ENCC - DESIGNING AND IMPLEMENTING CLOUD CONNECTIVITY V1.0

Course Code: 860014

The Designing and Implementing Cloud Connectivity training helps you develop the skills required to design and implement enterprise cloud connectivity solutions. Learn how to leverage both private and public internet-based connectivity to extend the enterprise network to cloud providers. Explore the basic concepts surrounding public cloud infrastructure and how services like Software as a Service (SaaS) can be integrated. You will practice how to analyze and recommend connectivity models that provide the best quality of experience for users. Implement both Internet Protocol Security (IPsec) and Software-Defined Wide-Area Network (SD-WAN) cloud connectivity, as well as build overlay routing with Open Shortest Path First (OSPF) and Border Gateway Protocol (BGP). Finally, practice troubleshooting cloud connectivity issues relating to IPsec, SD-WAN, routing, application performance, and policy application.

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This training will help you:

Develop the skills required to design and implement enterprise cloud connectivity solutions

Learn how to apply the VPN and overlay networking technology, including Cisco Catalyst SD-WAN to extend the enterprise network to cloud providers, such as

Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform (GCP) using both private connectivity services and public internet as an underlay

Examine the solutions for optimizing access to SaaS cloud providers and the workflows for diagnosing and troubleshooting cloud connectivity issues

Gain knowledge for protocols, solutions, and designs to acquire professional-level and expert-level enterprise roles

This training prepares you for the 300-440 ENCC exam. If passed, you earn the Cisco Certified Specialist–Enterprise Cloud Connectivity certification and satisfy the concentration exam requirement for the Cisco Certified Network Professional (CCNP) Enterprise certification.

This course is worth 40 Continuing Education (CE) credits toward recertification.

What You'll Learn

After completing this course you should be able to:

- Describe the fundamental components and concepts of cloud computing, including deployment models, cloud services, and cloud providers, to provide learners with a comprehensive overview of the subject
- Describe the options available for establishing connectivity to public cloud services, including point-to-point IPsec VPN and various Cisco Catalyst SD-WAN Cloud OnRamp deployment options
- Explain the public cloud connectivity architecture similarities and differences between different cloud service providers and explore the available connectivity options to the public cloud from a Cisco Catalyst SD-WAN environment
- Describe private connectivity options to public cloud provider infrastructure
- Describe direct connections to different public cloud providers for private peering
- Describe connectivity solutions such as colocation, cloud exchange, and software-defined cloud interconnect providers for connecting to the public cloud infrastructure
- Describe the available options for connectivity to SaaS applications from a geographically distributed organization’s premises
- Explain the emergence of DIA to optimize cloud application performance and user experience
- Describe the essential business and technical prerequisites for achieving high availability, resiliency, and scalability within an enterprise cloud connectivity network solution
- Describe AWS, Azure, and GCP native security
- Describe PCI DSS, FedRAMP, and HIPAA compliance requirements and their role in public cloud integration
- Implement underlay (internet-based) connectivity to connect to the public cloud
- Configure overlay tunnels over public transport to a cloud-native gateway in

AWS, Azure, and GCP and to a cloud-hosted Cisco IOS XE router
- Deploy a cloud-hosted Cisco IOS XE-based router instance and customize the cloud networking setup
- Configure OSPF and BGP routing for typical enterprise network
- Explore Cisco Umbrella SIG
- Introduce Cisco vManage Policy Architecture and centralized data policies
- Explain AAR policy components and implementation
- Understand Microsoft 365 Traffic categories and service areas
- Describe the AppQoE feature
- Describe DRE deployment considerations
- Describe how to diagnose and troubleshoot common issues for connectivity to public cloud environments using internet-based connectivity
- Introduce the BGP routing protocol used for establishing connectivity between on-premises and public cloud devices over different connection options
- Discuss BGP peering and connectivity issues with Microsoft Azure and explore various troubleshooting and test tools and techniques
- Discuss some common configuration, networking, and routing issues encountered on customer edge devices when connecting to Microsoft Azure ExpressRoute

Who Needs to Attend

Individuals involved in extending the enterprise network to cloud providers.

Prerequisites

Attendees should meet the following prerequisites:

- Good understanding of enterprise routing
- Good understanding of WAN networking
- Good understanding of VPN technology
- Good understanding of Cisco Catalyst SD-WAN
- Good understanding of Public Cloud services. such as AWS, Microsoft Azure and Google Cloud Platform.

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VIRTUAL CLASSROOM LIVE	$3,295 USD	4 Day

Virtual Classroom Live Outline

- **Public Cloud Fundamentals**
  - Cloud Computing
  - Cloud Deployment Models
  - Public Cloud Service Models
  - Public Cloud Providers
- **Internet-Based Connectivity to Public Cloud**
  - Public Internet
  - VPN
  - Cisco SD-WAN
  - Cisco SD-WAN Cloud Connectivity
- **Private Connectivity to Public Cloud**
  - Private Connectivity Overview
  - Direct Connect and Private Peering
  - Colocations, Cloud Exchange and Software-Defined Cloud Interconnect
- **SaaS Connectivity**
  - Centralized Internet Gateway
  - Direct Internet Access
  - Cloud Security Providers (Umbrella)
  - Dedicated Connectivity (Webex)
- **Resilient and Scalable Public Cloud Connectivity**
  - Business and Technical Requirements
  - High Availability and Resiliency
  - Performance and Scalability
  - Bandwidth (Dedicated and Shared)
  - SLA and QoS
  - Design Case Study Activity: Designing Enterprise Cloud Connectivity
- **Cloud-Native Security Policies**

- Public Cloud Security Overview
- East-West Traffic Control
- North-South Traffic Control
- Inter-Region Connectivity
- Amazon Web Servces (AWS) Native Security
- Microsoft Azure Native Security
- Google Cloud Platform (GCP) Native Security

- **Regulatory Compliance Requirements**
  - Regulatory Compliance Requirements
- **Internet-Based Public Cloud Connectivity**
  - Underlay Transport Network
  - Overlay VPN Tunnels to a Cloud Gateway in AWS
  - Overlay VPN Tunnels to a Cloud Gateway im Azure
  - Overlay VPN Tunnels to a Cloud Gateway in GCP
  - Overlay VPN Tunnels to a Cloud-Hosted Cisco IOS XE Router
- **Overlay Routing Deployment**
  - Overlay Routing
  - Configure OSPF
  - Configure BGP
  - Configure BGP in AWS
  - Configure BGP in Azure Cloud
  - Configure BGP in GCP
  - Summary Configuration Example
- **Cisco SD-WAN Internet-Based Cloud Connectivity**
  - Cloud OnRamp Functionality
  - Cloud OnRamp for Multicloud
- **Cisco SD-WAN Cloud Security**
  - Cisco vManage Security Policies
  - Cisco Umbrella Cloud Security
- **Cloud OnRamp for Saas**
  - SaaS Applications Challenges
  - Client-Side SaaS Path Performance Statistics
  - Cloud OnRamp for SaaS over SIG Tunnels
  - Cloud OnRamp for SaaS and Microsoft 365
- **Cisco SD-WAN Policies**
  - Policy Configuration Overview
  - Data Policy Overview
  - Centralized Data Policy
  - Use case - Implementing Traffic Engineering
  - AAR Overview
  - AAR Components
  - Implement AAR Policy for Cloud OnRamp for SaaS
  - Configuring Traffic Category and Service Area for Specific Policies
  - Enable Cloud OnRamp for SaaS for Specific Applications at Specific Sites
- **Application Quality of Experience**

    - Application Quality of Experience Overview
    - TCP Optimization
    - Data Redundancy Elimination
    - Packet Duplication
    - Forward Error Correction
- **Internet-Based Public Cloud Connectivity Diagnostics**
    - Diagnose Underlay Transport Network
    - Diagnose Overlay VPN Tunnel Connectivity to a Cloud Gateway
    - Troubleshoot AWS VPN Gateways
    - Troubleshoot Azure VPN Gateways
    - Troubleshoot GCP VPN Gateways
- **Overlay Routing Diagnostics**
    - Overlay Network Basics
    - Open Shortest Path First
    - Border Gateway Protocol (BGP)
    - Overlay Routing in Cloud Environments
- **Cisco SD-WAN Public Cloud Connectivity Diagnostics**
    - Troubleshoot Underlay Connectivity
    - Troubleshoot Overlay Routing
    - Troubleshoot Cisco SD-WAN Cloud OnRamp

Virtual Classroom Live Labs

- Discovery Lab 1: Initial Lab Network Exploration
- Discovery Lab 2: Implement IPsec Connectivity to Public Cloud Gateways
- Discovery Lab 3: Implement IPsec Connectivity to Cloud-Hosted Cisco IOS-XE Routers
- Discovery Lab 4: Implement Overlay Routing
- Discovery Lab 5: Deploy Cloud OnRamp for Multicloud
- Discovery Lab 6: Deploy Umbrella Cloud Security
- Discovery Lab 7: Implement Cloud OnRamp for SaaS
- Discovery Lab 8: Troubleshoot Underlay Connectivity
- Discovery Lab 9: Troubleshoot Overlay Routing
- Discovery Lab 10: Diagnose Cloud OnRamp for Multicloud

Apr 6 - 9, 2026 | 8:30 AM - 4:30 PM EDT

Aug 24 - 27, 2026 | 8:30 AM - 4:30 PM EDT

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ON-DEMAND	$900 USD

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PRIVATE GROUP TRAINING	4 Day

Visit us at www.globalknowledge.com or call us at 1-866-716-6688.

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