

Section 1 Module 1.1 - HLDD

Section 1 - IBM Cloud Compute Options

Module 1.1 Distinguish between the various IBM Platform compute options

Topics

- Overview of cloud computing
- Deployment options for cloud computing
- Server options for cloud computing

Course Description

This interactive course provides learners with the skills and knowledge required to begin a career as a professional IBM Cloud developer and successfully earn the IBM Cloud Professional Developer role certification. Learners will read and interact with the course content and apply their learning using practice exercises in a virtual lab environment.

Duration

90 minutes

Learning Objectives

Upon completing this course, the learners will be able to do the following:

- List and provide use cases for each of the cloud application development architectures and compute options
- Explain the variances between and across public, private and hybrid-cloud enterprise grade offerings
- Describe the role of Docker, Kubernetes and Red Hat OpenShift in IBM Cloud services
- Provide use cases for Platform as a Service (PaaS), Infrastructure as a Service (IaaS), Function as a Service (FaaS) and Software as a Service (SaaS) service models
- Build a serverless application using IBM Cloud functions
- Describe Cloud Foundry capabilities on IBM Cloud
- Compare and contrast containers and virtual machines
- Describe the relationship between Kubernetes and IBM Cloud
- Deploy an application on IBM Cloud Kubernetes Service
- Discuss the benefits of using Red Hat OpenShift on IBM Cloud
- Deploy an application on Red Hat OpenShift on IBM Cloud
- Describe the different integration services in IBM Cloud
- Migrate a cloud application to the IBM Cloud
- Design a typical cloud security configuration and justify the configuration
- List and compare the IBM Cloud data service options

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- Deploy the Watson IoT Platform
- Manage, run and troubleshoot an IBM Cloud application
- Summarize the features and benefits of DevOps and continuous delivery
- Implement an automated DevOps cloud deployment
- Identify troubleshooting techniques specific to cloud services

Lab

Describe the lab learning objectives, the necessary setup, etc. If no lab, just say None.

None for Section 1 – Cloud Platform compute options

Reusable Materials

Intro to cloud computing course
Architecture Course

Course Outline

Distinguish between the various IBM Cloud Platform compute options

Lesson	Learning Objective	Time Estimate	Tool
Lesson 1 – Define cloud computing and the choices available to a developer when creating cloud applications <i>Design Strategy:</i> • Description/definition of cloud computing - <i>Rise text block intro</i> • Examples of computing resources – <i>4 image grid</i> • 5 essential characteristics – (Storyline/Camtasia) <i>animated video</i> • Cloud model is composed of.... – <i>text block intro...3 Flash cards</i> • Types of deployment models – <i>storyline file w/audio embedded in Rise</i> • 3 service models – <i>Tabs interaction</i>	Explain the variances between and across public, private and hybrid-cloud enterprise grade offerings	15 minutes	Articulate Rise

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• Key drivers for cloud – <i>Text block intro/Storyline file w/audio embedded.</i> • Benefits of cloud adoption – <i>Process block w/audio</i> • Challenges of cloud adoption – <i>Process block w/audio</i> • Cloud adoption is here - <i>Text/image block/accordion tabs</i>			
Lesson 2 – Explain the difference between IaaS, PaaS, SaaS, and FaaS service models <i>Design Strategy:</i> • Defining (short) IaaS, PaaS, SaaS, FaaS – <i>Text Intro/Tabs interaction</i> • Overview of each service model – <i>Storyline animation/video embedded in Rise</i> • Service model analogy – <i>Car labeled graphic (from video)</i> • IaaS – <i>storyline/Camtasia video</i> • PaaS – <i>storyline/Camtasia video</i> • SaaS – <i>storyline/Camtasia video</i> • FaaS – <i>storyline/Camtasia video</i> • Key Features (each separately) – <i>Text desc./bulleted list for each</i> • Differences between (characteristics) – <i>Sorting activity</i>	Provide use cases for Platform as a Service (PaaS), Infrastructure as a Service (IaaS), Function as a Service (FaaS) and Software as a Service (SaaS) service models	20 minutes	Articulate Rise – same file as above
Lesson 3 – Understand the deployment options for cloud	Discuss the purpose and differences between the private, community, public, and hybrid cloud.	20 minutes	Articulate Rise – same file as above

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(private, community, public, hybrid, virtualization)			
Design Strategy: • Definition of 4 deployment models – <i>4 tab interaction</i> • Public Cloud explained – <i>Storyline/Camtasia video</i> • Public cloud sample application architecture – <i>images and text</i> • Public cloud benefits – <i>flashcards</i> • Public cloud concerns – <i>flashcards</i> • Private cloud explained – <i>storyline/Camtasia video</i> • Benefits of private cloud – <i>flashcards</i> • Private cloud common use cases – <i>process block</i> • Cloud Paks solution – <i>interactive image w/markers</i> • Hybrid cloud explained – <i>storyline/Camtasia video</i> • Types of hybrid clouds – <i>flashcards</i> • Benefits of hybrid cloud – <i>bulleted list</i> • Hybrid cloud use cases – <i>process block</i> • Virtualization explained – <i>Storyline/Camtasia video</i>			
	TOTAL TIME	55 minutes	

Understand the Core Concepts of IBM Cloud

Lesson	Learning Objective	Time Estimate	Tool
Lesson 4 – Understand the different IBM Cloud Account Types		3 minutes	Articulate Rise – same file as above

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What is an account? – <i>text box description</i>			
Comparing accounts – <i>tabs interaction</i>			
Lite, pay-as-you-go, subscription account description – <i>process block</i>			
Lesson 5 – Understand the benefits of Availability Zones			
Availability zone definition – <i>text box</i>			

Distinguish between the various IBM Cloud Platform Compute Options

Lesson	Learning Objective	Time Estimate	Tool
Lesson 6 – Describe the compute option of “Bare Metal Server”	List and compare the IBM Cloud data service options	3 minutes	Articulate Rise – same file as above
Cloud Platform Compute Options (4) – <i>flashcard grid</i>			
Bare Metal Server description – <i>text w/image</i>			
Bare Metal server options – <i>accordion tab block</i>			
2 nd generation AMD – <i>image/text/bulleted list</i>			
SVP quote on AMD processors – <i>quote block</i>			
Bare Metal Servers use cases - <i>timeline w/audio</i>			
Lesson 7 – Describe the compute option of “Hyper Protect Virtual Server”	List and compare the IBM Cloud data service options	4 minutes	Articulate Rise – same file as above
Hyper Protect Virtual server description – <i>text w/image & accordion block</i>			

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Hyper Protect VS benefits – <i>bullet list</i>			
Hyper Protect VS key features – <i>bullet list</i>			
Server confidentiality (3 steps) – <i>process block</i>			
Bare Metal Servers vs. Virtual Servers – <i>2 flashcard grid</i>			
Bare Metal Servers vs. Virtual Servers - <i>sorting</i>			
Lesson 8 – Describe the compute option of “Power Systems Virtual Server”	List and compare the IBM Cloud data service options	5 minutes	Articulate Rise – same file as above
Power Systems Virtual server description – <i>text w/image</i>			
Roadmap for Power Systems – <i>tabs block</i>			
Key features – <i>accordion block</i>			
Public network – <i>bullet list</i>			
Private network – <i>bullet list</i>			
Partner Opportunity – <i>tabs block</i>			
Use cases – <i>flash cards</i>			
Client offerings (pdf) – <i>text block</i>			
Lesson 9 – Describe the compute option of “Virtual Server”	List and compare the IBM Cloud data service options	10 minutes	Articulate Rise – same file as above
Virtual Server description – <i>text box w/image</i>			
Key features – <i>accordion block</i>			
Virtual server options – <i>tabs interaction</i>			
Virtual server option characteristics – <i>sorting activity</i>			
Deploying a public cloud server – <i>screen shots w/instructions</i>			
Image template described – <i>text block</i>			
Managing images – <i>text block</i>			

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How to create an image template – <i>screen shots w/instructions</i>			
Lesson 10 – Describe the IBM cloud for VMware Solutions option	List and compare the IBM Cloud data service options	5 minutes	Articulate Rise – same file as above
VMware solutions option description – <i>text block w/image</i>			
Security leadership – <i>flashcard stack</i>			
Enterprise grade – <i>text block w/image</i>			
Enterprise grade – <i>flashcard stack</i>			
Global scale – <i>flashcard grid (3)</i>			
VMware solutions benefits – <i>timeline</i>			
VMware globally – <i>image (globe) w/markers</i>			
VMware highlights (market share) – <i>image w/bullet text</i>			
Use case – <i>text block</i>			
VM Solutions products (shared, dedicated, single-node) - <i>flashcard</i>			
VM Shared overview – <i>text block</i>			
VM shared subscription service, function, data centers – <i>process block</i>			
VMware Solutions Shared architecture – <i>accordion block</i>			
Dedicated vCenter Server Overview – <i>text block</i>			
Lesson 11 – Describe the IBM Cloud Virtual Private Cloud Options	List and compare the IBM Cloud data service options	5 minutes	Articulate Rise – same file as above
Virtual private cloud description – <i>text w/image</i>			
Virtual private cloud features – <i>accordion tabs</i>			
Virtual private cloud benefits - <i>timeline</i>			

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Virtual private cloud architecture – <i>tabs block</i>			
Virtual private cloud security – <i>cloud image w/markers</i>			
	TOTAL TIME	90 minutes	