1.8.0_RELEASE from https://java-buildpack.cloudfoundry.org/container-security-provider/container-security-provider-1.8.0_RELEASE.jar (found in cache)
-----> Downloading Spring Auto Reconfiguration 1.12.0_RELEASE from https://java-buildpack.cloudfoundry.org/auto-reconfiguration/auto-reconfiguration-1.12.0_RELEASE.jar (found in cache)
Exit status 0
Uploading droplet, build artifacts cache...
Uploading build artifacts cache...
Uploading droplet...
Uploaded build artifacts cache (129B)
Uploaded droplet (80.7M)
Uploading complete
Stopping instance 98abc6fc-303e-4e07-8d4d-959779b29d57
Destroying container
Successfully destroyed container

0 of 1 instances running, 1 starting
0 of 1 instances running, 1 starting
1 of 1 instances running

App started

OK

App pws-coh-v2 was started using this command `JAVA_OPTS="-agentpath:\$PWD/.java-buildpack/open_jdk_jre/bin/jvmskill-1.10.0_RELEASE=printHeapHistogram=1 -Djava.io.tmpdir=\$TMPDIR -Djava.ext.dirs=\$PWD/.java-buildpack/container_security_provider:\$PWD/.java-buildpack/open_jdk_jre/lib/ext -Djava.security.properties=\$PWD/.java-buildpack/security_providers/java.security \$JAVA_OPTS" && CALCULATED_MEMORY=\$((\$PWD/.java-buildpack/open_jdk_jre/bin/java-buildpack-memory-calculator-3.9.0_RELEASE -totMemory=\$MEMORY_LIMIT -stackThreads=300 -loadedClasses=18417 -poolType=metaspace -vmOptions="\$JAVA_OPTS") && echo JVM Memory Configuration: \$CALCULATED_MEMORY && JAVA_OPTS="\$JAVA_OPTS \$CALCULATED_MEMORY" && SERVER_PORT=\$PORT eval exec \$PWD/.java-

```
buildpack/open_jdk_jre/bin/java $JAVA_OPTS -cp $PWD/. org.springframework.boot.loader.JarLauncher`
```

Showing health and status for app pws-coh-v2 in org coh-org / space development as coh@pivotal.io...
OK

requested state: started

instances: 1/1

usage: 768M x 1 instances

urls: pws-coh-v2.cfapps.io

last uploaded: Thu Jan 18 06:53:48 UTC 2018

stack: cflinuxfs2

buildpack: client-certificate-mapper=1.2.0_RELEASE container-security-provider=1.8.0_RELEASE java-buildpack=v4.5-offline-https://github.com/cloudfoundry/java-buildpack.git#ffeeb9 java-main java-opts jymkill-agent=1.10.0_RELEASE open-jdk-like-jre=1.8.0_1...

| | state | since | cpu | memory | disk | details |
|----|---------|------------------------|-------|----------------|--------------|---------|
| #0 | running | 2018-01-18 03:54:54 PM | 86.7% | 260.4M of 768M | 162.2M of 1G | |

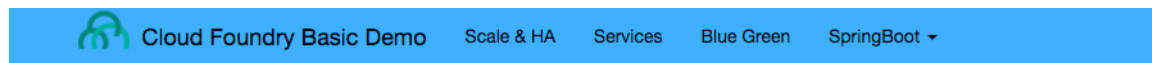
\$ cf apps

Getting apps in org coh-org / space development as coh@pivotal.io...

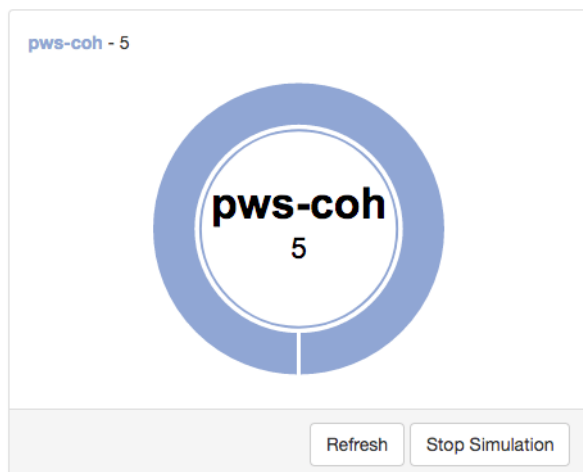
OK

| name | requested state | instances | memory | disk | urls |
|------------|-----------------|-----------|--------|------|---|
| pws-coh | started | 1/1 | 1G | 1G | pws-coh.cfapps.io |
| pws-coh-v2 | started | 1/1 | 768M | 1G | pws-coh-v2.cfapps.io |

“Blue Green” 화면에서 “Start Simulation” Button 클릭



Blue Green Deployment



Application Environment Information

Application Name: pws-coh
Instance Index: 0
Container Address: 10.244.45.163:8080
Cell Address: 10.10.149.18:61016
Java Version: 1.8.0_141

Services

cleardb: mysql-coh

1. Description

2. Demonstrations

Provided to you by Pivotal!

애플리케이션 Version 2에 기존 App과 동일한 hostname으로 route mapping

```
$ cf map-route pws-coh-v2 cfapps.io --hostname pws-coh
```

Creating route pws-coh.cfapps.io for org coh-org / space development as coh@pivotal.io...

OK

Route pws-coh.cfapps.io already exists

Adding route pws-coh.cfapps.io to app pws-coh-v2 in org coh-org / space development as coh@pivotal.io...

OK


```
$ cf apps
```

Getting apps in org coh-org / space development as coh@pivotal.io...

OK

| name | requested state | instances | memory | disk | urls |
|------------|-----------------|-----------|--------|------|---|
| pws-coh | started | 1/1 | 1G | 1G | pws-coh.cfapps.io |
| pws-coh-v2 | started | 1/1 | 768M | 1G | pws-coh.cfapps.io , pws-coh-v2.cfapps.io |

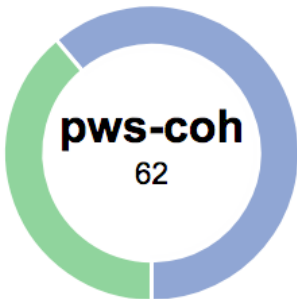
“Blue Green” 화면에서 Green 으로 요청이 들어오는 것을 확인

 Cloud Foundry Basic Demo Scale & HA Services Blue Green SpringBoot ▾

Blue Green Deployment

pws-coh - 62

pws-coh-v2 - 39



Refresh Stop Simulation

Application Environment Information

Application Name: pws-coh

Instance Index: 0

Container Address: 10.244.45.163:8080

Cell Address: 10.10.149.18:61016

Java Version: 1.8.0_141

Services

cleardb: mysql-coh

1. Description

2. Demonstrations

Provided to you by Pivotal!

Version 2의 개수를 2개로 증가하고 화면 확인

\$ cf scale -i 2 pws-coh-v2

Scaling app pws-coh-v2 in org coh-org / space development as coh@pivotal.io...

OK

\$ cf apps

Getting apps in org coh-org / space development as coh@pivotal.io...

OK

| name | requested state | instances | memory | disk | urls |
|------------|-----------------|-----------|--------|------|---|
| pws-coh | started | 1/1 | 1G | 1G | pws-coh.cfapps.io |
| pws-coh-v2 | started | 2/2 | 768M | 1G | pws-coh.cfapps.io, pws-coh-v2.cfapps.io |



Cloud Foundry Basic Demo

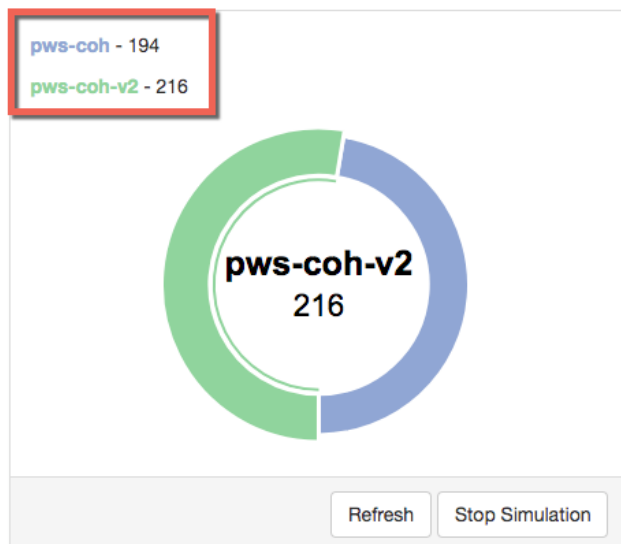
Scale & HA

Services

Blue Green

SpringBoot ▾

Blue Green Deployment



Provided to you by Pivotal!

Application Environment Information

Application Name: pws-coh

Instance Index: 0

Container Address: 10.244.45.163:8080

Cell Address: 10.10.149.18:61016

Java Version: 1.8.0_141

Services

cleardb: mysql-coh

1. Description

2. Demonstrations

이전 버전에서 route mapping 제거 및 화면 확인

```
$ cf unmap-route pws-coh cfapps.io --hostname pws-coh
```

Removing route pws-coh.cfapps.io from app pws-coh in org coh-org / space development as coh@pivotal.io...

OK

```
$ cf apps
```

Getting apps in org coh-org / space development as coh@pivotal.io...

OK

| name | requested state | instances | memory | disk | urls |
|----------------|-----------------|------------|-----------|-----------|---|
| pws-coh | started | 1/1 | 1G | 1G | |
| pws-coh-v2 | started | 2/2 | 768M | 1G | pws-coh.cfapps.io, pws-coh-v2.cfapps.io |

신규 버전으로 전환 완료: -v2만 요청을 받음



Cloud Foundry Basic Demo

Scale & HA

Services

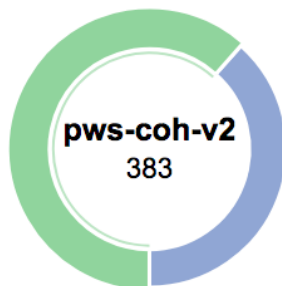
Blue Green

SpringBoot ▾

Blue Green Deployment

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Refresh

Stop Simulation

Provided to you by Pivotal

Application Environment Information

Application Name: pws-coh

Instance Index: 0

Container Address: 10.244.45.163:8080

Cell Address: 10.10.149.18:61016

Java Version: 1.8.0_141

Services

cleardb: mysql-coh

1. Description

2. Demonstrations