

Instructor Notes:

Add instructor notes
here.

DevOps

Lesson 06 : DevOps IBM Bluemix

Instructor Notes:

Add instructor notes here.

Lesson Objectives

- Introduction to IBM Bluemix
- Working with Bluemix –CLI & Eclipse
- Bluemix with DevOps
- Other Tools of DevOps



Instructor Notes:

Add instructor notes here.

6.1: Introduction to IBM Bluemix

IBM Bluemix

- IBM Bluemix is IBM's innovative cloud computing platform that combines platform as a service (PaaS) with infrastructure as a service (IaaS).
- Fits for small business that plans to scale, or a large enterprise that requires additional isolation
- IBM Cloud Data Centers provide regional redundancy, a global network backbone connecting all data centers and points of presence, and stringent security controls and reporting.
- IBM Bluemix Dashboard are:
 - Apps
 - Services
 - Infrastructure



Copyright © Capgemini 2016. All Rights Reserved 3

Apps

The Apps dashboard provides everything you need to get your apps up and running, and to manage those apps while they run. Bluemix provides various boilerplates and runtimes: A boilerplate is a template for an application and its associated runtime environment and predefined services for a specific domain.

A runtime is the set of resources that is used to run an app, provided as containers for different types of apps.

Bluemix provides various ways for you to run your apps, for example, Cloud Foundry and IBM® Bluemix Container Service. Use IBM Bluemix Container Service to run Docker containers in a hosted cloud environment on Bluemix.

You can use IBM® Bluemix® OpenWhisk for distributed, event-driven computing. OpenWhisk runs application logic in response to events or direct invocations from web or mobile apps over HTTP.

You can use Bluemix Mobile services to incorporate pre-built, managed, and scalable cloud services into your mobile apps.

Services

The Services dashboard provides access to the Bluemix services available from IBM® and third-party providers. These include Watson, Internet of Things, Analytics, Mobile, and DevOps services:

Deliver innovative new applications faster and cheaper with just the right features using IBM DevOps services and the Bluemix Garage Method. When you adopt DevOps practices and create a culture of innovation and agility, you can use iterative practices and change direction in response to the market.

Blockchain is a peer-to-peer distributed ledger technology for a new generation of transactional applications that establishes trust, accountability, and transparency while streamlining business processes.

Watson gives your apps the power of cognitive computing with a full suite of speech, vision, and data APIs. Solve your most complex business problems by deploying a cognitive platform with Watson services.

IBM enables you to do more with rich, integrated cloud databases and Data & Analytics services. The IBM Internet of Things service lets your apps communicate with, and consume data that is collected by, your connected devices, sensors, and gateways. Our recipes make it easy to get devices connected to our Internet of Things cloud. Your apps can then use our real-time and REST APIs to communicate with your devices and consume the data you've set them up to collect.

IBM offers a mobile backend infrastructure where you can build multiplatform, native, or hybrid apps while also being able to monitor and test them. You can also enhance your app with analytics, security, user insight, and continuous delivery.

Bluemix also provides experimental services that you can try out. To learn about service types and availability, see Bluemix services

Infrastructure

Instructor Notes:

Add instructor notes here.

A presentation slide header for IBM Bluemix. At the top left, it says "6.1: Introduction to IBM Bluemix" in small text, followed by "IBM Bluemix" in a large, bold, blue font. A thick blue curved line separates the header from the main content area. At the bottom left is the Capgemini logo with the tagline "CONSULTING TECHNOLOGY ENTERPRISE". At the bottom right, in small text, is "Copyright © Capgemini 2016. All Rights Reserved" followed by a small number "4".

6.1: Introduction to IBM Bluemix

IBM Bluemix

Capgemini
CONSULTING TECHNOLOGY ENTERPRISE

Copyright © Capgemini 2016. All Rights Reserved 4

The Infrastructure dashboard provides various services to fit your cloud infrastructure needs.

Bluemix infrastructure provides the highest performing cloud infrastructure available. Bluemix infrastructure is one platform, which takes data centers around the world that are full of the widest range of cloud computing options, then integrates and automates everything. IBM Cloud Data Centers are filled with first class computing, storage, and networking gear. Each location is built, outfitted, and operated in the same way, so you get exactly the same capabilities and availability anywhere where we are present. Locations are connected by the industry's most advanced network-in-a-network, which integrates distinct public, private, and internal management networks to deliver lower total networking costs, better access, and higher speed. Also, the data centers and network share a single proprietary management system. One management tool lets you control everything--every bare metal server, virtual server, and storage device--all accessible by API, portal, and mobile applications.

Bluemix infrastructure offers powerful bare metal servers and flexible virtual servers in a single seamless platform. All are provided on demand and billed on monthly or hourly terms. Bare metal servers provide the raw horsepower for your processor-intensive and disk I/O-intensive workloads and can be configured to your exact specifications. Virtual servers allow for high speed of deployment, flexible scalability, and pay-as-you-go billing. For high performance computing, give your cloud a boost with graphics processing unit (GPU) servers, available by the hour or monthly.

Bluemix infrastructure offerings are connected to a three-tiered network, segmenting public, private, and management traffic. Infrastructure on a customer's Bluemix account might transfer data between such infrastructure across the private network at no cost. Infrastructure offerings, such as bare metal servers, virtual servers, and cloud storage, connect to other applications and services in the Bluemix catalog, such as Watson services, containers, or runtimes, across the public network. Data transfer between those two types of offerings is metered and charged at standard public network bandwidth rates.

Using the B

Instructor Notes:

Add instructor notes here.

6.1: Introduction to IBM Bluemix

IBM Bluemix

- IBM enables you to:
 - Deploy high performance compute and storage infrastructure in secure IBM Cloud Data Centers around the world.
 - Test and adopt a broad range of cloud services and capabilities from IBM, open source communities, and third-party developers.
 - Connect to all legacy systems and apps from a single, scalable, cloud platform through private network and API capabilities.
 - Spin up and turn down resources in real time as your business needs or workload demands change.

Instructor Notes:

Add instructor notes here.

6.1: Introduction to IBM Bluemix

IBM Bluemix

■ Bluemix Cloud Foundry Architecture

■ Clients--which can be mobile apps, apps that run externally, apps that are built on Bluemix, or developers that are using browsers--interact with the Bluemix-hosted apps.

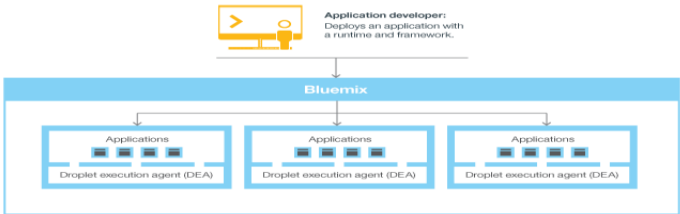
■ Clients use REST or HTTP APIs to route requests through Bluemix to one of the app instances or the composite services.

The diagram illustrates the Bluemix Cloud Foundry Architecture. At the top, four client types are shown: Mobile application app, Web application client, JSP, and Application developer: Browser. These clients interact with the Bluemix Architecture via REST/HTTP. The Bluemix Architecture consists of a Router and a VBA (Virtual Business Agent). The Router routes requests to the VBA, which then interacts with Droplet Execution Agents (DEAs) on the Bluemix Infrastructure (SoftLayer). The DEAs are shown as small blue boxes with icons, representing the execution environment for the applications. The Bluemix Infrastructure (SoftLayer) is represented by a stack of pink bars at the bottom.

Copyright © Capgemini 2016. All Rights Reserved

How Bluemix cloud Foundry works
the operating system and infrastructure layers when running apps on Bluemix in Cloud Foundry. Layers such as root filesystems and middleware components are abstracted so that you can focus on your application code. However, you can learn more about these layers if you need specifics on where our app is running.

When we deploy an app to Bluemix Cloud Foundry, we must configure Bluemix with enough information to support the app.
For a mobile app, Bluemix contains an artifact that represents the mobile app's back end, such as the services that the mobile app uses to communicate with a server.
For a web app, we must ensure that information about the runtime and framework is communicated to Bluemix, so that Bluemix can set up the appropriate execution environment to run the app.
Each execution environment, including both mobile and web, is isolated from the execution environment of other apps. The execution environments are isolated even though these apps are on the same physical machine. The following figure shows the basic flow of how Bluemix Cloud Foundry manages the deployment of apps:



Instructor Notes:

Add instructor notes here.

6.1: Introduction to IBM Bluemix

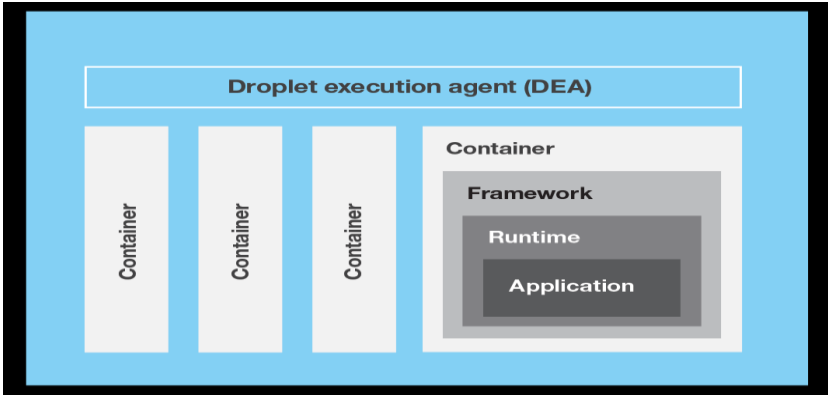
IBM Bluemix



Copyright © Capgemini 2016. All Rights Reserved 7

When you create an app and deploy it to Bluemix Cloud Foundry, the Bluemix environment determines an appropriate virtual server to send the app, or the artifacts that the app represents, to. For a mobile app, a mobile back-end projection is created on Bluemix. Any code for the mobile app running in the cloud eventually runs in the Bluemix environment. For a web app, the code running in the cloud is the app itself that the developer deploys to Bluemix. The determination of the virtual server is based on several factors, including: The load already on the machine Runtimes or frameworks supported by that virtual server. After a virtual server is chosen, an application manager on each virtual server installs the appropriate framework and runtime for the app. Then, the app can be deployed into that framework. When the deployment completes, the application artifacts are started.

The following figure shows the structure of a virtual server, also known as Droplet execution agent (DEA), that has multiple apps deployed to it:



Instructor Notes:

6.1: Introduction to IBM Bluemix

IBM Bluemix

■ Prerequisite of Bluemix

- Any latest version browser (chrome,safari,IE) for our operating system
- Cloud Foundry command line interface, Version 6.5.1 or later
- Install with eclipse
- Open Help > Eclipse Marketplace. Search for Bluemix.
- Select the IBM Eclipse Tools for Bluemix entry and click **Install**.
- By default, there are features selected for you. Click **Confirm**.
- Accept the license agreement and click **Finish**.

Instructor Notes:

6.1: Introduction to IBM Bluemix

IBM Bluemix

■ Creating Account in BlueMix

■ Go <https://console.ng.bluemix.net/> & create bluemix account

■ Give your Space, Region

Docs11 Trial Days RemainingCapgemini | US South : rahuvik85@gmail.com : data

IBM Bluemix AppsCatalogSupportManage

Search ItemsDashboard

All Apps (2)

Cloud Foundry Apps 1 GB/2 GB Used

NAME	ROUTE	MEMORY (MB)	INSTANCES	RUNNING	STATE	ACTIONS
Name of App	URL					Start, Stop resume & delete

Create App

AccountRegionOrganizationSpace

Capgemini

CONSULTING TECHNOLOGY DETERMINING

Copyright © Capgemini 2016. All Rights Reserved9

Instructor Notes:

6.1: Introduction to IBM Bluemix

IBM Bluemix

■ Region & Spaces

- A Bluemix region is a defined geographical territory that we can deploy our apps to. We can create apps and service instances in different regions with the same view for billing.
- Bluemix infrastructure for application management and the same usage details view for billing.
- We can select the region that is nearest to your customers and deploy your apps to this region to get low application latency.
- Different region to work with the spaces in that region

Following command to link with European united kingdom region

```
cf api https://api.eu-gb.Bluemix.net
```

Following command to link with US South region

```
cf api https://api.ng.bluemix.net
```

Following command to link with Sydney region

```
cf api https://api.au-syd.bluemix.net
```



Copyright © Capgemini 2016. All Rights Reserved 10

Instructor Notes:

6.2: Working with Bluemix

IBM Bluemix

- Working with CLI
 - Install CLI
 - Open Command prompt ,write cf

Select Administrator Command Prompt


```
cf version 6.25.0+787326d.2017-02-28, Cloud Foundry command line tool
Usage: cf [global options] command [arguments...] [command options]

Before getting started:
  config      login,l      target,t
  help,h      logout,lo

Application lifecycle:
  apps,a      run-task,rt   events
  push,p      logs          set-env,se
  start,st    ssh          create-app-manifest
  stop,sp     app
  restart,rs  env,e
  restage,rg  scale

Services integration:
  marketplace,m
  services,s   create-user-provided-service,cups
  create-service,cs  update-user-provided-service,uups
                  create-service-key,csk
```

- Connect and log in to Bluemix.
cf api <https://api.ng.bluemix.net>

Capgemini
CONSULTING TECHNOLOGY DETERMINING

Copyright © Capgemini 2016. All Rights Reserved 11

Instructor Notes:

6.2 Working with Bluemix

IBM Bluemix

```
C:\Users\rvikash>cf api https://api.ng.bluemix.net
Setting api endpoint to https://api.ng.bluemix.net...
OK

API endpoint: https://api.ng.bluemix.net
API version: 2.54.0
Not logged in. Use 'cf login' to log in.
```

- Make login by giving username,org_name,space_name
`cf login -u username -o org_name -s space_name`

```
C:\Users\rvikash>cf login -u rahulviki85@gmail.com -o rahulviki85@gmail.com -s data
API endpoint: https://api.ng.bluemix.net
Password>
Authenticating...
OK

Targeted org rahulviki85@gmail.com
Targeted space data

API endpoint: https://api.ng.bluemix.net (API version: 2.54.0)
User:
rahulviki85@gmail.com
Org:
rahulviki85@gmail.com
Space:
data
```

 Capgemini
CONSULTING TECHNOLOGY SERVICES

Copyright © Capgemini 2016. All Rights Reserved 12

Instructor Notes:

6.2: Working with Bluemix

IBM Bluemix


- Deploy our Bluemix app using `cf push` command
`cf push app_name -> cf push DemoLoginForm`

```
C:\DevOps\DemoLoginForm>cf push DemoLoginForm
Updating app DemoLoginForm in org rahulviki85@gmail.com / space data as rahulviki85@gmail.com...
OK

Uploading DemoLoginForm...
Uploading app files from: C:\DevOps\DemoLoginForm
Uploading 102.5K, 54 files
Done uploading
OK

Stopping app DemoLoginForm in org rahulviki85@gmail.com / space data as rahulviki85@gmail.com...
OK

Warning: error tailing logs
Timed out waiting for connection to Loggregator (wss://doppler.ng.bluemix.net:443).
Starting app DemoLoginForm in org rahulviki85@gmail.com / space data as rahulviki85@gmail.com...
```

Capgemini
CONSULTING TECHNOLOGY ENTERPRISES

Copyright © Capgemini 2016. All Rights Reserved 13

Instructor Notes:

6.2: Working with Bluemix

IBM Bluemix

DemoLoginForm uploaded on
<https://console.ng.bluemix.net/dashboard/apps>

Docs10 Trial Days RemainingCapgemini | US South : rahulvik85@gmail.com : dataCatalogSupportManage

Search Items

All Apps (2)

Create App

Cloud Foundry Apps --

NAME	ROUTE	MEMORY (MB)	INSTANCES	RUNNING	STATE	ACTIONS
DemoLoginForm	DemoLoginForm.mybluemix.net	512	1		Stopped	

Capgemini

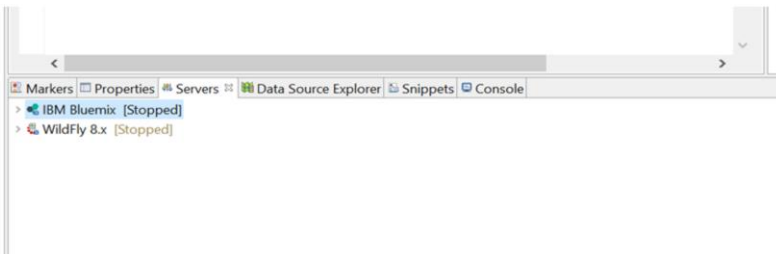
Copyright © Capgemini 2016. All Rights Reserved14

Instructor Notes:

6.2: Working with Bluemix

IBM Bluemix

- *Working with Bluemix with Eclipse*
 - Download the code from Git Repository
 - Open Eclipse → Go to help → go to marketplace → install bluemix
 - Create a server IBM bluemix
 - Check on server tab in eclipse



The screenshot shows the Eclipse IDE's 'Servers' view. The view has tabs for 'Markers', 'Properties', 'Servers', 'Data Source Explorer', 'Snippets', and 'Console'. Under the 'Servers' tab, there are two server entries: 'IBM Bluemix [Stopped]' and 'WildFly 8.x [Stopped]'. The 'IBM Bluemix' entry is highlighted with a mouse cursor.

Capgemini
CONSULTING TECHNOLOGY ENTERPRISES

Copyright © Capgemini 2016. All Rights Reserved 15

Instructor Notes:

6.2: Working with Bluemix

IBM Bluemix**■ Working with Bluemix with Eclipse**

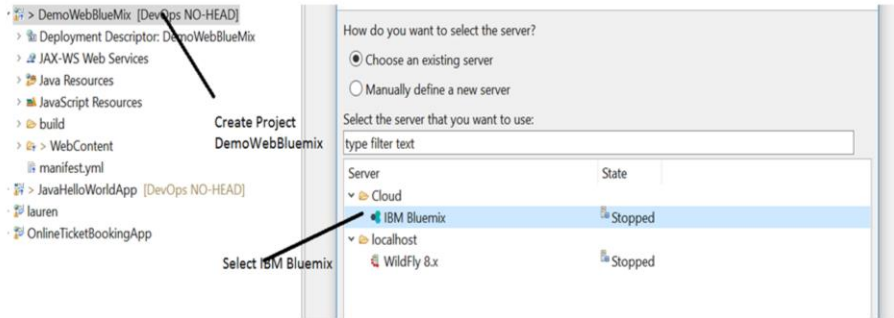
- Now either import the project download from github repository or create new dynamic project → Creating here DemoWebBlueMix
- Work on code
- Now Run on IBM Bluemix server
- Write buildpack & it will create manifest.yml
- manifest,.yml
 - applications:
 - - name: DemoWebBlueMix
 - memory: 512M
 - host: DemoWebBlueMix
 - domain: mybluemix.net

Instructor Notes:

6.2: Working with Bluemix

IBM Bluemix

- *Working with Bluemix with Eclipse*
 - Write Bluemix email id & password
 - Directly Upload on <https://console.ng.bluemix.net/dashboard/apps>



The screenshot shows the Eclipse IDE interface. On the left, the Project Explorer displays a project named 'DemoWebBlueMix [DevOps NO-HEAD]'. The project structure includes a 'Deployment Descriptor: DemoWebBlueMix' folder, 'JAX-WS Web Services', 'Java Resources', 'JavaScript Resources', 'build', 'WebContent', and 'manifest.yml'. Below these are other projects: 'JavaHelloWorldApp [DevOps NO-HEAD]', 'lauren', and 'OnlineTicketBookingApp'. An arrow points from the text 'Create Project DemoWebBlueMix' to the project name in the Project Explorer. Another arrow points from the text 'Select IBM Bluemix' to the 'IBM Bluemix' entry in the 'Server' list of the 'How do you want to select the server?' dialog. The dialog has two radio buttons: 'Choose an existing server' (selected) and 'Manually define a new server'. Below the radio buttons is a text field for 'type filter text'. The 'Server' list shows three entries: 'Cloud' (expanded), 'IBM Bluemix' (selected), and 'localhost'. The 'State' column shows 'Stopped' for all three servers. The 'WildFly 8.x' entry is also visible under 'localhost'.

Capgemini

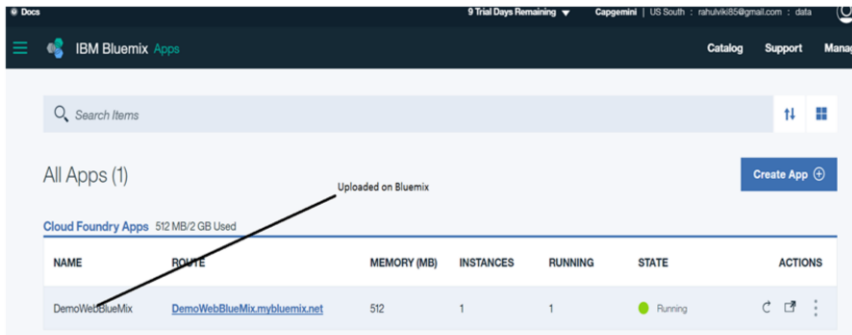
Copyright © Capgemini 2016. All Rights Reserved 17

Instructor Notes:

6.2: Working with Bluemix

IBM Bluemix

- Working with Bluemix with Eclipse
 - Our project deployed on Bluemix dashboard → <https://console.ng.bluemix.net/dashboard/apps>



Uploaded on Bluemix

NAME	ROUTE	MEMORY (MB)	INSTANCES	RUNNING	STATE	ACTIONS
DemoWebBlueMix	DemoWebBlueMix.mybluemix.net	512	1	1	Running	

Capgemini
CONSULTING TECHNOLOGY RENEWING

Copyright © Capgemini 2016. All Rights Reserved 18

Instructor Notes:

6.3: Bluemix with DevOps

IBM Bluemix

■ *DevOps with Bluemix*

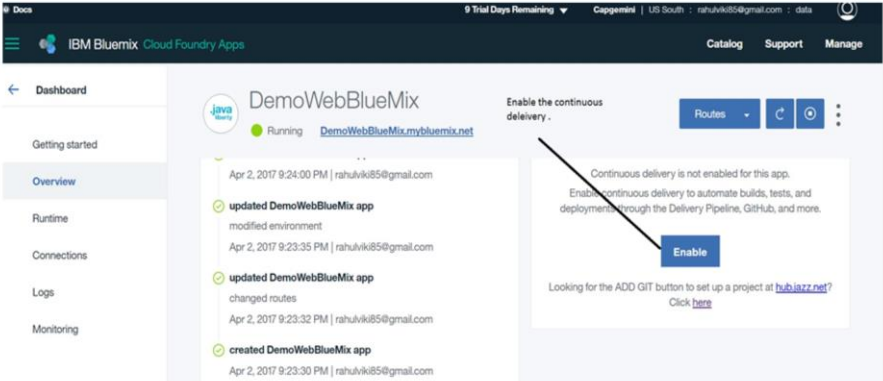
- Continuous Delivery is a practice by which we can build and deploy our software so that it can be released into production at any time.
- With Delivery Pipeline, which is included in IBM Bluemix Continuous Delivery, we can achieve continuous delivery in a consistent and reliable way by dividing the software delivery process into stages.
- The goal is for code to progress through each stage automatically with minimal human intervention.
- Build jobs compile and package our app source code from Git repositories. The build jobs produce deployable artifacts, such as WAR files or Docker containers for IBM Containers.
- A *toolchain* is a set of tool integrations that support development, deployment, and operations tasks. The collective power of a toolchain is greater than the sum of its individual tool integrations.
- Open toolchains are available in the Public and Dedicated environments on IBM Bluemix.

Instructor Notes:

6.3: Bluemix with DevOps

IBM Bluemix

- Steps to enable toolchain for DevOps
 - Click on project which is deployed on Bluemix and we will get this page below



IBM Bluemix Cloud Foundry Apps

9 Trial Days Remaining | Capgemini | US South | rahulvik85@gmail.com | data

Catalog Support Manage

Dashboard

Getting started

Overview

Runtime

Connections

Logs

Monitoring

DemoWebBlueMix

Running DemoWebBlueMix.mybluemix.net

Apr 2, 2017 9:24:00 PM | rahulvik85@gmail.com

updated DemoWebBlueMix app
modified environment
Apr 2, 2017 9:23:35 PM | rahulvik85@gmail.com

updated DemoWebBlueMix app
changed routes
Apr 2, 2017 9:23:32 PM | rahulvik85@gmail.com

created DemoWebBlueMix app
Apr 2, 2017 9:23:30 PM | rahulvik85@gmail.com

Enable the continuous delivery.

Continuous delivery is not enabled for this app.
Enable continuous delivery to automate builds, tests, and deployments through the Delivery Pipeline, GitHub, and more.

Enable

Looking for the ADD GIT button to set up a project at hub.jazz.net/?
Click [here](#)

Capgemini
CONSULTING TECHNOLOGY ENTERPRISES

Copyright © Capgemini 2016. All Rights Reserved 20

Instructor Notes:

6.3: Bluemix with DevOps

IBM Bluemix

On the Simple Cloud Foundry toolchain creation page, review the diagram of the toolchain that you are about to create. The diagram shows each tool integration in its lifecycle phase in the toolchain.

This toolchain includes tools to develop and deploy your app. Depending on your app, when you create the toolchain, the GitHub repository will either be empty or will contain source code from your app.

This toolchain uses tools that are part of the Continuous Delivery service. If an instance of that service isn't already in your organization, when you click **Create**, it is automatically added at no cost to you. For more information and terms, see the [Bluemix catalog](#).

To get started, click **Create**.

THINKCODEDELIVERRUN

ISSUE TRACKER
GitHub

REPOSITORY
GitHub

PIPELINE

BLUEMIX

WEB IDE

Select this to create

Create

Capgemini

CONSULTING TECHNOLOGY ENTERPRISES

Copyright © Capgemini 2016. All Rights Reserved

21

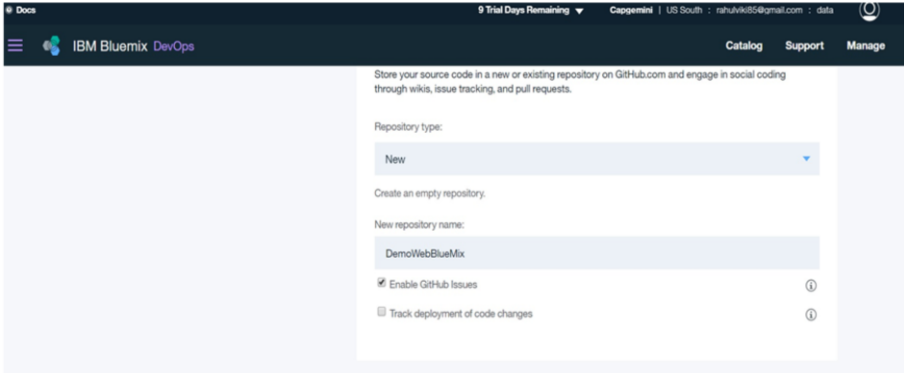
Page XX-21

Instructor Notes:

6.3: Bluemix with DevOps

IBM Bluemix

- If we haven't authorized with GitHub, we are prompted to do so. Click Authorize and follow the instructions to link your Bluemix account to a GitHub account.



The screenshot shows the IBM Bluemix DevOps console. The header includes 'Docs', '9 Trial Days Remaining', 'Capgemini | US South : rahulvik85@gmail.com : data', and a user profile icon. The main content area is titled 'IBM Bluemix DevOps' and includes a 'Catalog Support Manage' menu. The main text reads: 'Store your source code in a new or existing repository on GitHub.com and engage in social coding through wikis, issue tracking, and pull requests.' Below this, there is a 'Repository type:' dropdown menu set to 'New'. A section titled 'Create an empty repository.' contains a 'New repository name:' input field with the text 'DemoWebBlueMix'. At the bottom, there are two checkboxes: 'Enable GitHub Issues' (checked) and 'Track deployment of code changes' (unchecked). Both checkboxes have an information icon (i) to their right.

Capgemini
CONSULTING TECHNOLOGY ENTERPRISE

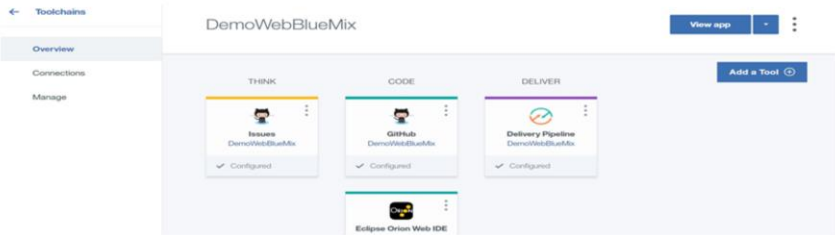
Copyright © Capgemini 2016. All Rights Reserved 22

Instructor Notes:

6.3: Bluemix with DevOps

IBM Bluemix

- Click Create. Several steps run automatically to set up your toolchain:
 - The toolchain is created.
 - The delivery pipeline is created and triggered.
 - The *DemoWebBlueMix* is cloned into your GitHub account.
 - The toolchain is associated with your app. When we push changes to the toolchain's GitHub repo, the pipeline automatically builds and deploys the app.



The screenshot shows the 'Toolchains' page in IBM Bluemix. On the left, a sidebar contains 'Toolchains', 'Overview', 'Connections', and 'Manage'. The main area is titled 'DemoWebBlueMix' and shows a visual pipeline with four stages: 'THINK' (Issues), 'CODE' (GitHub), 'DELIVER' (Delivery Pipeline), and 'Eclipse Orion Web IDE'. Each stage has a 'Configured' status with a checkmark. At the top right, there are buttons for 'View app', a minus sign, and a three-dot menu. At the bottom right, there is an 'Add Tool' button with a plus icon.

Capgemini
CONSULTING TECHNOLOGY SERVICES

Copyright © Capgemini 2016. All Rights Reserved 23

Instructor Notes:

6.3: Bluemix with DevOps

IBM Bluemix

Getting Started

Toolchains

Pipelines

Services

IBM Bluemix DevOps

CatalogSupportManage

Search

Toolchains

Create a Toolchain

1/50 Used

NAME	TOOL INTEGRATIONS	ACTIONS
DemoWebBlueMix		

Capgemini
CONSULTING TECHNOLOGY ENTERPRISE

Copyright © Capgemini 2016. All Rights Reserved24

Instructor Notes:

6.3: Bluemix with DevOps

IBM Bluemix

■ If we click on build stage & deploy stage ,we can add maven ,ant,npm(node) etc and we can configure to deploy on which environment.

Pipelines

DemoWebBlueMix | Delivery Pipeline

Build Stage

STAGE NOT RUN

LAST INPUT
Not yet run

Jobs
Build Not yet run

LAST EXECUTION RESULT
No results

Deploy Stage

STAGE NOT RUN

LAST INPUT
Not yet run

Jobs
Deploy Not yet run

LAST EXECUTION RESULT
No results

Add Stage

Capgemini

CONSULTING TECHNOLOGY ENTERPRISES

Copyright © Capgemini 2016. All Rights Reserved

25

Page XX-25


Instructor Notes:

6.3: Bluemix with DevOps

IBM Bluemix

- Checking the application on bluemix

Welcome To BlueMix.... [Demo](#)

 Capgemini
CONSULTING TECHNOLOGY ENTERPRISE

Copyright © Capgemini 2016. All Rights Reserved 26

Instructor Notes:


6.3: Bluemix with DevOps

IBM Bluemix

- Now again change in the code & push to github repository & see the change ,its build automatically

Welcome To BlueMix....Rahul from L&D [Demo](#)

```
<? page language="java" contentType="text/html; charset=ISO-8859-1"
!   pageEncoding="ISO-8859-1"%>
! <!DOCTYPE html PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://w
! <html>
! <head>
! <meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
! <title>Insert title here</title>
! </head>
! <body>
! Welcome To BlueMix....Rahul from L&D
! <a href="bluemixdemo">Demo</a>
! </body>
! </html>
```

 Capgemini
CONSULTING TECHNOLOGY SERVICES

Copyright © Capgemini 2016. All Rights Reserved 27

Instructor Notes:

6.4: other tools of devops

IBM Bluemix

■ Puppet

- Puppet Enterprise makes it easy to automate the provisioning, configuration and ongoing management of our machines and the software running on them.
- Changes and automatically enforce the consistency of systems and devices - across physical and virtual machines, on premise or in the cloud.
- Reduce cycle times to get more software deployed
- Make fast, iterative changes
- Define a configuration once, and apply it to thousands of machines
- Automatically remediate configuration drift
- Get detailed insight into hardware and software configurations

Instructor Notes:

6.4 Other tools of devops

IBM Bluemix**■ Chef**

- Chef is a powerful automation platform that transforms infrastructure into code. Whether we are operating in the cloud, on-premises, or in a hybrid environment
- Chef automates how infrastructure is configured, deployed, and managed across our network, no matter its size.
- Once we done developing and testing our code locally, on our workstation, we can upload it to the Chef server.
- We need to install a text editor to write code and Chef DK to get the tools to test our code. The primary testing tools we use are Foodcritic, Test Kitchen and ChefSpec.



Copyright © Capgemini 2016. All Rights Reserved 29

Chef is a powerful automation platform that transforms infrastructure into code. Whether you're operating in the cloud, on-premises, or in a hybrid environment, Chef automates how infrastructure is configured, deployed, and managed across your network, no matter its size.

You create and test your code on your workstation before you deploy it to other environments. Your workstation is the computer where you author your cookbooks and administer your network. It's typically the machine you use everyday. It can be any OS you choose, whether it's Linux, Mac OS, or Windows.

You'll need to install a text editor (whatever you like) to write code and Chef DK to get the tools to test your code. The primary testing tools you'll use are Foodcritic, Test Kitchen and ChefSpec. With them, you can make sure your Chef code does what you intended before you deploy it to environments used by others, such as staging or production.

When you write your code, you use resources to describe your network. A resource corresponds to some piece of infrastructure, such as a file, a template, or a package. Each resource declares what state a part of the system should be in, but not how to get there. Chef handles these complexities for you. Chef provides many resources that are ready for you to use. You can also write your own resources if you need to.

A Chef recipe is a file that groups related resources, such as everything needed to configure a web server, database server, or a load balancer. A Chef cookbook provides structure to your recipes and, in general, helps you stay organized.


The Chef DK includes other useful tools such as InSpec, which is an open-source testing framework with a language for specifying compliance, security and policy requirements. Command-line tools include chef-solo, which runs locally and mimics an actual Chef server, knife for interacting with the Chef server, and chef for interacting with your local chef-repo.


Instructor Notes:

Add instructor notes here.

Demo

- Basic Demo on Bluemix
- Bluemix with DevOps





Copyright © Capgemini 2016. All Rights Reserved 30

Add the notes here.

Instructor Notes:

Add instructor notes here.

Lab

- Bluemix with CLI & eclipse
- Creating Toolchain



Copyright © Capgemini 2016. All Rights Reserved 31

Add the notes here.

Instructor Notes:

Add instructor notes here.

Summary

- IBM Bluemix is IBM's innovative cloud computing platform that combines platform as a service (PaaS) with infrastructure as a service (IaaS).
- We can deploy application using CLI & Eclipse
- Other tools of devops



Add the notes here.

Instructor Notes:

Q1. The command output will list all the services and plans offered in IBM Bluemix for a logged in user

Q2. Application name

Q3. By changing the region in the IBM Bluemix web console and redeploying the application and services

Review Question

- A developer logs in to IBM Bluemix with the cf login command and then issue the cf marketplace command, what will be the result?
 - The command output will list all the services on IBM Bluemix which are not free to use
 - The command output will list all the services and plans offered in IBM Bluemix for a logged in user
 - The command output will show required attributes for an application to be made available on IBM cloud market place
 - The command will create an application on IBM blue mix called market place based on contents in the current directory where the cf command is issues



Copyright © Capgemini 2016. All Rights Reserved 33

Add the notes here.

Instructor Notes:

Add instructor notes here.

Review Question

- In IBM BluemixPaaS a developer wants to customize application deployment properties, which field is mandatory for manifest.yml?
 - Host
 - Disk Quota
 - Application name
 - Environment Name
- In IBM BluemixPaaS how can developers redeploy an application from one Bluemix region to another region
 - By changing the route of the application
 - By changing the environment variables in VCAP service
 - By updating the user profile and redeploying the application and services
 - By changing the region in the IBM Bluemix web console and redeploying the application and services



Copyright © Capgemini 2016. All Rights Reserved 34

Add the notes here.