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Deploying and Administering CiscoÃ¢â‚¬â„¢s Digital Network Architecture (DNA) and

Course#:DNADDC
Duration:5 Days
Price:0.00

Course Description

DNADDC - Deploying and Administering Ciscos Digital Network Architecture (DNA) and Intelligent WAN (iWAN) is a 5-day course designed for network administrator and technical personnel involved in designing, implementing, operating and optimizing Wide Area Networks based on Ciscos Intelligent WAN (iWAN) principles, technologies and features. It enables learners to understand how iWAN solves many challenges related to todays branch office deployments and what the main components of iWAN are, including Transport Independent WAN connectivity (IPSec DMVPN and MPLS), Intelligent Path Control (with performance routing), Application Optimization (with AVC and WAAS) and Secure Connectivity (Strong encryption, firewalls, CWS). As part of iWAN deployment, participants will be faced with Application Policy Infrastructure Controller - Enterprise Module or APIC-EM, as a management platform and automation tool. At the beginning of the course, students will review Ciscos Digital Network Architecture or DNA as open and extensible, software-driven architecture that accelerates and simplifies enterprise network operations. DNA, as a programmable architecture frees IT staff from time consuming, repetitive network configurations tasks, so they can focus instead on innovation that positively transforms their business. Relationships between DNA and iWAN will be discussed in the course. Labs are built using the latest platform versions and related architecture components including ISR, ASR, IOS XE, WAVE, vWAAS, APIC-EM, AppNav, etc.

Objectives

Ciscos Digital Network Architecture (DNA) concepts, features, benefits, terminology and main component
How the architecture of DNA innovates common administrative tasks on todays networks
Todays branch office challenges and how IWAN helps to solve them
Four main pillars and components of Cisco Intelligent WAN (IWAN)
Transport Independent Design, the various connectivity options and the way they are configured
Intelligent Path Control

How performance routing is different from traditional destination based routing, routing protocol support and configuration tasks
Importance of application visibility
Use WAAS for application performance optimization and better WAN resource usage
Main elements to guarantee IWAN secure connectivity
How Ciscos APIC-EM helps administrator automate deployment, administration, and compliance checking for network policies end-to-end

Audience

IP network designers
IP network administrators
System engineers
Individuals involved in IWAN and DNA deployment and administration

Prerequisites

Knowledge level equivalent to Cisco CCNA Routing and Switching (CCNP Routing and Switching is preferred)
Basic to intermediate knowledge on tunnels, VPNs, and DMVPN
A good understanding of QoS basics
Basic knowledge and experience with Cisco IOS, IOS XE, and CLI
Basic knowledge on device and network virtualization

Content

Module 1: Ciscos Digital Network Architecture (DNA)

Overview
Benefits
Guiding Principles
Main Components and Functions
DNA Automation and Management: APIC-EM
DNA Virtualization: NFV and Cisco IOS XE
DNA Analytics: CMX

DNA Security: TrustSec, ISE, StealthWatch

Module 2: Intelligent WAN (IWAN) General Overview and Main Components

Todays branch office challenges
IWAN as a solution for branch office connectivity
IWANs building blocks
Transport Independent Design
Intelligent Path Control
Application Performance Optimization
Secure Connectivity
IWAN Management

Module 3: Implementing Transport Independent Design

IP Connectivity as transport independent option
MPLS Connectivity as transport independent option
IP-MPLS connectivity options for headquarter and branch
GRE Point to Point and Multipoint tunnels
DMVPN overview
DMVPN Phases
Front Door VRF
Unicast traffic over DMVPN
Multicast traffic over DMVPN
DMVPN sample configurations

Module 4: Implementing Intelligent Path Control with Performance Routing (PfR)

Performance routing overview
Device Components and Roles
Hub Master Controller
Hub Border Routers

Transit Master Controller
Transit Border Router
Branch Routers
Differences between PfRv2 and PfRv3
PfR Policies
Enterprise Domain Provisioning
Topology Discovery
Collecting Performance Metrics
Path Enforcement
Enterprise Deployment
Monitoring (site prefixes, traffic classes, load balance)

Module 5: Implementing AVC for Application Visibility and Adding Hierarchical QoS (HQoS)

Collecting Performance Metrics
Collecting Traffic Statistics
Application Response Time
Media Monitoring
Netflow and IPFIX
Adding Hierarchical Quality of Service (HQoS)

Module 6: Cisco Wide-Area Application Services

Introducing Cisco WAAS
Identify Platforms and deployment options
Implementing Cisco Central Management
Installing and Configuring the Virtual Environment
Installing and Configuring Cisco vWAAS
Configuring Application Traffic Policies
Configuring Cisco vWAAS Virtualization

Module 7: Cisco APPNAV

APPNAV overview
Installing APPNAV Controllers
APPNAV-XE Controller Configuration
Monitoring the APPNAV Controller

Module 8: IWAN Secure Connectivity

Secure Connectivity Overview
Securing the WAN Transport
Secure Direct Internet Access
Full Services Direct Internet Access
Direct Internet Access Use Case Scenarios
Cisco Trustsec in Branch
Secure Connectivity IWAN Customer Scenario

Module 9: Cisco APIC-EM for Management and Automation

APIC-EM overview
APIC-EM features and benefits
APIC-EM supported platforms and software release
APIC-EM licensing Model
APIC-EM HardwareSoftware requirements (for installation virtual appliance)
APIC-EM GUI and navigation
Main operations

Module 10: Implementing UCS-E and Cloud Connectors

UCS-E
Cisco Cloud Connectors
Third-Party Cloud Connectors
Cisco Akamai Solutions

Labs

Lab 1: Familiarizing with Lab Topology and Completing Initial Setup

Lab 2: Configuring Transport Independent Design Using DMVPN

Lab 3: Configuring and Performing Application Visibility and Reviewing Results

Lab 4: Applying Application Optimization with QoS Controls (HQoS)

Lab 5: Performing Intelligent Path Control Using PfR

Lab 6: Installing and Configuring Cisco vWAAS and WAAS Central Manager

Lab 7: Improving Application Performance with WAAS

Lab 8: Managing IWAN with APIC-EM