CLOUD INFRASTRUCTURE AND SERVICES (CIS)

"Cloud essentials" course for all IT professionals responsible for server, storage, networking, and applications

COURSE OVERVIEW

The Cloud Infrastructure and Services (CIS) course educates students about cloud deployment and service models, cloud infrastructure, and the key considerations in migrating to cloud computing. For all definitions of cloud computing, the course has resorted to the U.S. National Institute of Standards and Technology as a guide. The course covers technologies required to build classic (traditional), virtualized, and cloud data center environments. These technologies include compute, storage, networking, desktop and application virtualization. Additional areas of focus are backup/recovery, business continuity, security, and management. Students will learn about the key considerations and steps involved in transitioning from the current state of a data center to a cloud computing environment. Upon completing this course, students will have the knowledge to make informed decisions about migrating to cloud infrastructure and choosing the best deployment model for an organization.

CLOUD INFRASTRUCTURES AND SERVICES COURSE CONSISTS OF 11 MODULES:

Module 1: Journey to the Cloud
This module focuses on the business drivers, definition, essential characteristics, and phases in the journey to the cloud.

Module 2: Classic Data Center (CDC)
This module focuses on the key elements of CDC – compute, storage, and network – with focus on storage networking, business continuity, and data center management. This module covers classic compute and network at a high level, based on the assumption that students are already familiar with those technologies.

Module 3: Virtualized Data Center (VDC) – Compute
This module focuses on the compute aspect of the VDC. It explains the fundamental concepts of compute virtualization and covers compute virtualization techniques. This module also details virtual machine (VM) components and management of compute resources. Finally, it covers the process to convert physical machine to VM.

Module 4: Virtualized Data Center (VDC) – Storage
This module focuses on storage virtualization implementation, key underlying technologies, and methods for providing virtual storage to compute systems in a VDC environment.

Module 5: Virtualized Data Center (VDC) – Networking
This module focuses on networking in a VDC environment. It covers network virtualization in VDC, VDC network infrastructure and components, virtual LAN, and virtual SAN. It also covers the key network traffic management techniques.

EDUCATION SERVICES

Module 6: Virtualized Data Center (VDC) – Desktop and Application

This module focuses on the various aspects of desktop and application virtualization technologies.

Module 7: Business Continuity in VDC

This module focuses on the concepts and techniques employed for ensuring business continuity in a Virtualized Data Center (VDC) environment. It discusses the mechanisms to protect single point of failure in a VDC. Next, it covers the various technology options for backup, replication, and migration of Virtual Machines (VM) and their data in a VDC environment. Finally, it discusses the various options for recovering from total site failure due to a disaster.

Module 8: Cloud Computing Primer

This module focuses on the essential characteristics of cloud computing, the various cloud services and deployment models, and the economics of cloud.

Module 9: Cloud Infrastructure and Management

This module focuses on the cloud infrastructure components and cloud service creation processes. It also includes the cloud service management processes that ensure that the delivery of cloud services is aligned with business objectives and expectations of cloud service consumers.

Module 10: Cloud Security

This module focuses on security concerns and counter measures in a VDC and cloud environment. It discusses key security concerns and threats. It covers various infrastructure security mechanisms in VDC and cloud environments, including access control, identity management, governance, and more. Additionally, the module lists cloud security best practices.

Module 11: Cloud Migration Considerations

This module focuses on considerations for migration to the cloud. It details 'cloud models' suitable for different categories of users. Further, it covers considerations for choosing candidate application and various other considerations for migration to cloud. It also covers various phases of cloud adoption.

Faculty profile for success

Faculty who have been teaching courses on the following topics will have an added advantage in successfully teaching the CIS course:

1. Systems integration
2. Computer systems administration
3. Network administration
4. Operating systems, file systems, and data structures

Student profile for success

Students who have completed courses on the following topics will have an added advantage in successfully completing the CIS course:

1. Computer systems and architectures
2. Networking technologies
3. Operating system
4. Information storage and management

The knowledge you gain through the Cloud Infrastructure and Services (CIS) 'open' course can be applied to impact business decisions in a variety of ways

Key activities	Business Impact
1 Explain the importance and benefits of Cloud computing and the need for its rapid adoption	Motivate business stakeholders and IT teams alike. Needs and benefits of cloud computing must be clear and consistent to anyone involved.
2 Explain roadmap for transformation from Classic to Cloud environment	Establish a common view on the virtualization and cloud transformation roadmap enables various IT functional teams to share a common reference in terms of transformation phase and dependencies.
3 Identify and differentiate various infrastructure components of classic and virtualized data center	Effective differentiation of infrastructure components leads to clear segmentation of virtualization responsibility and reduces confusion at a later phase of the infrastructure transformation.
4 Explain virtualization requirements and available tools at each layer of IT infrastructure	Encourages the consideration of pervasive virtualization involving Servers, Storage, Networking, and other infrastructure components.
5 Explain business continuity options in a virtualized environment	Business continuity enables reduction in downtime and performance impact on business applications.
6 Discuss effective cloud computing deployment models for businesses /IT organizations	Depending on the business requirement, IT teams must propose a balanced approach in terms of various deployment models (private, public and hybrid).
7 Perform detailed exploration of cloud products and services	Business/IT requirements differ by company and lines-of-business. Cloud services can be tailored per requirement as long as the IT department can help define and manage the required services (SaaS, PaaS and Iaas).
8 Describe infrastructure framework and service management activities in Cloud computing	Essential for Cloud Architects and anyone involved in planning and implementing IT-as-a-Service. Establishes common language within the team to correlate services to required infrastructure.
9 Understand and address security concerns commonly found in Cloud computing environments	Security is a prominent concern in IT overall. However, cloud computing introduces unique challenges that need to be identified and addressed.
10 Formulate high-level cloud migration strategy and best practices	Establish and share migration strategy so the IT team can seamlessly migrate from classic to virtualized to cloud environment with little to no disruption to the business and customers.

EMC²®