MEF Carrier Ethernet Certified Professional Training Program

A complete educational, study and preparation program for MEF Carrier Ethernet Certified Professional Certification (MEF-CECP)
The MEF has brought together service providers, equipment and component manufacturers, software vendors and related technical organizations to define common standards for delivering next-generation Ethernet communications network services. As a result of the MEF’s activities, Carrier Ethernet is the fastest-growing communications networking service, and is rapidly becoming the new communications standard, adopted by numerous service providers and manufacturers.

The MEF-CECP Qualification
Staying ahead of the curve and the competition requires not just working knowledge, but a true mastery of the technical aspects of Carrier Ethernet. The MEF-CECP qualification enables communications network professionals to validate their expertise, skills and knowledge of Carrier Ethernet technologies, standards, services and applications. The certification training can be conducted only by MEF-accredited training providers.

MEF-CECP Classroom Training
Fujitsu offers a comprehensive, five-day MEF-CECP preparation course at its Richardson, Texas training facility, or at a customer’s location. As a leading provider of network solutions, Fujitsu developed the MEF-CECP course based on expertise and experience gained from our history of developing and delivering quality training on its own SONET, DWDM and Carrier Ethernet-based telecommunications products to the world’s leading service providers. Fujitsu is one of a select number of MEF Accredited Training providers worldwide.

The Fujitsu MEF-CECP Exam Preparation course is designed for technical professionals and provides a detailed curriculum designed to transfer knowledge of MEF-defined Carrier Ethernet services, develop the ability to understand Carrier Ethernet concepts and applications, and apply Carrier Ethernet services to real-world applications. Four and one half days are spent covering the course material through a combination of lecture, interactive analysis and discussion, coupled with quizzes at the end of each lesson. The final half-day is spent taking the MEF-CECP certification exam proctored by a Fujitsu instructor.

The course is led by an MEF-CECP certified instructor who is knowledgeable in the facets and nuances of Carrier Ethernet. This is more than an exam preparatory course. This course imparts thorough knowledge of MEF Carrier Ethernet standards, technologies and applications that surpasses a “boot camp” course which only focuses on exam preparation. In taking this approach, the course prepares students to take the exam as well as to apply their knowledge in their professional situation.

Course Prerequisites
Students must be familiar with network technology and basic Ethernet concepts.

How to Register for MEF-CECP Classes
To register for a class, visit www.fujitsu.com/us/services/telecom/training/.
MEF-CECP Exam Preparation Course Outline

Introduction
• About the MEF
• About Carrier Ethernet
• Carrier Ethernet versus Ethernet
• MEF’s Five Attributes of Carrier Ethernet
• Getting Started
• Explore the MEF Website
• About the MEF-CECP Exam

MEF Services
• Fundamental Components and Reference Models
  • Basic Reference Model
  • UNI Functionality
  • General Reference Model
• Service Multiplexing
  • Assigning Ethernet Frames to EVCs
    • Service Frames
    • CE-VLAN ID
    • Bundling
    • Bundling versus Service Multiplexing
  • Port-Based versus VLAN-Based Services
  • EPL Service
  • EVPL Service
  • EP-LAN Service
  • EVP-LAN Service
  • EP-Tree Service
  • EVP-Tree Service

How MEF Services are Defined (Part 1)
• Categories of Carrier Ethernet Service Attributes
  • Bird’s-Eye View of Service Attributes
  • Groups of Related Service Attributes
  • The Carrier Ethernet Service Definition Framework
  • Basic/Bookkeeping Service Attributes
  • MTU Size Service Attributes
  • Service Multiplexing, Bundling, and VLAN Tag Preservation Service Attributes
• Service Frame Mapping Service Attributes
• Service Frame Delivery Service Attributes
  • Service Frames
  • Types of Service Frames
  • Service Frame Disposition
  • Service Frame Transparency Requirement
  • Data Service Frame Delivery Service Attributes
• L2CP Processing Service Attributes
  • How the Two L2CP Processing Attributes Work Together
  • Per Protocol, Service-Specific L2CP Processing Requirements

How MEF Services are Defined (Part 2)
• The MEF Service Agreement Framework (SLA and SLS)
• Traffic Management and QoS
  • The Multi CoS Framework
  • CoS Identification
  • Bandwidth Profiles
  • The Bandwidth Profile Algorithm
  • Visualizing the Token Bucket Algorithm
  • Explaining the Bandwidth Profile Algorithm
  • Single-Rate versus Dual-Rate Bandwidth Profile Implementations
• EVC Performance Service Attribute
  • Ordered UNI Pair
  • Frame Delay Performance
  • Frame Delay Variation Performance
  • Frame Loss Ratio Performance
  • Availability Performance
  • Example of EVC Performance Attribute Specification

UNI Requirements
• Overview
  • MEF Specifications and UNI Functionality
  • Type 1 and Type 2 UNIs
  • Type 2 UNI Requirements
  • SOAM Requirement for Type 2 UNIs
  • Enhanced UNI Attributes Requirement for Type 2 UNIs
  • L2CP Handling Requirement for Type 2 UNIs
  • LOAM Requirement for Type 2.2 UNIs
  • E-LMI Requirement for Type 2.2 UNIs
  • Link Protection Requirement for Type 2.2 UNIs

Extending MEF Services over Multiple Operator MENs
• Introduction
• Terminology
  • Service Provider and Operators
  • ENNI and ENNI-N
  • OVC
  • OVC End Point
  • Ingress and Egress ENNI Frames
  • Hairpin Switch
• Service Handoff at ENNI
  • IEEE 802.1ad Ethernet Frames
  • Encoding Information in S-Tags
  • ENNI Tagging Requirements
• Operator Service Attributes
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Classroom Training Course Outline

Extending MEF Services over Multiple Operator MENs (continued)
• ENNI Service Attributes
  • OVC Service Attributes
  • OVC End Point per ENNI Service Attributes
  • UNI Service Attributes
  • OVC per UNI Service Attributes
• Highlights of the MEF Model for Service Across an Operator MEN
  • ENNI Frame Format
  • ENNI and OVC MTU Size
  • Protection at ENNI
  • End Point Map
  • Color-Aware Bandwidth Profiles at ENNI
  • Color Forwarding
  • Hairpin Switching
  • End Point Map Bundling
  • LOAM Requirement for ENNIs
• Ethernet OAM
  • Overview
  • Link OAM
• Service OAM Overview
  • SOAM Domains
  • SOAM Frames
  • SOAM Components
  • SOAM MEG Levels
• SOAM Connectivity Fault Management
  • Continuity Check Message (CCM)
  • Remote Defect Indication (RDI)
  • Alarm Indication Signal (AIS)
  • SOAM Loopback
  • SOAM Link Trace
• SOAM Performance Management
  • Frame Loss Measurement
  • Frame Delay Measurement

Access Technologies
• Overview
  • The Access Technologies
  • Key Areas for Comparing the Access Technologies
• Ethernet over Optical Fiber
  • Ethernet over Active Fiber
  • Ethernet over SONET/SDH
  • Ethernet over PON
• Ethernet over PDH
• Ethernet over Copper
• Ethernet over Wireless Network
• Ethernet over HFC
• Summary

Transport Technologies
• Overview
  • The Transport Technologies
  • Key Areas for Comparing the Transport Technologies
• Layer 1 Transport Technologies
  • SONET/SDH
  • OTN (Optical Transport Network)
  • WDM (Wavelength Division Multiplexing)
• Layer 2 Transport Technologies
  • Bridging
  • PB (Provider Bridging)
  • PBB (Provider Backbone Bridging)
  • PBB-TE (Provider Backbone Bridge Traffic Engineering)
  • ETS (Ethernet Tag Switching)
• Layer 2.5 Technologies (Multiprotocol Label Switching)
  • MPLS VPWS (MPLS Virtual Private Wire Service)
  • MPLS VPLS (MPLS Virtual Private LAN Service)
  • MPLS-TP (MPLS Transport Profile)
• Protection and Resiliency
  • Summary

Applications
• Target Applications
  • Wholesale Access Service
  • Ethernet Access to IP Services
  • Mobile Backhaul Services
  • Retail Commercial/Business Services
  • Support for Legacy Services
  • Comparing and Positioning Carrier Ethernet Services with Legacy Services
    • Support for TDM Private Lines
    • Replacement of Frame Relay Service
    • Internet Access
    • Virtual Private Networks (VPNs)
• Circuit Emulation Services over Ethernet
  • MEN Requirements for CESoETH
  • Interworking Function
  • Synchronization
  • Ethernet-Based Clock Synchronization

MEF Certification Programs
• Overview
  • Equipment Certification
  • Service Certification
  • Professional Certification
MEF Carrier Ethernet Certified Professional Training Program

MEF-CECP Study Aids

MEF-CECP Exam Study Guide

This guide is designed to help you prepare for the MEF-CECP exam, whether through self-study or classroom-based training. This guide assumes that you have a basic knowledge of Ethernet, but no prior knowledge of Carrier Ethernet. The guide covers all 10 topic areas covered on the MEF-CECP exam and includes over 150 practice test questions to assess your comprehension of each topic. Material is presented systematically, beginning with MEF service definitions (the core content that accounts for most exam questions) and building outward. Each lesson ends with a set of multiple-choice review questions, similar to those appearing in the MEF-CECP exam, to help you evaluate your learning.

In addition to helping prepare for the MEF-CECP exam, the study guide enables you to advance your understanding of MEF Carrier Ethernet services, applications and related technologies.

Purchase Options for the MEF-CECP Study Guide

The MEF-CECP study guide is available in paperback and eBook editions and can be purchased through the following online retail outlets:

- Fujitsu MEF-CECP Exam Training App
- Fujitsu MEF-CECP Exam Trainer
- About
- Learn More

Fujitsu MEF-CECP Exam Training App

The new MEF-CECP Exam Trainer app is an essential tool to aid technical professionals in the telecommunications industry preparing for the MEF Carrier Ethernet Certified Professional exam.

The Fujitsu exam training application features four different test modes and hundreds of practice test questions covering all 10 topic areas in the actual exam. The app aids learning by scrambling and randomly presenting test questions and the possible answers within the questions. When a question is answered incorrectly, the application not only displays the correct answer, but provides an explanation as to why the particular answer is correct.

The MEF-CECP Exam Trainer is available from the Apple iTunes App Store and the Amazon App Store for Android devices.