

Course Outline

Lesson 1: Planning a Cloud Solution Architecture

Topic A: Determine Business Needs for Cloud Computing Solutions

- Determine the business needs for cloud computing solutions.

Terminology Review

- Identify the terminology used in cloud computing.

Core Concepts of Cloud Computing

- Identify core concepts used in cloud computing.

Business Trends in Cloud Computing

- Describe business trends in cloud computing.

Emerging Trends in Cloud Computing

- Describe emerging trends in cloud computing.

Key IT Roles in Cloud Computing

- Identify key IT roles in cloud computing.

Core Responsibilities of a Cloud Architect

- Describe the core responsibilities of a cloud architect.

Guidelines for Determining Business Needs for Cloud Computing Solutions

Determining Business Needs for Cloud Computing Solutions

Topic B: Identify Cloud Computing Facility Requirements

- Identify cloud computing facility requirements.

Data Centers

- Describe requirements for cloud data centers.

Modular Data Centers

- Describe modular data centers.

Carriers

- Describe carriers as related to cloud computing data centers.

Carrier Neutrality

- Describe the carrier neutrality related to cloud computing solutions.

Electrical Support

- Describe electrical support needed for cloud computing facilities.

Identify Requirements for Cloud Computing Facilities

Topic C: Determine the Type of Cloud Service Model

- Determine the type of cloud service model a business needs.

Key Service Models and Providers

- Identify the key service models and some example providers.

Software as a Service (SaaS) and Traditional Software Purchases

- Describe software as a service compared to traditional software purchase and implementation.

Key Reasons for Selecting SaaS Solutions

- Identify common reasons why SaaS solutions are selected over traditional software purchases.

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Platform as a Service (PaaS) and Traditional Application Deployment

- Describe platform as a service compared to traditional application deployment options.

Key Reasons for Selecting PaaS Solutions

- Identify common reasons why PaaS Solutions are selected over traditional application deployment solutions.

Infrastructure as a Service (IaaS) and Traditional Infrastructure

- Describe infrastructure as a service compared to maintaining traditional infrastructure.

Key Reasons for Selecting IaaS Solutions

- Identify common reasons why IaaS solutions are selected over traditional infrastructure.

Guidelines for Determining the Type of Cloud Service Model Required

Determining the Type of Cloud Service Model Required

Topic D: Determine the Type of Cloud Implementation to Use

- Determine what type of cloud implementations best meet business needs.

Overview of Cloud Implementations

- Describe the different cloud implementations.

Public Cloud and Traditional Networking Infrastructures

- Describe the public cloud implementation compared to traditional infrastructure.

Key Reasons to Select Public Cloud Implementation

- Identify key reasons why a business would select a public cloud implementation.

Private Cloud and Traditional Networking Infrastructures

- Describe the private cloud implementation compared to traditional infrastructure.

Key Reason to Select Private Cloud Implementation

- Identify key reasons why a business would select a private cloud implementation.

Hybrid Cloud and Traditional Networking Infrastructure

- Identify the hybrid cloud implementation compared to traditional infrastructure.

Key Reasons to Select a Hybrid Cloud Implementation

- Identify key reasons why a business would select a hybrid cloud implementation.

Guidelines for Determining the Type of Cloud Implementation to Use

Determining the Type of Cloud Implementation to Use

Lesson 2: Selecting Amazon Web Services Building Blocks

Topic A: Select Availability and Management Building Blocks

- Select the AWS Building Blocks that provide availability and management.

Global Infrastructure

- Describe how global infrastructure facilitates cloud computing.

Multiple Global Availability Zones

- Describe the multiple global availability zones.

Key Benefits for Global Availability Zones

- Identify the key benefits of global availability zones.

Location Concerns

Course Outline

- Describe location concerns related to data, apps, and services.

Management and Administration of AWS

- Identify the management and administration options for AWS.

AWS Building Blocks

- Identify AWS Building Blocks.

AWS Building Block Scenarios

- Describe the AWS building block scenarios.

Guidelines for Selecting AWS Building Blocks for Availability and Management

Selecting AWS Building Blocks for Availability and Management

Topic B: Select AWS Cross Cloud Service Features

- Select AWS cross cloud service features to support business needs.

Amazon CloudWatch

- Describe Amazon CloudWatch.

Amazon Simple Notification Services (SNS)

- Describe the Amazon SNS.

Amazon Simple Workflow Service (SWF)

- Describe the Amazon SWF.

AWS Elastic Beanstalk

- Describe AWS Elastic Beanstalk.

AWS CloudFormation

- Describe AWS CloudFormation.

AWS Identity and Access Management (IAM)

- Describe AWS IAM.

AWS Cross Cloud Service Feature Scenarios

- Identify AWS cross cloud service feature scenarios.

Guidelines for Selecting AWS Cross Cloud Service Features

Selecting AWS Cross Cloud Service Features

Topic C: Select AWS Platform Building Blocks

- Select AWS platform building blocks to meet business needs.

Amazon Simple Queue Service (SQS)

- Describe Amazon SQS.

Amazon Simple Email Service (SES)

- Describe Amazon SES.

Amazon CloudSearch

- Describe Amazon CloudSearch.

Amazon CloudFront

- Describe Amazon CloudFront.

Amazon Elastic MapReduce (EMR)

- Describe Amazon EMR.

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AWS PaaS Example Scenario

- Describe an example of using AWS PaaS.

Guidelines for Selecting AWS Platform Building Blocks

Selecting AWS Platform Building Blocks

Lesson 3: Selecting AWS Infrastructure Components

Topic A: Select AWS Compute Components

- Select AWS compute components.

Key Concerns for Compute and Networking Components

- Describe key concerns for selecting compute components.

Compute Components for Cloud Computing

- List compute components commonly used for cloud computing.

AWS Infrastructure Overview

- Describe the infrastructure of the AWS.

Amazon Elastic Compute Cloud (EC2)

- Describe Amazon EC2.

Virtualization for Cloud Computing

- Describe how virtualization is used in cloud computing solutions

Amazon Virtual Private Cloud (VPC)

- Describe Amazon VPC.

Auto Scaling

- Define auto scaling.

AWS IaaS Example Scenario

- Describe an example of using AWS IaaS.

Guidelines for Selecting AWS Compute Components

Selecting AWS Compute Components

Topic B: Select AWS Networking Components

Key Concerns for Networking Components

- Describe key concerns for selecting networking components.

Network Components for Cloud Computing

- Describe common network components used in cloud computing solutions.

Elastic Load Balancing

- Describe elastic load balancing.

Amazon WorkSpaces

- Describe Amazon WorkSpaces.

Amazon Route 53

- Describe Amazon Route 53.

AWS Direct Connect

- Describe AWS Direct Connect.

AWS Infrastructure Example

Course Outline

- Describe an example of AWS infrastructure.

Guidelines for Selecting AWS Networking Components

Selecting AWS Networking Components

Topic C: Select AWS Database Services

- Select AWS database services.

Key Concerns for Database Services

- Describe key concerns business have when selecting database services

Relational Databases

- Describe relational databases.

Amazon Relational Database Service (RDS)

- Describe Amazon RDS.

Amazon DynamoDB

- Describe Amazon DynamoDB.

Amazon ElastiCache

- Describe Amazon ElastiCache.

Amazon Redshift

- Describe Amazon Redshift.

Amazon SimpleDB

- Describe Amazon SimpleDB.

Guidelines for Selecting AWS Database Services

Selecting AWS Database Services

Topic D: Select AWS Storage and Content Delivery Components

- Select AWS storage and content delivery.

Key Concerns for Storage and Content Delivery Components

- Describe key concerns business have when selecting storage and content delivery.

Storage and Content Delivery Components for Cloud Computing

- Identify storage and content delivery components.

Object Storage and Block Storage

- Compare object storage and block storage.

Amazon Simple Storage Service (S3)

- Describe Amazon S3.

Amazon Glacier

- Describe Amazon Glacier.

Amazon Elastic Block Store (EBS)

- Describe Amazon EBS.

AWS Import and Export Services

- Describe the AWS import and export services.

Storage Integration with Amazon CloudFront

- Describe Amazon CloudFront.

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Guidelines for Selecting AWS Storage and Content Delivery Components

Selecting AWS Storage and Content Delivery Components

Topic E: Monitor AWS Solutions with Analytics

- Monitor AWS solutions with analytics.

Key Concerns for Analytics

- Describe key concerns business have for monitoring cloud infrastructure and components

Overview of AWS Analytics

- Describe AWS analytics.

Amazon Elastic MapReduce (EMR)

- Describe Amazon EMR.

Amazon Kinesis

- Describe Amazon Kinesis.

Amazon Data Pipeline

- Describe the Amazon Data Pipeline.

Third Party Analytics Solutions

- Describe third party analytics solutions.

AWS Analytics Scenarios

- Describe different AWS analytics scenarios.

Guidelines for Monitoring AWS Solutions

Monitoring AWS Solutions with Analytics

Lesson 4: Selecting Rackspace Cloud Features and Components

Topic A: Select Rackspace Cloud Compute and Network Components

- Select Rackspace cloud compute and network components.

Rackspace Cloud Servers

- Define Rackspace Cloud Server options.

RackConnect

- Describe RackConnect for hybrid solutions.

Rackspace Cloud Networks

- Describe Rackspace Cloud Network options.

Rackspace Load Balancers

- Describe load balancers in Rackspace Cloud.

Rackspace Cloud DNS

- Describe cloud DNS in Rackspace Cloud.

Rackspace OnMetal

- Describe Rackspace OnMetal service offerings.

Rackspace Auto Scale

- Describe Auto Scale features in Rackspace cloud implementations.

Orchestration

- Describe orchestration provisioning and management features.

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Guidelines for Selecting Rackspace Compute and Network Components

Selecting Rackspace Compute and Network Components

Topic B: Select Rackspace Cloud Database Components

- Select Rackspace cloud databases.

Cloud Databases

- Describe databases offerings in Rackspace cloud solutions

MySQL Database

- Describe MySQL database as compared to other database solutions.

Percona Server

- Describe Percona Server as compared to other database solutions.

MariaDB

- Describe MariaDB as compared to other database solutions.

NoSQL Databases

- Describe NoSQL Databases.

ObjectRocket

- Describe the ObjectRocket NoSQL database option.

Managed NoSQL Databases

- Describe managed NoSQL database options in Rackspace Cloud.

Big Data Platform

- Describe the Rackspace Cloud Big Data Platform.

Cloud Queuing

- Describe cloud queuing services available for applications.

Guidelines for Selecting Rackspace Cloud Database Components

Selecting Rackspace Cloud Database Components

Topic C: Select Rackspace Cloud Storage

- Select Rackspace Cloud block storage to meet requirements.

Block Storage

- Describe block storage.

Cloud Files

- Describe cloud files.

Cloud Backup

- Describe cloud backup.

Rackspace Cloud Content Delivery Network (CDN)

- Describe Rackspace's CDN option.

Guidelines for Selecting Rackspace Cloud Storage

Selecting Rackspace Cloud Storage

Topic D: Monitor Rackspace Solutions with Cloud Analytics

- Monitor Rackspace Cloud analytics.

Rackspace Cloud Monitoring

Course Outline

- Describe cloud monitoring options for Rackspace cloud solutions.

Configuration Requirements

- Describe configuration requirements for cloud monitoring.

Remote Monitoring

- Describe remote monitoring options for monitoring Rackspace cloud solutions.

System Status Monitoring

- Describe system status monitoring.

Platform Status Monitoring

- Describe platform status monitoring.

Agent Monitoring

- Describe agent monitoring.

Data Monitoring

- Describe data monitoring.

Alarms and Notifications

- Describe alarm and notification options.

Security

- Describe options for secure monitoring.

Third Party Solutions

- Describe third party analytics solutions.

Guidelines for Monitoring Rackspace PaaS and IaaS Analytics Solutions

Monitoring Rackspace PaaS and IaaS Analytics Solutions

Lesson 5: Selecting Microsoft Azure Features and Components

Topic A: Select Azure Compute and Network Services

- Select Azure compute and network services.

Virtual Machines

- Describe virtual machines.

Azure Cloud Services

- List Azure cloud services.

Web Sites

- Describe web sites.

Mobile Services

- Describe mobile services.

ExpressRoute

- Describe ExpressRoute.

Virtual Network

- Describe virtual network.

Azure Traffic Manager

- Describe Azure Traffic Manager.

Guidelines for Selecting Azure Compute and Network Services

Course Outline

Selecting Azure Compute and Network Services

Topic B: Select Azure Data Services

- Select Azure data services.

Azure Storage Options

- Describe Azure storage options.

SQL Databases

- Describe SQL databases.

Microsoft SQL Server

- Describe Microsoft SQL Server in Azure solutions

HDInsight

- Define HDInsight.

Cache

- Describe cache.

Recovery Services

- Describe recovery services.

Guidelines for Selecting Azure Data Services

Selecting Azure Data Services

Topic C: Select Azure App Services

- Select Azure app services.

Azure Media Services

- Describe media services in Azure.

Azure Service Bus

- Describe service bus in Azure.

Azure Notification Hubs

- Describe notification hub in Azure.

Azure Scheduler

- Describe the Azure Scheduler.

BizTalk Services

- Describe BizTalk services in Azure.

Active Directory

- Describe Active Directory in Azure.

Multi-factor Authentication

- Describe multi-factor authentication in Azure.

Guidelines for Selecting Azure App Services

Selecting Azure App Services

Topic D: Monitor Azure Solutions with Analytics

- Monitor Azure Solutions with analytics.

Azure Cloud Service Monitoring

<https://azure.microsoft.com/en-us/documentation/articles/cloud-services-how-to-monitor/>

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Azure Diagnostics for Cloud Services

- Describe Azure cloud service monitoring and diagnostics

Options for Enabling Diagnostics Connection String

- Describe the options for enabling the diagnostics connection string

Monitoring Levels

- Describe monitoring levels available in Azure monitoring and diagnostics

Metrics Table

- Describe the metrics table in in Azure monitoring and diagnostics

Metrics Chart

- Describe the metrics chart in in Azure monitoring and diagnostics

Options for Accessing Data Outside the Azure Portal

- Describe options for accessing data outside the Azure Portal.

Third Party Solutions

- Describe third party analytics solutions available.

Guidelines for Monitoring Azure PaaS and IaaS Analytics Solutions

Monitoring Azure PaaS and IaaS Analytics Solutions

Topic E: Select a Cloud Provider to Meet Business Needs

- Select from different cloud providers to choose the provider that best meets your needs.

Map of Components

- Describe how components of major cloud providers map to functions and services.

Building Blocks Visualized

- Visualize how components combine to create cloud solutions.

Red Hat OpenStack Deployment

- Describe a Red Hat OpenStack deployment.

AWS Standard Architecture

- Describe the standard architecture of an AWS solution.

Azure Standard Architecture

- Describe the standard architecture of an Azure solution.

Cloud Service Providers Analysis

- Compare services and features available from major cloud service providers.

Guidelines for Selecting a Cloud Provider to Meet Business Needs

Selecting a Cloud Provider to Meet Business Needs

Lesson 6: Managing Hardware Requirements and Constraints

Topic A: Manage Compute Resources

- Manage compute resources to mitigate constraints.

CPU Usage Consideration by Applications

- Describe processing power needs.

CPU Bound Applications

- Describe CPU bound applications.

Course Outline

Options for Dealing with CPU Bound Applications

- Describe the options for dealing with CPU bound applications.

Concurrent Processes Issues

- Describe concurrent processes issues.

Scalability: Horizontal Growth of Compute Resources

- Describe horizontal growth of computer resources for scalability.

Scalability: Vertical Growth of Compute Resources

- Describe vertical growth of computer resources for scalability.

License Requirements and Restrictions based on CPU and OS

- Describe the license requirements and restrictions based on CPU and OS.

Guidelines for Managing Compute Resources

Managing Compute Resources

Topic B: Manage Memory Usage for Cloud Solutions

- Manage memory usage for cloud solutions.

Memory Usage in Transaction Processing

- Describe the memory usage in transaction processing.

Memory Bound Applications

- Describe memory bound applications.

Memory Relationship to Performance

- Describe the relationship between memory and performance.

Memory Use Optimization Strategies

- Describe memory use optimization strategies.

Caching

- Describe caching.

Paging

- Describe paging.

OS Type

- Describe OS type.

Sharing

- Describe sharing.

Scalability: Horizontal Growth of Memory

- Describe horizontal growth of memory for scalability.

License Requirements and Restrictions Based on Memory

- Describe the requirements and restrictions based on memory.

Guidelines for Managing Memory Usage in Cloud Solutions

Managing Memory Usage in Cloud Solutions

Topic C: Manage Storage

- Describe the management of storage.

Storage Terminology

- Define storage terminology.

Course Outline

Key Elements of Storage Performance: Disks and Spindles

- Define disks and spindles.

Read and Write Characteristics

- Describe the read and write characteristics.

Application Performance Issues Related to Storage

- Identify the application performance issues related to storage.

Object Storage Performance on SAN and NAS

- Describe the object storage performance on SAN and NAS.

Block Storage Performance on SAN and NAS

- Describe the block storage performance on SAN and NAS.

Backup Considerations

- Identify backup considerations.

Replication Considerations

- Identify replication considerations.

Disaster Recovery Considerations

- Identify disaster recovery considerations.

Guidelines for Managing Storage

Managing Storage

Topic D: Manage Network Components

- Describe the management of network components.

Network Performance Issues

- Describe issues that can arise with network performance in cloud solutions.

Bandwidth Measurement Options

- Identify bandwidth measurement options.

Public Network Types

- Define public network types.

Private Network Types

- Define private network types.

Public and Private Networks

- Compare public and private networks.

LAN and WAN Optimization Considerations

- Describe LAN and WAN optimization considerations.

Guidelines for Managing Network Components

Managing Network Components

Identifying Performance Issues

Lesson 7: Selecting Operating Systems for Cloud Solutions

Topic A: Determine Operating System Requirements

- Determine the requirements for operating systems.

OS Cost Considerations

Course Outline

- Identify OS cost considerations.

Mission Critical OS Needs

- Identify mission critical OS needs.

OS Maintenance

- Describe OS maintenance.

OS Patching

- Describe OS patching.

Application Requirements

- Describe application requirements.

Cloud Support

- Describe cloud support.

Staff Knowledge and Familiarity

- Describe staff knowledge and familiarity.

Guidelines for Determining Operating System Requirements for Cloud Solutions

Determining Operating System Requirements for Cloud Solutions

Topic B: Select Operating Systems for Cloud Solutions

- Select appropriate operating systems for cloud solutions.

Microsoft Windows Server

- Describe the Microsoft Windows Server solution.

Linux Versions

- Describe the Linux solution.

AS-400

- Describe the AS 400 solution.

Unix

- Describe the Unix solution.

Oracle Solaris

- Describe the Oracle Solaris solution.

Common Cloud Operating System Tradeoffs

- Identify the common cloud operating system tradeoffs.

Guidelines for Selecting an Operating System for Cloud Solutions

Selecting an Operating System for Cloud Solutions

Lesson 8: Determining Database Support for Applications

Topic A: Define Database Types

- Define database types to meet requirements of applications.

Common SQL Database

- Describe common SQL databases used in cloud computing.

SQL Database: Oracle MySQL

- Describe Oracle MySQL.

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SQL Database: Oracle Database

- Describe Oracle Database.

SQL Database: Postgres

- Describe Postgres.

Common NoSQL Databases

- Describe common NoSQL databases used in cloud computing.

NoSQL Databases: Column Stores

- Identify column stores in NoSQL databases.

NoSQL Databases: Document Stores

- Identify document stores in NoSQL databases.

NoSQL Databases: Key Value/Tuple Stores

- Identify key value/tuple stores in NoSQL databases.

NoSQL Databases: Graphing

- Identify graphing in NoSQL databases.

NoSQL Databases: Multi-Model

- Identify multi-mode in NoSQL databases.

Comparison of SQL and NoSQL Databases

- Compare SQL and NoSQL databases.

Guidelines for Defining SQL and NoSQL Database Requirements

Defining SQL and NoSQL Database Requirements

Topic B: Select a Database for a Cloud Solution

- Select a database that works for a cloud solution.

Impact of Application Stack on Database Selection

- Identify the impact of the application stack when selecting a database.

Impact of OS on Database Selection

- Identify the impact of the OS when selecting a database.

Impact of Developer Support on Database Selection

- Identify the developer support needed when selecting a database.

Impact of Provider Availability on Database Selection

- Identify the impact of provider availability when selecting a database.

Impact of Additional Cloud Database Features

- Identify the impact of cloud database features when selecting a database.

Guidelines for Selecting a Database for a Cloud Solution

Selecting a Database for a Cloud Solution

Lesson 9: Selecting Middleware to Meet Application Performance Requirements

Topic A: Define Middleware Requirements

- Define the requirements for middleware.

Function of Middleware

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- Describe the function of middleware.

Async RPC

- Define async RPC.

Sync RPC

- Define sync RPC.

Publish/Subscribe

- Define publish and subscribe.

Message-Oriented Middleware

- Describe message-oriented middleware.

SQL-oriented Data Access

- Describe SQL oriented data access.

Middleware Examples

- Identify different examples of middleware.

Guidelines for Defining Middleware Requirements for Cloud Solutions

Defining Middleware Requirements for Cloud Solutions

Topic B: Select an Application Package to Meet Requirements

- Select an application package to meet performance requirements.

Application and Packages Offered by Cloud Providers

- Identify applications and packages offered by cloud providers.

Administrator and User Access

- Compare administrator and user access.

Types of Access

- Identify different types of access.

Performance Expectations

- Describe performance expectations.

Performance Perception and Reality

- Compare performance perception and reality.

Application Service Level Agreements (SLA)

- Describe application service level agreements.

Guidelines for Selecting Application Packages

Selecting Application Packages

Lesson 10: Determining Licensing Requirements for Cloud Services

Topic A: Determining Cloud Licensing Models and Limitations

- Define cloud licensing models and their limitations.

Licensing Constraints in Cloud Environments

- Identify licensing constraints in cloud environments.

Enterprise License Agreements

- Describe enterprise license agreements.

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Blanket License Agreements

- Describe blanket license agreements.

End User License Agreements

- Describe end user license agreements.

Per User and Per Module License Models

- Describe per user and per module license models.

Licensing Models Compared

- Compare different licensing models.

Guidelines for Determining Licensing Requirements for Cloud Solutions

Determining Licensing Requirements for Cloud Solutions

Topic B: Define Service Level Agreements (SLA)

- Define service level agreements and considerations.

Service Level Agreements

- Define service level agreements.

Common Service Level Agreement Terms

- Identify common service level agreement terms.

SLA Consideration: Data Lifecycle Management

- Describe data lifecycle management.

SLA Consideration: High Availability

- Describe high availability.

SLA Consideration: Disaster Recovery

- Describe disaster recovery.

SLA Consideration: Backup and Data Protection

- Describe backup and data protection.

Common Service Level Agreements

- List common service level agreements.

Guidelines for Defining Service Level Agreements

Defining Service Level Agreements

Lesson 11: Protecting Business Continuity

Topic A: Protect Data

- Protect data using different methods available in cloud implementation.

Data Protection

- Describe data protection.

Data Lifecycle Management

- Describe data lifecycle management.

Profile Based Data Retention Policies

- Identify profile based data retention policies.

Data Replication

- Describe data replication.

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Backup Options

- Describe back up options.

High Availability Options

- Describe high availability options.

Snapshots

- Describe snapshots.

Snapshot Application Considerations

- Identify snapshot application considerations.

Cloning

- Describe cloning.

Data Protection Strategy Examples

- Describe examples of data protection strategies.

Guidelines for Protecting Data

Protecting Data

Topic B: Ensure Business Continuity

- Ensure business continuity for cloud solutions.

Approach to Business Continuity

- Describe the approach to business continuity.

Business and IT Consideration

- Identify business and IT considerations.

Business Continuity Scenarios

- Describe different business continuity scenarios.

Escalation Paths

- Identify escalation paths for business continuity.

Automated Processes for Application Continuity

- Describe automated processes for application continuity.

Failover and Testing

- Describe failover and testing.

Guidelines for Ensuring Business Continuity

Ensuring Business Continuity

Topic C: Plan for Disaster Recovery

- Plan for disaster recovery.

Disaster Recovery Plans

- Identify disaster recovery plans.

Application Considerations

- Identify different application considerations.

Business Impact Analysis

- Describe business impact analysis.

Recovery Time Objective

- Describe the recovery time objective.

Course Outline

Recovery Point Objective

- Describe the recovery point objective.

Automatic Conference Bridge

- Describe automatic conference bridges.

Testing the DRP

- Describe the testing of the DRP.

Guidelines for Planning for Disaster Recovery

Planning for Disaster Recovery

Topic D: Implement Effective Data and Business Protection with Cloud Services

- Implement effective data and business protection with cloud services.

Elements of Effective Data and Business Protection

- Identify the elements of effective data and business protection.

Geographic Separation of Data Centers

- Describe the benefit of geographic separation of data centers.

Network Connectivity

- Identify the role of network connectivity.

Reservation of Compute Capability

- Describe the reservation of compute capability.

Storage and Backup Replication

- Identify storage and backup replication options.

DNS and CDN Considerations

- Identify the different DNS and CDN considerations.

Infrastructure Responsibility in the Cloud: Provider

- Describe the infrastructure responsibility in the cloud for providers.

Data Responsibility in the Cloud: Customer

- Describe the data responsibility in the cloud for customers.

Strategies for Effective Cloud Data Project, Business Continuity, and Disaster Recovery

- Identify the strategies for effective cloud data project, business continuity, and disaster recovery.

Responsibilities Matrix

- Describe what providers and customers are responsible for.

Guidelines for Implementing Effective Data and Business Protection with Cloud Services

Implementing Effective Data and Business Protection with Cloud Services

Lesson 12: Securing Data with Encryption

Topic A: Identify Components of Cloud Security

- Identify the different components of cloud security.

Components of Cloud Security

- Describe the different components of cloud security.

Perimeter Security

Course Outline

- Describe perimeter security.

Authentication

- Describe authentication.

Encryption

- Describe encryption.

Key Management

- Describe key management.

Data Security

- Describe data security.

Audit Requirement

- Describe audit requirements.

Identifying Cloud Security Components

Topic B: Use Encryption to Secure Data

- Use encryption to secure data.

What is Encryption?

- Describe encryption.

Uses for Encryption

- Identify uses for encryption.

Encryption Strengths

- Identify different encryption strengths.

Encryption Types

- Identify encryption types.

Encryption Methods

- Identify encryption methods.

Encryption Methods: Hashing

- Identify hashing encryption methods.

Guidelines for Securing Data with Encryption

Using Encryption to Secure Data

Topic C: Manage Encryption Keys

- Manage keys used for data encryption.

Encryption Methods: Symmetric

- Describe symmetric encryption.

Encryption Methods: Asymmetric

- Describe asymmetric encryption.

Key Pairs

- Describe key pairs.

Private Keys

- Describe private keys.

Public Keys

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- Describe public keys.

Key Pair Scenarios

- Describe key pair scenarios.

Certificate Vendors

- Identify different certificate vendors.

Guidelines for Managing Encryption Keys

Using Key Pairs, A Tutorial

Logging into Amazon Web Services with Putty Certificate

Lesson 13: Securing Access to Cloud Services

Topic A: Define Perimeter Security Requirements

- Define perimeter security requirements.

Perimeter Security

- Describe perimeter security components.

Firewall

- Describe firewalls.

Distributed Denial of Services Detection and Mitigation Strategies

- Describe distributed denial of services detection and mitigation strategies.

Intrusion Detection Systems (IDS)

- Describe intrusion detection systems.

Intrusion Protection Systems (IPS)

- Describe intrusion protection systems.

Tracking

- Describe tracking.

Vulnerability Scanning

- Describe vulnerability scanning.

Guidelines for Defining Perimeter Security Requirements

Defining Perimeter Security Requirements

Topic B: Define Authentication Requirements

- Define different authentication requirements.

Authentication Requirements

- Identify common authentication requirements in cloud solutions

Multifactor Authentication

- Describe multifactor authentication.

Single Sign-on

- Describe single sign-on.

Web-based One Login

- Describe web-based one login.

Social Login

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- Describe social login.

Guidelines for Defining Authentication Requirements

Defining Authentication Requirements

Lesson 14: Securing Data in Transit and at Rest

Topic A: Secure Data-in-Transit

- Secure data-in-transit.

Security of Data-in-Transit

- Describe the security of data-in-transit.

Secure Network Communication

- Identify different secure network communications.

Secure Database Communication

- Identify different secure database communications.

File Level Encryption during Transit

- Describe file level encryption during transit.

Backup Encryption during Transit

- Describe backup encryption during transit.

Guidelines for Securing Data in Transit

Securing Data in Transit

Topic B: Secure Data-at-Rest

- Secure data-at-rest.

Security of Data-at-Rest

- Describe the security of data-at-rest.

Disk Level Encryption

- Describe disk level encryption.

Virtual Machine Encryption

- Describe disk level encryption.

Database Encryption at Rest

- Describe encryption at rest.

File Level Encryption at Rest

- Describe file level encryption at rest.

Application Encryption

- Define application encryption.

Data Portability

- Define data portability.

Data Portability Scenarios

- Describe different data portability scenarios.

Guidelines for Securing Data at Rest

Securing Data at Rest

Course Outline

Lesson 15: Monitoring Security

Topic A: Define Security Event Processes

- Define security event processes.

Types of Security Events

- Identify different types of security events.

The Security Breach Process

- Describe the security breach process.

The Escalation Process

- Describe the escalation process.

The Notification Process

- Describe the notification process.

Other Processes

- Identify other processes.

Process Documentation

- Describe documenting the processes.

Forensic Options

- Identify forensic options.

Comparison of Owner and Provider Issues

- Compare owner and provider issues.

Chain of Custody Guarantee

- Define the chain of custody guarantee.

Guidelines for Defining Security Event Processes

Defining Security Event Processes

Topic B: Monitor the Security of Cloud Solutions

- Monitor the security of cloud solutions.

FedRAMP Standard

- Define the FedRAMP standard.

Ad Hoc Audits and Exception Notifications

- Compare ad hoc audits and exception notifications.

Correlated Event Management Portal

- Describe the correlated event management portal.

Policy Based Compliance Reporting

- Describe policy based compliance reporting.

Guidelines for Monitoring Security of Cloud Solutions

Monitoring Security of Cloud Solutions

Lesson 16: Managing Volume

Topic A: Scale Up Cloud Solutions

- Scale up cloud solutions.

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Cloud Solution Scale Up

- Describe common scale up for cloud solutions.

Resources that can be Scaled Up

- Identify the resources that can be scaled up.

Conditions that May Require Scaling Up

- Identify the conditions that may require scaling up.

Comparison of Peak and Average Usage

- Compare peak and average usage.

Compute Scale Up

- Describe compute scale up.

Memory Scale Up

- Describe memory scale up.

Storage Scale Up

- Describe storage scale up.

OS Interruption Dependencies

- Identify OS interruption dependencies.

Schedule Considerations for Hardware Updates

- Describe schedule considerations for hardware updates.

Licensing and Costs Considerations

- Identify licensing and costs considerations.

Guidelines for Scaling Up Cloud Solutions

Scaling Up Cloud Solutions

Topic B: Scale Out Cloud Solutions

- Scale out cloud solutions.

Cloud Solution Scale Out

- Describe common scale out options or cloud solutions.

Comparison of Scale Up and Scale Out

- Compare scale up and scale out.

Scale Out Options

- Identify scale out options.

Application Dependency Considerations

- Identify application dependency considerations.

Load Balancing Considerations

- Identify load balancing considerations.

Licensing and Cost Considerations

- Identify licensing and cost considerations.

Guidelines for Scaling Out Cloud Solutions

Scaling Out Cloud Solutions

Topic C: Bolt On Solutions

- Bolt on capabilities to cloud solutions.

Course Outline

Bolt On Solutions

- Describe the different bolt on solutions.

Conditions that May Require Bolt On Solutions

- Identify the conditions that may require bolt on solutions.

Application Dependency and Compatibility Considerations

- Identify the application dependency and compatibility considerations.

Security Considerations

- Identify the security considerations.

Business Continuity Considerations

- Identify the continuity considerations.

Testing and Deployment Considerations

- Identify the testing and deployment considerations.

Bolt On Scenarios

- Describe different bolt on scenarios.

Guidelines for Bolting On Solutions

Bolting On Solutions

Topic D: Update Interfaces in Cloud Solutions

- Update interfaces in cloud solutions for better performance.

Interface Updates

- Define interface updates.

Application Dependency Considerations

- Identify application dependency considerations.

Security Considerations

- Identify security considerations.

Business Continuity Considerations

- Identify business continuity considerations.

Testing and Deployment Considerations

- Identify testing and deployment considerations.

Interface Update Scenarios

- Describe different interface update scenarios.

Guidelines for Updating Interfaces in Cloud Solutions

Updating Interfaces in Cloud Solutions

Lesson 17: Managing the Application Experience

Topic A: Address Technical Issues that Affect Application Experience

- Address technical issues that affect application experience.

Impact of Application Type

- Describe the impact that different application types will have.

Network Bandwidth Issues

- Identify network bandwidth issues.

Course Outline

Impact for Storage and Input/Output Operations per Second (IOPS)

- Describe the impact for storage and IOPS.

Impact of Application Patching

- Describe the impact that application patching will have.

Impact of Database Performance

- Describe the impact that database performance will have.

Impact of Operating System Levels

- Describe the impact that operating systems will have.

Guidelines for Addressing Technical Issues that Affect Application Experience

Addressing Technical Issues that Affect Application Experience

Topic B: Address User Experience Issues

- Address user experience issues.

User Perception

- Define user perception.

Impact of User Perception

- Identify the impact that user perception will have.

Impact of Executive Interaction

- Identify the impact that executive interaction will have.

Service Level Agreements Related to User Experience

- Describe how service level agreements will affect the user experience.

Synthetic Performance Testing

- Define synthetic performance testing.

Comparison of Synthetic and Real Transactions

- Compare synthetic versus real transactions.

Guidelines for Addressing User Experience Issues

Addressing User Experience Issues

Topic C: Manage Cloud Services to Meet Business Demands

- Manage cloud services to meet business demands.

Business Priorities

- Identify different business priorities.

Peak Planning Considerations

- Identify peak planning considerations.

Cost Considerations

- Identify cost considerations.

Comparison of Pay Now and Pay Later

- Compare pay now and pay later.

SLA Considerations

- Identify SLA considerations.

Guidelines for Managing Cloud Services to Meet Business Demands

Course Outline

Managing Cloud Services to Meet Business Demands

Lesson 18: Managing Business Requirements for Cloud Solutions

Topic A: Identify Business Requirements

- Identify different business requirements for cloud solutions.

Dynamic Nature of Business

- Define the dynamic nature of business.

Impact of Competitive Pressures

- Identify the impact of competitive pressures.

Impact of Organizational Culture

- Identify the impact of organizational culture.

Impact of Leadership Changes

- Identify the impact of leadership changes.

Impact of Global and Local Business and Political Environments

- Identify the impact of global and local business and political environments.

Identifying the Business Requirements of Cloud Solutions

Topic B: Manage Total Cost of Ownership (TCO) and Return on Investment (ROI)

- Manage Total Cost of Ownership and Return on Investment for cloud solutions.

Total Cost of Ownership (TCO)

- Define Total Cost of Ownership.

Return on Investment (ROI)

- Define Return on investment.

Acquisition Costs

- Describe acquisition costs.

Operating Costs

- Describe operating costs.

Maintenance Costs

- Describe maintenance costs.

Staff Training Costs

- Describe staff training costs.

Other Expenses

- Describe other expenses that may come up.

Compare Acquisition and Operation Costs Scenarios

- Compare acquisition and operation cost scenarios.

Guidelines for Managing TCO and ROI of Cloud Solutions

Managing TCO and ROI of Cloud Solutions