

# ENCWE (ENTERPRISE NETWORK CORE E WAN ESSENTIALS) 1.0

## Objetivo

Enterprise Network Core e WAN Essentials (ENCWE) foi desenvolvido para assegurar que os engenheiros de sistemas de parceiros (SE) possam desenvolver as atividades em pré-vendas técnicas aos clientes, incluindo a apresentação, implementação e demonstração de soluções ricas em experiências, como Application Visibility and Control (AVC), Cloud ConnectorNuvem, TrustSec, e Wide Area Application Services (WAAS). Depois de concluir este curso, os alunos serão capazes de: Descrever a tecnologia presente na solução IWAN; Descrever a arquitetura presente na solução IWAN; Entender o processo de implantação de uma solução IWAN; Entender o processo de otimização de uma solução IWAN; Como implantar uma conexão segura IWAN; Entender a implantação em um Branch Office;

## Público Alvo

O público principal deste curso são os responsáveis nas atividades de pré-vendas em parceiros Cisco (SE), ou por profissionais que desejam conhecer as funcionalidades abrangidas pela solução IWAN (Intelligent Wan). Engenheiros em atividades de pré-venda (SE) que buscam a certificação referente ao exame 500-452 (Enterprise Networks Core and Wan).

## Pré-Requisitos

Para aproveitar ao máximo este curso, é recomendável que os alunos possuam as seguintes habilidades e conhecimentos: Conhecimentos básicos em endereçamento de rede; Conhecimentos básicos em roteamento aplicado em WAN (base curso ICND 1); Conhecimentos básicos em servidores/virtualização (VMWare, Citrix e Hyper-V).

## Carga Horária

32 horas (4 dias).

## Conteúdo Programático

Course Introduction

Module 1: Enterprise IP WAN Technologies

Objective: Upon completion of this module, students should be able to recognize current Cisco Enterprise IP WAN technologies including overall architecture and topologies as well as various IP VPN options, primary services that are deployed and role of managed WANs.

Lesson 0: Module Objectives

Describe Enterprise WAN Architecture

Describe WAN topologies

Explain IP VPN options

Explain IP – WAN Primary technologies and services

Describe differences between self and provider managed WANs.

Lesson 1: Describing the Enterprise WAN Architecture

Explain the currently deployed, traditional model of Enterprise IP - WAN, its services as well as challenges of that deployment model.

Lesson 2: Deploying WAN Transport Models

Describe WAN Transports and the typical WAN deployment models.

Lesson 3: Explaining IPsec VPN Fundamentals

Explain each of the prevalent IPsec VPN technologies.

Lesson 4: Identifying WAN Routing Topologies

Describe current WAN topologies and main components.

Lesson 5: Describing WAN QoS

Describe WAN QoS fundamentals.

Lesson 6: Integrating Services

Explain how various services can be integrated as part of WAN architecture.

Lesson 7: Comparing Self- and SP-Managed WAN

Explain how Enterprise WANs can be managed internally or outsourced.

Lesson 8: Module 1 Summary

Summarize key points of Enterprise WAN architecture, its components and evolution into Intelligent WAN.

Module 2: Cisco Intelligent WAN (IWAN)

Upon completion of this module, students should be able to describe technical overview of Intelligent WAN (IWAN) solution architecture, benefits and key components as well as its management.

Lesson 0: Module Objectives

Describe Cisco IWAN Architecture

Describe Emerging market drivers

Describe 4 pillars of IWAN

Describe benefits and key solutions of each IWAN pillar

Explain Transport independent design

Explain intelligent path control

Explain application optimization

Explain secure connectivity

Explain IWAN management solutions

Describe IWAN management solutions

Describe Product and strategy

Describe APIC-EM IWAN Apps

Lesson 1: Introducing Cisco IWAN Architecture

Discuss Cisco Intelligent WAN Architecture and its components.

Lesson 2: Describing Transport Independent Design

Discuss Transport Independent Design that simplifies any Internet-Based WAN deployment. Explain the impact of Transport Independent Design to customer use case scenario that was discussed earlier.

Lesson 3: Describing Intelligent Path Control

Discuss Cisco Performance Routing (PfR) as the Intelligent Path Control component of IWAN solution, which improves application delivery and WAN efficiency. Explain the impact of Intelligent Path Control to customer use case scenario that was discussed earlier.

Lesson 4: Optimizing Application Performance

Discuss application visibility and various ways of improving application performance through WAN optimization

and caching techniques. Explain the impact of Application Performance Optimization to customer use case scenario that was discussed earlier.

#### Lesson 5: Protecting IWAN with Secure Connectivity

Discuss the security aspect of IWAN solution including securing IWAN transport and Direct Internet Access. Explain the impact of Secure Connectivity to Lesson 5: Managing the IWAN

Discuss Cisco's management platform (Prime Infrastructure) as well as third party management platform options. Also, discuss Cisco APIC-EM Architecture.

#### Lesson 6: Module Summary

Discuss why Cisco's IWAN offers a compelling solution for moving to Internet as WAN. Explain the final stage of deployment for use case scenario that was discussed earlier.

#### Module 3: IWAN Deployment

Upon completion of this module, students should be able to present, implement, and demonstrate the features that comprise an IWAN deployment. This consists of describing IWAN deployment in relation to Cisco Prime Infrastructure, implementing Transport Independent Design, leveraging Application Visibility and Control (AVC) to optimize dynamic applications, Implementing Intelligent Path Control with PfR, adding Hierarchical Quality of Service (HQoS) for application control, and IPv6 considerations.

#### Lesson 1: Utilizing Cisco Prime Infrastructure

Discuss various aspects of Cisco Prime Infrastructure provisioning and monitoring in relations to IWAN solution technology pillars. This includes leveraging Cisco Prime Infrastructure templates to accomplish provisioning and monitoring aspect of IWAN solution.

#### Lesson 2: Implementing Transport Independent Design

Discuss DMVPN deployment to support transport independent design. Explain DMVPN overview, Unicast traffic over DMVPN, Multicast traffic over DMVPN and DMVPN configuration best practices and troubleshooting.

#### Lesson 3: Deploying AVC for Application Visibility

Articulate AVC deployment to optimize dynamic applications. Explain various aspects of AVC, its components, configuration and troubleshooting as well as application performance monitoring including collecting application statistics, collecting Application Response Time, collecting media monitoring metrics and important application monitoring considerations.

#### Lesson 4: Implementing Intelligent Path Control with Performance Routing

Discuss PfRv2 and PfRv3 to support Intelligent Path Control. Explain PfR configuration and troubleshooting.

#### Lesson 5: Adding Hierarchical Quality of Service

Discuss HQoS deployment to prioritize and queue application traffic and explain deployment best practices.

#### Lesson 6: Planning for IPv6

Understand motivations and fundamentals of IPv6 deployment in customers' environments.

#### Lesson 7: Utilizing Cisco Prime Infrastructure Plug and Play

Discuss how Cisco Prime Infrastructure Plug and Play simplifies branch router deployment.

#### Lesson 8: Module Summary

#### Module 4: Cisco WAN Optimization Solution

Upon completion of this module, students should be able to discuss, and present, Cisco WAAS value proposition, its solution and platform offerings, deployment models and various sizing factors as well as IWAN solution - WAAS deployment considerations.

#### Lesson 0: Module Objectives

Describe Cisco WAAS positioning and value proposition

Describe Cisco WAAS solution and platform offerings

Explain Cisco WAAS technology, deployment, and sizing

Explain IWAN - WAAS deployment considerations

#### Lesson 1: Positioning and Describing the WAAS Value Proposition

Describe WAAS solution and its benefits.

Lesson 2: Identifying the WAAS Platforms

Objective: Describe WAAS solution and platform options.

Lesson 3: Describing the WAAS Technology, Deployment Options, and Sizing

Objective: Explain WAAS deployment models, its sizing as well as Cisco WAAS – Akamai solution.

Lesson 4: Deploying WAAS as Part of an IWAN Solution

Objective: Describe deployment consideration of WAAS as part of IWAN solution.

Lesson 5: Module Summary

Module 5: Cisco IWAN Secure Connectivity

Upon completion of this module, students should be able to implement components of Intelligent WAN securely.

Lesson 0: Module Objectives

State key objectives for this module.

Lesson 1: Secure Threat Overview

Discuss overview of current threat environment and motivations behind deploying Cisco threat mitigation solutions.

Lesson 2: Securing the Connectivity

Discuss foundation of implementing secure connectivity for remote users over the WAN.

Lesson 3: Securing Direct Internet Access

Discuss and describe implementation of Secure Direct Internet Access with Cloud Web Security.

Lesson 4: Implementing Full Services Direct Internet Access

Discuss other services for Direct Internet Access.

Lesson 5: Reviewing Direct Internet Access Use Cases

Explain customer use cases in relation to Direct Internet Access deployment considerations.

Lesson 6: Describing Cisco Trustsec in the Branch

Describe important Cisco Trustsec integration considerations in the branch.

Lesson 7: Reviewing a Netflow Security Application Example: Cisco Cyber Threat Defense

Describe Cisco Cyber Threat Defense as an example of a Netflow Security Application to highlight the importance of Netflow data as part of security in IWAN solution.

Lesson 8: Describing IOS Hardening

Describe references to information on hardening IOS platforms.

Lesson 9: Reviewing the IWAN Customer Scenario

Review the customer scenario in relation to IWAN security considerations.

Lesson 10: Module Summary

Provide IWAN secure connectivity summary.

Module 6: Trends in Branch-Office Implementations

Upon completion of this module, students should be able to present, implement and demonstrate the features of UCS-E, Cloud Connectors as well as Enterprise Cisco Unified Border Element (CUBE)

Lesson 0: Module Objectives

State key objectives for this module.

Lesson 1: Describing the Cisco UCS E-Series

Discuss UCS-E series servers.

Lesson 2: Describing Cisco Cloud Connectors

Discuss Cisco Cloud connectors.

Lesson 3: Describing Cisco Unified Border Element

Discuss Enterprise CUBE services.

Lesson 4: Module Summary

#### Module 7: Practice Exercise

Upon completion of this module, students should be able to summarize the main objectives of IWAN solution objectives, discuss the course agenda, review competitive offerings and understand next steps for achieving sales goals.

#### Laboratórios

##### Lab 1: Navigating the Lab and Configuring Cisco Prime Building Blocks

Objective: Review and verify the current deployment of the Enterprise IP - WAN and explore Cisco Prime Infrastructure interfaces and configuration templates.

##### Module 3 Lab 2: Transport Independent Design using DMVPN

Lab 2 Objective: A secure transport using Hub and Spoke DMVPN would be implemented during this lab.

##### Module 3 Lab 3: Application Optimization - Application Visibility

Lab 3 Objective: Application Visibility and Control is deployed during this lab in order to gain granular visibility into application traffic and application performance.

##### Module 3 Lab 4: Application Optimization - QoS Control

Lab 4 Objective: Application aware QoS policies are implemented in order to enhance user's application experience during this lab.

##### Module 3 Lab 5: Intelligent Path Control - Using PfR

Lab 5 Objective: The underutilized backup link in this lab would be leveraged using PfR according to performance instrumentation and enterprise policies.