Introducing the Specifications of the Metro Ethernet Forum

MEF 19
Abstract Test Suite for UNI Type 1

February 2008
Introducing the Specifications of the Metro Ethernet Forum

- **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 10.1** Ethernet Services Attributes Phase 2*
- **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 Traffic Management Phase 1
- **MEF 15** Requirements for Management of Metro Ethernet Phase 1 Network Elements
- **MEF 16** Ethernet Local Management Interface
- **MEF 17** Service OAM Framework and Requirements
- **MEF 18** Abstract Test Suite for Circuit Emulation Services
- **MEF 19** Abstract Test Suite for UNI Type 1

* MEF 10.1 replaces and enhances MEF 10 Ethernet Services Definition Phase 1 and replaced MEF 1 and MEF 5.
This Presentation

• **Purpose:**
  – This presentation is an introduction to MEF 19
  – This document defines test procedures based on the requirements for the User to Network Interface (UNI) Type 1 mode or manual configuration mode.

• **Audience**
  – Equipment Manufacturers building devices that will carry Carrier Ethernet Services.
  – Useful for Service Providers architcting 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 19

**MEF 19**

<table>
<thead>
<tr>
<th><strong>Purpose</strong></th>
<th>Supplements the MEF test specifications MEF 9, and MEF 14 with test procedures for UNI manual configuration mode defined in MEF 13</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Audience</strong></td>
<td>Equipment Manufacturers building devices that will carry CE Services. Useful for Service Providers architecting their systems.</td>
</tr>
</tbody>
</table>

- MEF 19 defines test procedures based on the requirements for the UNI Type 1 mode or manual configuration mode.
- The UNI Type 1 mode provides data-plane connectivity services without control-plane or management-plane capabilities.
- MEF 19 consists of 44 test cases
  - Abstract Test Cases for UNI Type 1 Common Characteristics
    - 3 Test Cases
  - Abstract Test Cases for UNI Type 1.1 Specific Characteristics
    - 14 Test Cases
  - Abstract Test Cases for UNI Type 1.2 Specific Characteristics
    - 27 Test Cases
Note to Equipment Manufacturers

• **MEF 19** supplements the existing MEF test specifications
  – **MEF 9** *Abstract Test Suite for Ethernet Services at the UNI* and
  – **MEF 14** *Abstract Test Suite for Traffic Management Phase 1*,
• By adding test procedures based on the requirements for the User to Network Interface (UNI) Type 1 mode (manual configuration) defined in **MEF 13**
  – **MEF 13** *User Network Interface (UNI) Type 1 implementation agreement*.

• **Equipment Manufacturers** should refer to the requirements and test procedures defined in **MEF 19** to ensure that their network elements can deliver Ethernet Services based on the MEF technical specifications.
  – The requirements, framework and functional model on how the UNI reference point operates in a Metro Ethernet Network is defined in **MEF 11**
    • **MEF 11** *User to Network Interface Requirements and Framework*. 
Most Test Cases are executed by attaching the Ethernet interface of a tester to the Ethernet User Network Interface (UNI).
Test Configuration

• In each Test Case, the Test Configuration section describes
  – the number of EVCs associating the number of UNIs and
  – the number of CE-VLAN IDs mapped to the EVCs
• Testers are attached to all UNIs in the configured EVCs
• CE-VLAN ID/EVC Maps are given for each Test Case
• Applicable Bandwidth Profile and Service Performance parameters are provided when necessary
Template for Abstract Test Cases

- All 44 test cases are represented via this template
Test Cases

Abstract Test Cases for UNI-N Type 1 Common Characteristics
• Test Case 1: Type 1 UNI-N Ethernet Physical Medium
• Test Case 2: Type 1 UNI-N Ethernet Frame Format - Tagged, Untagged and Priority Tagged
• Test Case 3: Type 1 UNI-N Minimum and Maximum Ethernet Frame Size

Abstract Test Cases for UNI-N Type 1.1 Specific Characteristics
• Test Case 4: Type 1.1 UNI-N CE-VLAN ID - Single EVC
• Test Case 5: Type 1.1 UNI-N Configurable CE-VLAN ID/EVC Map - No CE-VLAN ID
• Test Case 6: Type 1.1 UNI-N Bandwidth Profile per Ingress UNI
• Test Case 7: Type 1.1 UNI-N Bandwidth Profile Rate Enforcement when CIR > 0 and EIR = 0
• Test Case 8: Type 1.1 UNI-N Mandatory CIR Configuration Granularity
• Test Case 9: Type 1.1 UNI-N Optional CIR Configuration Granularity
• Test Case 10: Type 1.1 UNI-N CBS Configuration
• Test Case 11: Type 1.1 UNI-N Mandatory Layer 2 Control Protocol Processing
• Test Case 12: Type 1.1 UNI-N Optional Layer 2 Control Protocol Processing
• Test Case 13: Type 1.1 UNI-N Optional Layer 2 Control Protocol Discard
• Test Case 14: Type 1.1 UNI-N Point-to-Point EVC
• Test Case 15: Type 1.1 UNI-N CE-VLAN ID Preservation
• Test Case 16: Type 1.1 UNI-N CE-VLAN CoS Preservation
• Test Case 17: Type 1.1 UNI-N Service Frame Unconditional Delivery
Abstract Test Cases for UNI-N Type 1.2 Specific Characteristics

• Test Case 18: Type 1.2 UNI-N Service Multiplexing
• Test Case 19: Type 1.2 UNI-N Service Multiplexing - Minimum Number of EVCs
• Test Case 20: Type 1.2 UNI-N Minimum Number of CE-VLAN IDs
• Test Case 21: Type 1.2 UNI-N CE-VLAN ID Range
• Test Case 22: Type 1.2 UNI-N Configurable CE-VLAN ID/EVC Map
• Test Case 23: Type 1.2 UNI-N CE-VLAN ID/EVC Map Service Frame Discard
• Test Case 24: Type 1.2 UNI-N All-to-One Bundling
• Test Case 25: Type 1.2 UNI-N Bandwidth Profile per Ingress UNI
• Test Case 26: Type 1.2 UNI-N Bandwidth Profile per EVC
• Test Case 27: Type 1.2 UNI-N Bandwidth Profile per Class of Service
• Test Case 28: Type 1.2 UNI-N Multiple Bandwidth Profiles
• Test Case 29: Type 1.2 UNI-N Bandwidth Profile Rate Enforcement when CIR > 0 and EIR = 0
• Test Case 30: Type 1.2 UNI-N Bandwidth Profile Rate Enforcement when CIR = 0 and EIR > 0
• Test Case 31: Type 1.2 UNI-N Bandwidth Profile Rate Enforcement when CIR > 0 and EIR > 0
• Test Case 32: Type 1.2 UNI-N Mandatory CIR Configuration Granularity
• Test Case 33: Type 1.2 UNI-N Mandatory EIR Configuration Granularity
• Test Case 34: Type 1.2 UNI-N Optional CIR Configuration Granularity
• Test Case 35: Type 1.2 UNI-N Optional EIR Configuration Granularity
• Test Case 36: Type 1.2 UNI-N CBS Configuration
• Test Case 37: Type 1.2 UNI-N EBS Configuration
• Test Case 38: Type 1.2 UNI-N Optional Layer 2 Control Protocol Discard
• Test Case 39: Type 1.2 UNI-N Optional Layer 2 Control Protocol Generation
• Test Case 40: Type 1.2 UNI-N Concurrent Point-to-Point and Multipoint EVCs
• Test Case 41: Type 1.2 UNI-N CE-VLAN ID Preservation
• Test Case 42: Type 1.2 UNI-N CE-VLAN CoS Preservation
• Test Case 43: Type 1.2 UNI-N Broadcast & Multicast Service Frame Unconditional Delivery
• Test Case 44: Type 1.2 UNI-N Unicast Service Frame Unconditional Delivery
• **Next Actions**
  – Read the detailed test cases in the MEF 19 Specification available in the MEF web site
Accelerating Worldwide Adoption of Carrier-class Ethernet Networks and Services

www.MetroEthernetForum.org