MEF

Introducing the Specifications of the MEF

MEF 40: UNI and EVC Definition of Managed Objects

April 2013
MEF Reference Presentations

• Intention
  – These MEF reference presentations are intended to give general overviews of the MEF work and have been approved by the MEF Marketing Committee
  – Further details on the topic are to be found in related specifications, technical overviews, white papers in the MEF public site Information Center:
    http://metroethernetforum.org/InformationCenter

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- Terminology, Concepts & Relationship to other standards
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# MEF Specification Overview

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<td><strong>Purpose</strong></td>
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<td>Specifies the SNMP UNI and EVC Management Information Base (MIB) that supports the MEF UNI and EVC defined in MEF 4, MEF 6.1, MEF 6.1.1, MEF 10.2, the management requirements in MEF 15, and the managed objects specified in MEF 7.2 and ITU-T Q.840.1. The MIB includes objects necessary to configure and monitor UNIs and EVCs via SNMP.</td>
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<td><strong>Audience</strong></td>
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<td>Applicable to entire Metro Ethernet Market including Service Providers, Access Providers, equipment vendors, and EMS/NMS/OSS vendors to provision and monitor equipment that is MEF compatible.</td>
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Overview of MEF 40
About MEF 40

• **Purpose:**
  – This presentation is an introduction to MEF 40 – UNI and EVC
  Definition of Managed Objects

• **Audience**
  – Equipment Manufacturers building devices that will carry Carrier Ethernet Services
  – Service Providers delivering Carrier Ethernet Services
  – EMS/NMS/OSS tool vendors developing back office applications for managing, provisioning and monitoring Carrier Ethernet Services

• **Other Documents**
  – Presentations of other MEF 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
MEF 40 - In Scope/Out of Scope

• MEF 40 requirements are primarily driven by
  – Network Management requirements for ME NEs (MEF 15)
  – Carrier Ethernet Common Information Model (MEF 7.2 and ITU-T Q.840.1)

• MEF 40 defines functionality for managing UNI and EVC

• MEF 40 does not define functionality for managing ENNI or OVC
• MEF 40 adheres to these MEF Specifications for terminology:
  – Refer to MEF 6.1 for Ethernet service definitions
  – Refer to MEF 6.1.1 for L2CP definition
  – Refer to MEF 10.2 for EVC & UNI Service Attribute and Parameter definitions

• MEF 40 relies on MEF 31 for protocol specific terminology
  – Simple Network Management Protocol (SNMP)
  – SNMP Manager
  – Management Information Model (MIB)
  – Element Management System (EMS)
  – Network Management System (NMS)
  – Operations Support System (OSS)
Relationship with other Specifications
MEF Service Lifecycle and SOAM

Network Management

1) Provisioning and Turn-up the Circuit
   - Verify performance to the Service Level Agreement (SLA)

2) Performance Management
   - Is the circuit meeting the SLA?
   - Is the customer happy?

3) Fault Management
   - Sectionalize the problem
   - Refer to the responsible Maintenance Entity (ME)
   - Identify and correct the problem

Provisioning and Turn-up is used to bring the service “in-service”
MEF Specification Section Review
Introducing MEF 40

• The presentation is broken into sections:
  – Overview
  – Network Management Concepts/Framework
  – Interfaces MIB Indexing
  – UNI-EVC MIB Structure
    • Descriptions
  – Summary
  – Where to find additional information
What is a MIB?

• A Management Information Base (MIB), or data model, is a collection of managed objects that can be used to provision or query a network device from a management system, such as a centrally located NMS (Network Management System).

• A MIB along with the management protocol, such as SNMPv2c, defines a standard network management interface for administration and maintenance of network elements.
• MEF 40 uses RFC 2863 ifIndex with several tables
• MEF 40 supports several objects from the ifTable.
• The ifType used is ethernetCsmacd(6)
• MEF-UNI-EVC-MIB defines the following groups of managed objects necessary to support configuration, status and statistics.
Service Interface Attributes

• This group of managed objects consists of
  – mefServiceInterfaceCfgTable
    • Contains basic objects (type, identifier, frame format, etc.) to provision the MEF interface on the Metro Ethernet-Network Element (ME-NE)
  – mefServiceInterfaceStatusTable
    • Contains basic status reporting objects (type, maximum number of virtual channels, maximum number of end points per virtual channel) for the MEF interface of the ME-NE
  – mefServiceInterfaceStatisticTable
    • Contains various egress/ingress frame and octet counter statistics for the MEF interface of the ME-NE
Service UNI Attributes

• This group of managed objects consists of
  – mefServiceUniCfgTable
    • Contains objects (identifier, bundling, all-to-one bundling, multiplexing, CE VLAN ID, CE VLAN Priority) to provision the UNI attributes on the Metro Ethernet-Network Element (ME-NE)
  – mefServiceEvcPerUniCfgTable
    • Contains objects (identifier, service type, CE VLAN Map, Egress/Ingress BWP Indexes) to provision the EVC per UNI attributes on the Metro Ethernet-Network Element (ME-NE)
Service EVC Attributes

• This group of managed objects consists of
  – mefServiceEvcCfgTable
    • Contains objects (identifier, MTU size, service type, CE VLAN id preservation, CE VLAN CoS preservation, etc.) to provision the EVC attributes on the Metro Ethernet-Network Element (ME-NE)
  – mefServiceEvcUniCfgTable
    • Contains an object to allow configuring the UNI type (root, leaf) on an EVC
  – mefServiceEvcStatusTable
    • Contains basic status reporting objects (maximum MTU size, maximum number of UNIs, operational state) for the EVC of the ME-NE
Service Bandwidth Profile Attributes

• This group of managed objects consists of
  – mefServiceBwpCfgTable
    • Contains objects (CIR, EIR, CBS, EBS, CF, CM, etc.) to provision a Bandwidth Profile (BWP) as well as associate the BWP with a CoS ID.
  – mefServiceBwpGrpCfgTable
    • Contains objects to support BWP group settings
Class of Service Attributes

• This group of managed objects consists of
  – mefServiceCosCfgTable
  • Contains objects (identifier, type, identifier list, L2CP destination MAC Address, L2CP Ethernet Protocol, L2CP Subtype) to provision a Class of Service Identifier profile
Service L2CP Attributes

• This group of managed objects consists of
  – mefServiceL2cpCfgTable
    • Contains objects (type, matching scope, destination MAC address, L2CP Ethernet Protocol, L2CP Subtype) to provision an L2CP profile
  – mefServiceL2cpGrpCfgTable
    • Contains objects to support L2CP group settings
Service Performance Attributes

• This group of managed objects consists of
  – mefServicePerformanceTable
    • Contains basic objects to support Traffic Performance Data Set profile settings on a Bandwidth Profile (e.g., green, yellow, red frame/octet counters)
Service Notification Attributes

• This group of managed objects consists of
  – Contains an object to enable/disable SNMP notifications
  – Contains objects carried within the payload of SNMP notifications (date, time, configuration change type)
  – Contains the SNMP Notification which can be triggered when the configuration of an object is added, deleted or modified
Summary
Summary MEF 40

• MEF 40 defines the managed objects for using an SNMP management interface for configuring the UNI and EVC reference points of a CEN
  – In addition, managed objects are defined for retrieving configuration status and statistics for the UNI and EVC reference points
• MEF 40 enables MEF equipment providers to provide a standardized management interface for the UNI and EVC for
  – Configuration Management
  – Interface Network Monitoring
Related Specifications

• MEF 6.1 – Ethernet Services Definitions (Phase 2)
• MEF 6.1.1 – Layer 2 Control Protocol Handling Amendment
• MEF 7.2 – Carrier Ethernet Management Information Model
• MEF 10.2 – Ethernet Services Attributes (Phase 2)
• MEF 15 – Requirements for Management of Metro Ethernet Phase 1 Network Elements
• IETF RFC 2863 – The Interfaces Group MIB (IF-MIB)
Final Word

• Configuration Management
  – In the context of MEF 40, data models (MIBs) are defined that support UNI and EVC configuration management in CENs

• Next Actions (For Further Information)
  – Read the full MEF 40 technical specification and familiarize yourself with the set of defined managed objects
  – Read the full MEF 6.1 and MEF 10.2 specifications (note, review of MEF 7.2 and MEF 15 may also be helpful)
  – Understand the principal Interfaces Group (IF-MIB) managed objects, indexing and capabilities
For Full Details ...

Please visit www.metroethernetforum.org
Select Information Center on Left Navigation to access the full specification and extracted MIB files

EVC: Ethernet Virtual Connection
UNI: User Network Interface. the physical demarcation point between the responsibility of the Service Provider and the responsibility of the End-User/Subscriber

CE Customer Equipment
Accelerating Worldwide Adoption of Carrier-class Ethernet Networks and Services

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