

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



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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



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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

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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.



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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 architecture. At the top, four client types are shown: 'Mobile application', 'Web application', 'Application developer: browser', and 'Application developer: command line'. Arrows point from these clients to the 'Internet' cloud icon. From the Internet, an arrow points down to the 'Bluemix Architecture' box. Inside this box, an arrow points from the Internet to the 'Bluemix UI'. From the UI, an arrow points down to a 'Router'. From the Router, an arrow points down to a 'VM' (Droplet execution agent (DEA)). Inside the VM, there are several small blue squares representing 'Applications'. An arrow points from the VM down to the 'Bluemix Infrastructure (SoftLayer)' box. This box contains three identical 'Applications' boxes, each with a 'Droplet execution agent (DEA)' underneath. To the right of the infrastructure box is a diamond-shaped 'Bluemix Services' icon with a question mark inside.

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How Bluemix cloud Foundry works

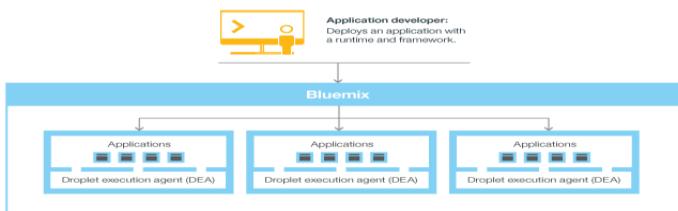
the operating system and infrastructure layers when running apps on Bluemix in Cloud Foundry. Layers such as root filesystems and middleware components are abstracted so that you can focus on your application code. However, you can learn more about these layers if you need specifics on where our app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



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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**.

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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

The screenshot shows the IBM Bluemix dashboard with the following annotations:

- Account:** Labeled on the top right of the header bar.
- Region:** Labeled on the top right of the header bar.
- Organization:** Labeled on the top right of the header bar.
- Space:** Labeled on the top right of the header bar.
- Create App:** A blue button labeled "Create App" with a plus sign.
- Name:** Labeled under the "NAME" column in the app list.
- ROUTE:** Labeled under the "ROUTE" column in the app list.
- URL:** Labeled under the "URL" column in the app list.
- ACTIONS:** Labeled under the "ACTIONS" column in the app list, with a sub-note "Start,Stop resume & delete".

At the bottom left is the Capgemini logo, and at the bottom right is the text "Copyright © Capgemini 2015. All Rights Reserved 9".

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 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



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6.2:Working with Bluemix

IBM Bluemix

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

```
C:\Users\rvikash>cf
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,1    target,t
  help,h      logout,lo

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

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

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



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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
```



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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...
```



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Instructor Notes:

6.2:Working with Bluemix

IBM Bluemix

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

The screenshot shows the IBM Bluemix dashboard interface. At the top, there's a navigation bar with links for 'Docs', '10 Trial Days Remaining', 'Capgemini | US South : rahulvikk@gmail.com : data', 'Catalog', 'Support', and 'Manage'. Below the navigation bar is a search bar with the placeholder 'Search Items' and a 'Create App' button with a plus sign. The main area is titled 'All Apps (2)' and contains a table for 'Cloud Foundry Apps'. The table has columns for NAME, ROUTE, MEMORY (MB), INSTANCES, RUNNING, STATE, and ACTIONS. One row is visible for 'DemoLoginForm' with the route 'DemoLoginForm.mybluemix.net', memory '512 MB', instances '1', state 'Stopped', and actions buttons. The Capgemini logo is at the bottom left, and copyright information is at the bottom right.

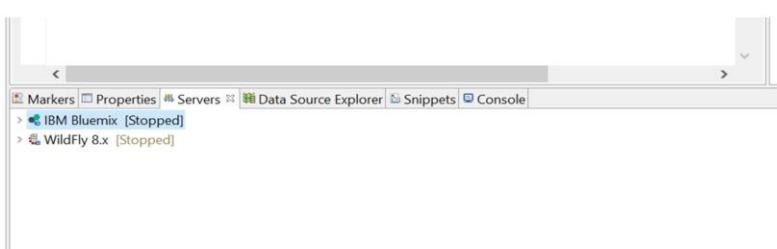
NAME	ROUTE	MEMORY (MB)	INSTANCES	RUNNING	STATE	ACTIONS
DemoLoginForm	DemoLoginForm.mybluemix.net	512	1	<input checked="" type="checkbox"/>	Stopped	

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*



Markers Properties Servers Data Source Explorer Snippets Console

IBM Bluemix [Stopped]

WildFly 8.x [Stopped]

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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

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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>*

How do you want to select the server?

Choose an existing server
 Manually define a new server

Select the server that you want to use:
type filter text

Server	State
Cloud	IBM Bluemix Stopped
localhost	WildFly 8.x Stopped

Create Project
DemoWebBlueMix

Select IBM Bluemix

DemoWebBlueMix [DevOps NO-HEAD]
> Deployment Descriptor: DemoWebBlueMix
> JAX-WS Web Services
> Java Resources
> JavaScript Resources
> build
> WebContent
 manifest.yml
> JavaHelloWorldApp [DevOps NO-HEAD]
lauren
OnlineTicketBookingApp

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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>*

The screenshot shows the IBM Bluemix dashboard interface. At the top, there's a navigation bar with 'Docs', 'IBM Bluemix Apps' (selected), 'Catalog', 'Support', and 'Manage'. Below the navigation is a search bar with 'Search items'. The main area is titled 'All Apps (1)' and shows a single entry: 'Cloud Foundry Apps 512 MB/2 GB Used'. A table lists the app details:

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

At the bottom of the dashboard, there's a Capgemini logo and a copyright notice: 'Copyright © Capgemini 2015. 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.

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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

The screenshot shows the IBM Bluemix Cloud Foundry Apps interface. On the left, there's a sidebar with links like 'Dashboard', 'Getting started', 'Overview' (which is selected), 'Runtime', 'Connections', 'Logs', and 'Monitoring'. The main area displays an application named 'DemoWebBlueMix'. It shows the status as 'Running' with the URL 'DemoWebBlueMix.mybluemix.net'. Below the status, there's a list of recent events:

- updated DemoWebBlueMix app (modified environment)
- updated DemoWebBlueMix app (changed routes)
- created DemoWebBlueMix app

Each event has a timestamp and the user 'rahulviki85@gmail.com'. To the right of the application details, there's a section titled 'Enable the continuous delivery...' with a button labeled 'Enable'. A callout box points to this 'Enable' button, indicating that continuous delivery is currently not enabled for this app. It also mentions that enabling continuous delivery automates builds, tests, and deployments through the Delivery Pipeline, GitHub, and more. A note at the bottom says 'Looking for the ADD GIT button to set up a project at hub.jazz.net? Click [here](#)'.

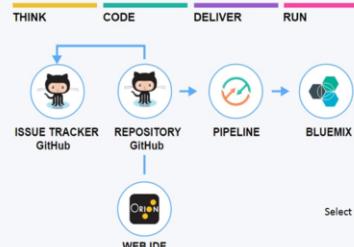
Instructor Notes:6.3:Bluemix with DevOps
IBM Bluemix

- 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**.



Create



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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 interface. At the top, there is a navigation bar with 'Docs', '9 Trial Days Remaining', 'Capgemini | US South : rshulvick85@gmail.com : data', and 'Catalog Support Manage'. Below the navigation bar, there is a message: '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.' A dropdown menu for 'Repository type' is set to 'New'. Below it, there is a section for creating an empty repository with fields for 'New repository name' (set to 'DemoWebBlueMix') and checkboxes for 'Enable GitHub Issues' (checked) and 'Track deployment of code changes'. The Capgemini logo is at the bottom left, and the copyright information 'Copyright © Capgemini 2015. All Rights Reserved 22' is at the bottom right.

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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.

Toolchains

Overview

Connections

Manage

DemoWebBlueMix

Add a Tool

THINK

CODE

DELIVER

Issues DemoWebBlueMix Configured

Github DemoWebBlueMix Configured

Delivery Pipeline DemoWebBlueMix Configured

Eclipse Orion Web IDE

View app

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Instructor Notes:

6.3:Bluemix with DevOps

IBM Bluemix

▪ Return to the toolchain page , the Toolchains page displays all the toolchains that are in our org.

The screenshot shows the IBM Bluemix DevOps interface. At the top, there is a navigation bar with icons for Catalog, Support, and Manage. Below the navigation bar, there is a search bar and a sidebar with links for Getting Started, Toolchains (which is selected), Pipelines, and Services. The main content area is titled "Toolchains" and shows a table with one row. The table has columns for NAME, TOOL INTEGRATIONS, and ACTIONS. The single entry in the table is "DemoWebBlueMix", which has three icons under TOOL INTEGRATIONS: a gear, a person, and a cloud. There is also a "Create a Toolchain" button. At the bottom of the page, there is a Capgemini logo and a copyright notice: "Copyright © Capgemini 2015. All Rights Reserved 24".

NAME	TOOL INTEGRATIONS	ACTIONS
DemoWebBlueMix		

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

Add Stage

Build Stage

STAGE NOT RUN

LAST INPUT [Git URL](#)
Not yet run

JOB [View logs and history](#)
[Build](#) Not yet run

LAST EXECUTION RESULT
No results

Deploy Stage

STAGE NOT RUN

LAST INPUT Stage: Build Stage / Job: Build
Not yet run

JOB [View logs and history](#)
[Deploy](#) Not yet run

LAST EXECUTION RESULT
No results

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6.3:Bluemix with DevOps

IBM Bluemix

- Checking the application on bluemix

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



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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
i<html>
i@<head>
i@<meta http-equiv="Content-Type" content="text/html; charset=ISO-8859-1">
'<title>Insert title here</title>
i@</head>
i@<body>
i@ Welcome To BlueMix....Rahul from L&D
. <a href="bluemixdemo">Demo</a>
: </body>
i@</html>
```

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Instructor Notes:

6.3:Bluemix with DevOps

IBM Bluemix- Monitoring and Analytics

- IBM Monitoring and Analytics for Bluemix
 - As a developer, our focus is on delivering new applications and updates continuously. Performance of our code is a critical factor, so having a tool that will help us to optimize it can be extremely valuable.
 - Monitoring and Analytics offers a service that we can use to help us to gain the visibility and control that you need over your application
 - We can use Monitoring and Analytics in development, test, and production Platform as a Service environments.
 - Monitoring and Analytics are:
 - Instant visibility and transparency into our applications performance and health without the need to learn or deploy any other tools.
 - Innovate faster as we spend less time fixing bugs and addressing performance issues and more time developing new features.
 - Use line of code diagnostics to quickly identify root cause issues in our application.
 - Use embedded analytics to search metric data and to find resolutions to our application's problems.
 - Reduce maintenance cost by keeping out application running with minimal effort.



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Instructor Notes:

6.3:Bluemix with DevOps

IBM Bluemix- Monitoring and Analytics

- How to work with ibm monitoring and analytics for bluemix
- Select Menu->services-> monitoring and analytics

The screenshot shows the IBM Bluemix Catalog interface. At the top, there's a navigation bar with 'Docs', '29 Trial Days Remaining', and links for 'Catalog', 'Support', and 'Manage'. Below the navigation is a header 'IBM Bluemix Catalog' with the tagline 'From development to deployment.' On the left, there's a sidebar with 'All Categories' and sections for 'Infrastructure' (Compute, Storage, Network, Security) and 'Apps' (Boilerplates, Cloud Foundry Apps, Containers, OpenWhisk, Mobile). The main area displays several service cards:

- Active Deploy**: Update your running apps with zero downtime, or quickly revert to a previous version. Status: IBM | Beta.
- Auto-Scaling**: Automatically increase or decrease the number of application instances. Status: IBM.
- Availability Monitoring**: Around the world, around the clock availability and performance. Status: IBM.
- Continuous Delivery**: Build, test and deliver using DevOps best practices. Status: IBM | Beta.
- Delivery Pipeline**: You can use the Delivery Pipeline service to automate builds, tests, and deploys. Status: IBM | Deprecated.
- DevOps Insights**: Improve agility, reliability, and security by using machine learning. Status: IBM | Beta.
- Globalization Pipeline**: Manage the translation of your cloud and mobile applications. Status: IBM.
- IBM Alert Notification**: Never miss critical alerts. Notify the right people immediately. Status: IBM.
- Monitoring and Analytics**: Gain the visibility and control you need over your application. Status: IBM.

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6.3:Bluemix with DevOps

IBM Bluemix- Monitoring and Analytics

- In the **Connect to** field, click **Leave unbound** and select the name of your application. Click **Create**. The "Restage Application" dialog displays.
- To restage the application, click **Restage**. The **Connections** tab for your application is displayed. Our app will take a short time to restage.

[View all](#)

Monitoring and Analytics

Gain the visibility and control you need over your application. Determine the response time your users see, understand the performance and availability of the application components, leverage analytics to keep your application up and performing well, and get automatically notified if application problems occur.

IBM

Connect to:

Need Help?
Contact Bluemix Sales

Estimate Monthly Cost
[Cost Calculator](#)

Features

- **Effortless visibility**
Get the visibility you need without taking any time or effort to learn or deploy yet another new tool.
- **Keep your app running**
When your app is up, we can help you keep it up. Reduce your maintenance costs while improving availability.
- **Innovate faster**
Spend your valuable time innovating and delivering value to your users, not chasing bugs and performance issues.
- **Additional diagnostic data available via APMSaaS**
<https://www.ibm.com/marketplace/cloud/application-performance-management/purchase/us/en-us> for deeper diagnostic data

[Create](#)

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Instructor Notes:

6.3:Bluemix with DevOps

IBM Bluemix- Monitoring and Analytics

- To view the Monitoring and Analytics UI, click the **Monitoring and Analytics-xx** icon, where xx is a randomized string that is generated to uniquely identify your service instance.

Connect Monitoring and Analytics-8q

Cloud foundry apps

 DemoMonitoring-164740
Running

Connect DemoMonitoring-164740 to Monitoring and Analytics-8q?

Connect



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6.3:Bluemix with DevOps

IBM Bluemix- Monitoring and Analytics

- Final Performance screen for application

The screenshot shows the IBM Bluemix Services interface with the title "IBM Bluemix- Monitoring and Analytics". It displays the "Applications Connected to Monitoring and Analytics Add-On" section. A message instructs users to select an app from the APPS dropdown in the Dashboard Navigator and then choose the Monitoring and Analytics Add-On. Below this, there is a search bar for "App Name" and an "Action" button. A specific application entry for "DemoMonitoring-164740" is shown in a card format under "Application Health". The card contains the following data:

Availability (%)	88.0%
Average Response Time (ms)	231.7
Best Response Time (ms)	109.0
Worst Response Time (ms)	1,481.0

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Instructor Notes:

6.3:Bluemix with DevOps

IBM Bluemix- Logging

- IBM Bluemix logging capabilities are integrated in the platform and collection of data is automatically enabled for cloud resources. Bluemix, by default, collects and displays logs for your apps, apps runtimes, and compute runtimes where those apps run.
- By using the logging functionality that Bluemix offers, we can:
 - Have visibility into your cloud resources and how they are performing and running.
 - Define trends that help you identify scenarios that require your action.
 - Define trails of data for an app, for example, that you can use for auditing.
 - Reduce the time and effort that is required to locate an issue in an app and repair it.
 - Monitor the deployment of your apps in the cloud platform.
 - Detect when a service or an app is down or crashed.
 - Follow application execution and data flow.
 - Identify vulnerabilities in your app.
 - Detect problems in the infrastructure.
 - Detect problems in the app runtime.



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Instructor Notes:

6.3:Bluemix with DevOps

IBM Bluemix- Logging

To see the deployment or runtime logs of a Cloud Foundry app, complete the following steps:

- From the Apps dashboard, click the name of your Cloud Foundry app.
- From the app details page, click **Logs**. We can see Logs

The screenshot shows the Bluemix Logging interface for the app 'DemoMonitoring-164740'. The app status is 'Running' at 'DemoMonitoring-164740.mybluemix.net'. The logs are displayed in a table with columns for log type, timestamp, and message. The log types shown are API/2, API/1, API/0, and STG/0. The messages include app creation, update, and download logs. The interface includes filters for Log type and App instances, and an Advanced view button.

Log type	Message	Timestamp
API/2	Created app with guid 4e47dd8e-3b7-4264-ab72-bf7b866e8690	Apr 27, 2017 9:57:44 PM
API/1	Updated app with guid 4e47dd8e-3b7-4264-ab72-bf7b866e8690 ([{"route":>"c1Feb203-faab-4540-8ad2-0957ce848a24"}])	Apr 27, 2017 9:57:46 PM
API/0	Updated app with guid 4e47dd8e-3b7-4264-ab72-bf7b866e8690 ([{"environment_json":>"PRIVATE DATA HIDDEN"})]	Apr 27, 2017 9:57:58 PM
STG/0	Downloading go_buildpack...	Apr 27, 2017 9:58:26 PM
STG/0	Downloading xpages_buildpack...	Apr 27, 2017 9:58:26 PM
STG/0	Downloaded binary_buildpack	Apr 27, 2017 9:58:26 PM

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Instructor Notes:

6.4:other tools of devops

Other tools of DevOps

- 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



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Instructor Notes:

6.4: Other tools of devops

Other tools of DevOps

- 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.

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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
- Monitoring, Analysis and Logging demo



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Add the notes here.

Instructor Notes:

Add instructor notes here.

Lab

- Bluemix with CLI & eclipse
- Creating Toolchain



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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



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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 issued



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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



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Add the notes here.