MEF

Introducing the Specifications of the Metro Ethernet Forum

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MEF 2	**Requirements and Framework for Ethernet Service Protection**
MEF 3	**Circuit Emulation Service Definitions, Framework and Requirements in Metro Ethernet Networks**
MEF 4	**Metro Ethernet Network Architecture Framework Part 1: Generic Framework**
MEF 6	**Metro Ethernet Services Definitions Phase I**
MEF 7	**EMS-NMS Information Model**
MEF 8	**Implementation Agreement for the Emulation of PDH Circuits over Metro Ethernet Networks**
MEF 9	**Abstract Test Suite for Ethernet Services at the UNI**
MEF 10	**Ethernet Services Attributes Phase I**
MEF 11	**User Network Interface (UNI) Requirements and Framework**
MEF 12	**Metro Ethernet Network Architecture Framework Part 2: Ethernet Services Layer**
MEF 13	**User Network Interface (UNI) Type 1 Implementation Agreement**
MEF 14	**Abstract Test Suite for Ethernet Services at the UNI**
MEF 15	**Requirements for Management of Metro Ethernet Phase 1 Network Elements**
MEF 16	**Ethernet Local Management Interface**

* MEF 10 * replaced MEF 1 and MEF 5

MEF

This Presentation

- **Purpose**
  - This presentation is intended as an introduction and companion to the MEF 15 Specification

- **Audience**
  - Equipment Manufacturers building devices that will carry Carrier Ethernet Services.
 - Useful for Service Providers architecting their systems

- **Other Documents**
  - Presentations of the other specifications and an overview of all specifications is available on the MEF web site
  - Other materials such as white papers and case studies are also available

Purpose of MEF 15

MEF 15	Requirements for Management of Metro Ethernet Phase 1 Network Elements
Purpose	Specifies the network management requirements to be met by Network Elements supporting Ethernet Service Phase 1 MEF 15 specifies the network management requirements to be met by Provider Edge Metro Ethernet Network Elements supporting Ethernet Service Phase 1[MEF10] providing Carrier Class Ethernet Services

Ethernet Services "Eth" Layer
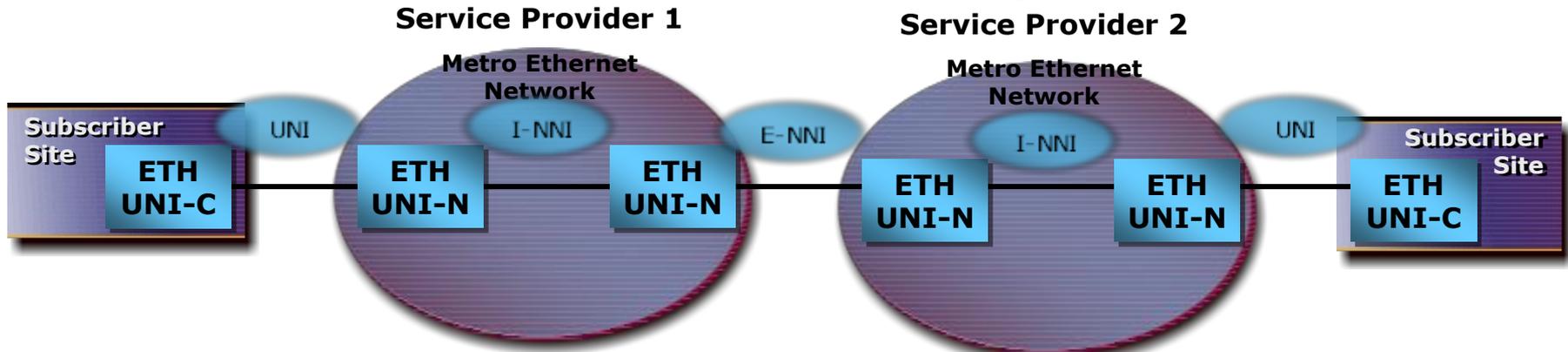
UNI: User Network Interface, UNI-C: UNI-customer side, UNI-N network side
NNI: Network to Network Interface, E-NNI: External NNI; I-NNI Internal NNI

Introduction to MEF 15

- This specification focuses on the essential network management functionality of Metro Ethernet Network Elements (ME-NEs) supporting Ethernet Service Phase 1 as defined in MEF10.

- The ME-NE is a Provider Edge network element supporting Carrier Ethernet Services

- This specification defines operations requirements supporting:
  – The management of interfaces (e.g., User-Network Interface (UNI)), Ethernet Virtual Connections (EVCs / Flow Domain Fragments), and EVC endpoints (Flow Points).

- MEF 15 supports other MEF work:
  – Ethernet services and service attributes defined to date MEF10
  – MEF11 UNI Types 1

Content of the Specification

Nomenclature

The specification is organized into 39 "Requirement Groups" spanning the following five areas:

- **General Requirements**
    - Management Interface Requirements
    - Transport Layer Interfaces
- **Configuration Management Requirements**
    - Update Notifications
    - Configuration Backup and Recovery
    - Network Provisioning and Installation
    - Service Activation
    - Status Management and Control
- **Fault Management Requirements**
    - Alarm Surveillance
    - Fault Localization
    - Testing
- **Performance Management Requirements**
    - General Performance Monitoring Requirements
    - MEF Specific Performance Monitoring Requirements
- **Security Management Requirements**
    - Network Element Security Management Requirements

General Requirements

- ## Management Interface Requirements
  - Management interfaces (e.g., NE-EMS) provide an open automated or manual means by which management systems can directly or indirectly communicate with and manage various elements within the ME-NE

- ## Transport Layer Interfaces
  - The ME-NE may support various types of transport terminations that are used by the ETH layer as a server layer for the transport of ETH frames as payload

Configuration Management Requirements

- **Configuration Management**
  - Refers to functions associated with network and service provisioning as well as the administration of the configuration of a ME-NE
  - Deals with the initialization, maintenance, and graceful shutdown of resources within a system
- **Requirements cover**
  - Update Notifications
  - Configuration Backup and Recovery
  - Network Provisioning and Installation
  - Service Activation
  - Status Management and Control

- **Fault Management and Performance Management functions**
  - These are designed to maintain the MEN. This includes the maintenance of ME-NEs, ME-NE components, transport terminations, and EVCs. In addition, the Performance Data Collection requirements defined are needed to gather data to support network capacity planning and engineering purposes Alarm Surveillance

Fault Management Requirements

- **Fault Management functions handle**
  - Detection and isolation of faults and the repair of failed components.
- **A fault condition occurs**
  - When a resource fails to function correctly
  - When an excessive number of errors occur.
- **Fault Management assists isolation & diagnostics with**
  - Connectivity tests, integrity tests, response time tests, diagnostic tests,
- **Requirements covered in the Specification:**
  - Fault Localization
  - Testing

Performance Management Requirements

- **Performance Management**
  - Collection and analysis of data to assess a resources ability to carry out its function

- **Requirements cover**
  - General Performance Monitoring Requirements
  - MEF Specific Performance Monitoring Requirements

Security Management Requirements

- **Security management supports …**
  - Prevention and detection of improper use of network resources and services
  - Containment of and recovery from theft of services or other breaches of security
  - Security administration
  - Prevention, Detection, Containment and Recovery, and Security Administration.
  - Enforcement of security policies
- **Requirements cover …**
  - Network Element Security Management Requirements

Summary and Next Actions

- **After reading this document you should be familiar with**

  – **The scope of MEF 15 and its segmentation into** Configuration Management, Fault Management Performance Management and Security Management Requirements

- **Next Actions**

  – **Read the full MEF 15 specification**

  – **Understand how to implement the management functions**

  – **Be aware of the capabilities and limitations when implementing Carrier Ethernet Services based on MEF 15**

For Full Details …

… visit www.metroethernetforum.org

to access the MEF 15 specification