Services

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Estimated Time: 25 minutes

Requirements

This lab is part of a workshop available at https://github.com/Pivotal-Field-Engineering/DevNexus2017
General Pre-Requisites are available in the Readme.md

In general the Labs should be done in numerical order since they are interdependent.

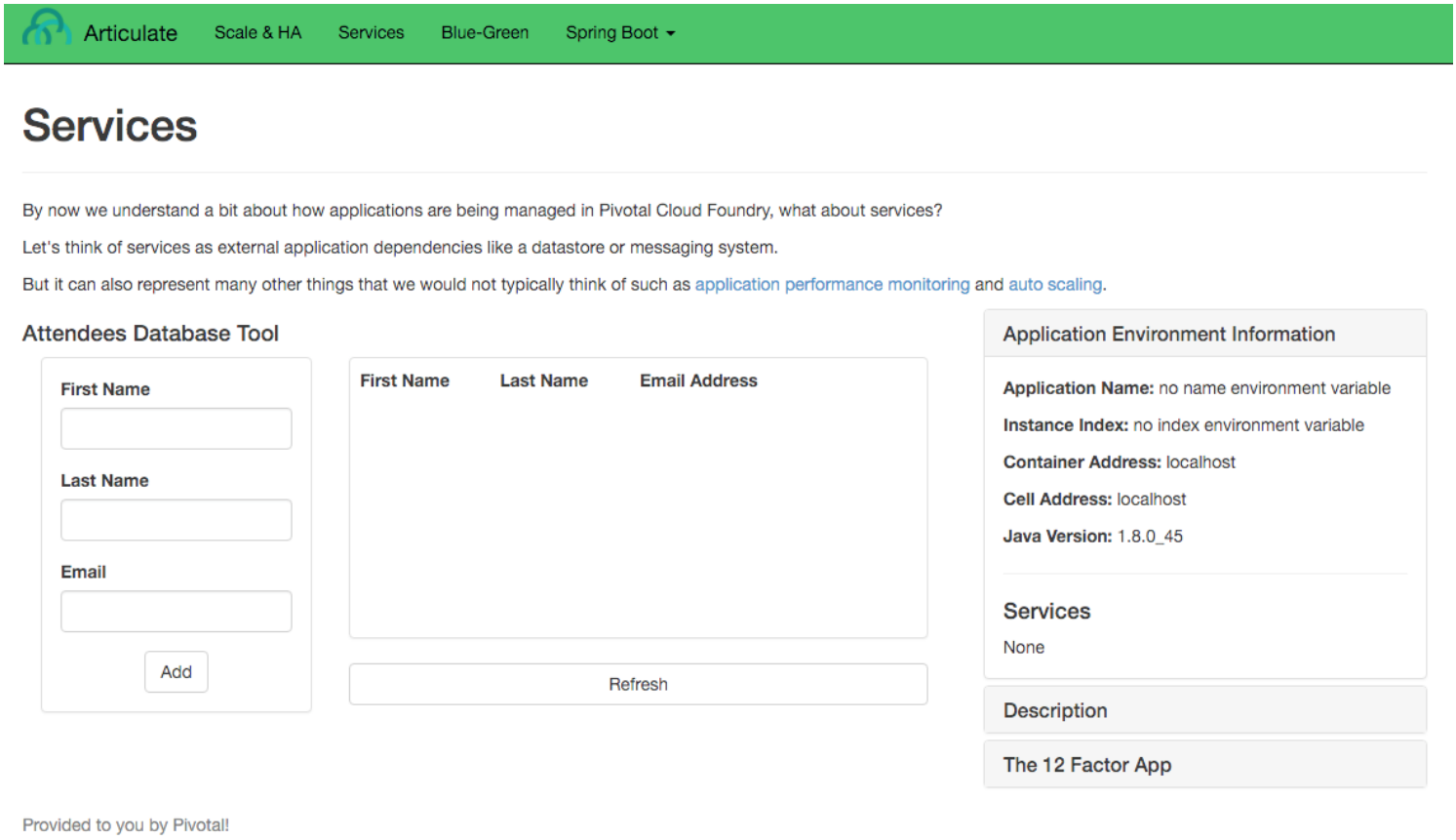
What you will learn

- How to create a managed service instance
- How to create a user provided service instance
- How to bind an application to a service instance

Exercises

Review `articulate` dependencies

`articulate` exposes functionality to add attendees on the `Services` page. However, `articulate` doesn't do this alone. It makes REST calls to the `attendee-service` application. To learn more about services, let's provision the `attendee-service` application.



Push the `attendee-service` application

1) Find the (/sample-apps/attendee-service/attendee-service-0.0.1-SNAPSHOT.jar) application. This directory is a subdirectory of the "DevNexus2017" git project that you downloaded in Lab 1.

Source (https://github.com/pivotal-enablement/attendee-service) is not required, but you may be curious how it works as you move through the labs.

2) Push the `attendee-service` application.

```
$ cd sample-apps/attendee-service

$ cf push attendee-service -p ./attendee-service-0.0.1-SNAPSHOT.jar -m 512M --random-route
```

Does `attendee-service` start up correctly? Why not?

Add a Managed Service

1) Review the documentation (http://docs.pivotal.io/pivotalcf/devguide/services/managing-services.html) on managing service instances

2) Review what services are available in the marketplace.

```
$ cf marketplace
```

3) Provision a MySql service instance.

Pivotal Cloud Foundry:

```
$ cf create-service p-mysql 100mb-dev attendee-mysql
```

Pivotal Web Services:

```
$ cf create-service cleardb spark attendee-mysql
```

4) Now we need to bind the application with the service instance.

```
$ cf bind-service attendee-service attendee-mysql
```

You can ignore the "TIP: Use 'cf restage attendee-service' to ensure your env variable changes take effect" message at this time.

5) Restart the application.

```
$ cf restart attendee-service
```

6) View the `attendee-service` in a browser.

You should see response similar to the following (pic is using the JSON Formatter for Chrome (https://chrome.google.com/webstore/detail/json-formatter/bcjindcccaagfpapjjmafapmmgkkhgoa?hl=en)):

How does this work?

1) Read about how twelve-factor apps handle backing services (http://12factor.net/backing-services) and configuration (http://12factor.net/config).

2) Read about VCAP_SERVICES (https://docs.pivotal.io/pivotalcf/devguide/deploy-apps/environment-variable.html#VCAP-SERVICES).

3) View the environment for `attendee-service`.

```
$ cf env attendee-service
```

4) Different languages/frameworks will have various ways to read environment variables. `attendee-service` takes advantage of a Java Buildpack (https://github.com/cloudfoundry/java-buildpack) feature called Auto-Reconfiguration (https://github.com/cloudfoundry/java-buildpack-auto-reconfiguration) that will automatically re-write bean definitions to connect with services bound to an application.

Questions

- After binding a service to an application why is the application restarted/restaged?
- In this case, why could we `restart` vs `restage`?

Add a User Provided Service Instance

In the enterprise, not all services will be provisioned by Pivotal Cloud Foundry.

For example, consider your Oracle RAC cluster. How can we connect our applications running on Pivotal Cloud Foundry to these external systems?

Additionally, how can we easily connect applications together running on the platform?

1) Read about user provided service instances (http://docs.pivotal.io/pivotalcf/devguide/services/user-provided.html).

2) Create a user provided service. This will create an interactive prompt. Don't use the literal below for the value of `uri`, use your `attendee-service uri`. Also make sure to specify `http`.

NOTE: This will not work with `https`.

```
$cf create-user-provided-service attendee-service -p uri

uri> http://attendee-service-surfy-glt.pcfi1.fe.gopivotal.com
```

3) Bind `articulate` to the `attendee-service` user provided service.

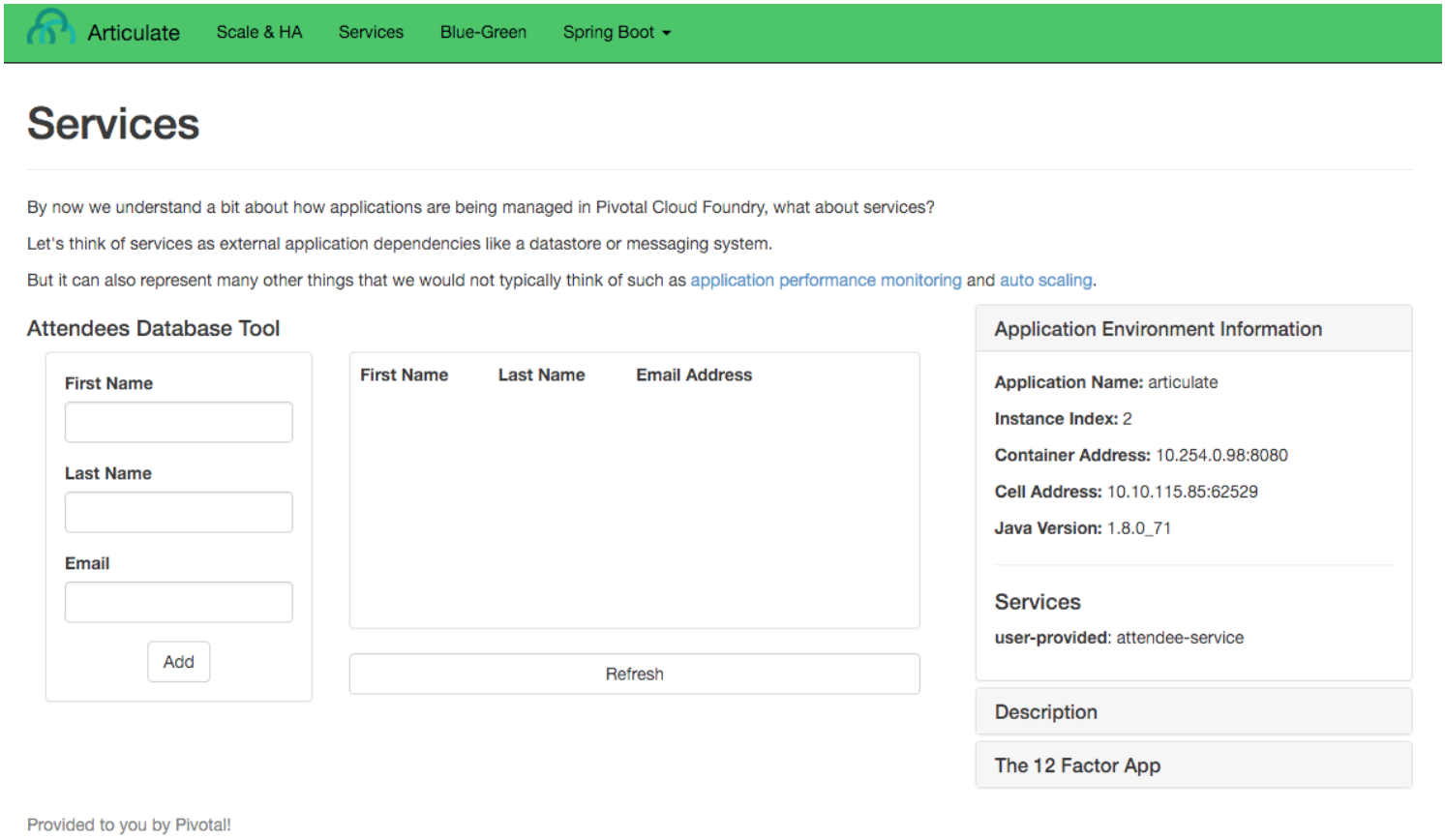
```
$ cf bind-service articulate attendee-service
```

You can ignore the "TIP: Use 'cf restage articulate' to ensure your env variable changes take effect" message at this time.

4) Restart the application.

```
$ cf restart articulate
```

5) Refresh the `articulate Services` page. You can now see the `attendee-service` listed under `Services`.



6) Review the environment.

```
$ cf env articulate
```

7) Add some attendees.

Questions

- From an application perspective, are managed services instances different from user provided service instances?

Beyond the class

- Use Spring Music (https://github.com/cloudfoundry-samples/spring-music) and a User

Provided Service Instance to connect to a database (MySQL or Oracle) in your environment.

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