MEF METRO ETHERNET FORUM

MEF Certification Program

Presented by:
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Juniper Networks

- **Program Overview**
- **Benefits of the program**
- **MEF 9 & MEF 14**
- **CES & MEF 18**
- **Certified Companies**
- **The Program in 2008**

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April 2008

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The MEF Certification Program

- ## Background

  - Worldwide Ethernet Services based on large populations of multi-vendor equipment yet delivering a single set of services must be carefully engineered
  - From user perspective, services must be plug and play

- ## This is facilitated by the Certification Program

  - The program consists of a series of thorough tests providing evidence for end-users, service providers and manufacturers alike, that products and services are compliant to published MEF specifications
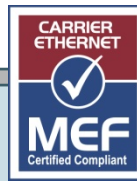
Accelerating Adoption Through Certification

- ## The MEF Certification Program
  - An important part of the MEF's mission to accelerate the deployment of Carrier Ethernet

- ## Manufacturer and Service Provider Certification
  - Certification for Carrier Ethernet systems and equipment that deliver MEF compliant Ethernet services
  - Certification to enable Service Providers to deliver consistent Carrier Ethernet services compliant with MEF specifications

Certification Benefits for Enterprises

- **Assurance that services behave and perform in a manner consistent with a defined service level specification and known international standards**

- **Provides IT departments with the knowledge to make informed decisions at greatly reduced risks**

- **Hasten Carrier Ethernet deployment at reduced cost**

- **Provides common terminology to compare services**
  - *'Are you MEF Certified Compliant?'* a common feature of RFQs

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Certification Benefits for Service Providers

- **Assures vendor equipment complies to MEF Specs**

- **Reduces service costs and time on complex testing between vendors, especially on global installations**

- **Establishes solid foundation for Carrier Ethernet <u>ubiquity</u> and interoperability**

- **Removes confusion caused by proprietary service names and overlapping options**

- **Conformance to MEF 9 allows customers to specify their service requirements by referencing independent, international standards**

# Certification Benefits for Vendors

- **Increases tender opportunities and competitiveness**
- **Dramatically reduces testing costs, time-to-market and installation time**
- **Creates an independent validation of function and conformance and is creating a strong partnership with service provider customers**
- **Provides a performance and behaviour benchmark**
- **Creates a platform for future management standards testing**

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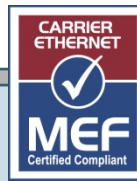
Accelerating Adoption Through Certification

- **Current Certification Program Comprises**
  1. Service Certification to MEF 9 for Equipment Manufacturers
  2. Service Certification to MEF 9 for Service Providers
  3. Traffic Management Certification to MEF 14 for Equipment Manufacturers
  4. Service Certification to MEF 14 for Service Providers
  5. Circuit Emulation Services over Ethernet to MEF 18 for Equipment Manufacturers

- **Approved Certification Lab**
  - MEF does not conduct certification directly
  - Certification is via MEF approved lab: Iometrix Inc.
  - Cooperation with leading test manufacturers
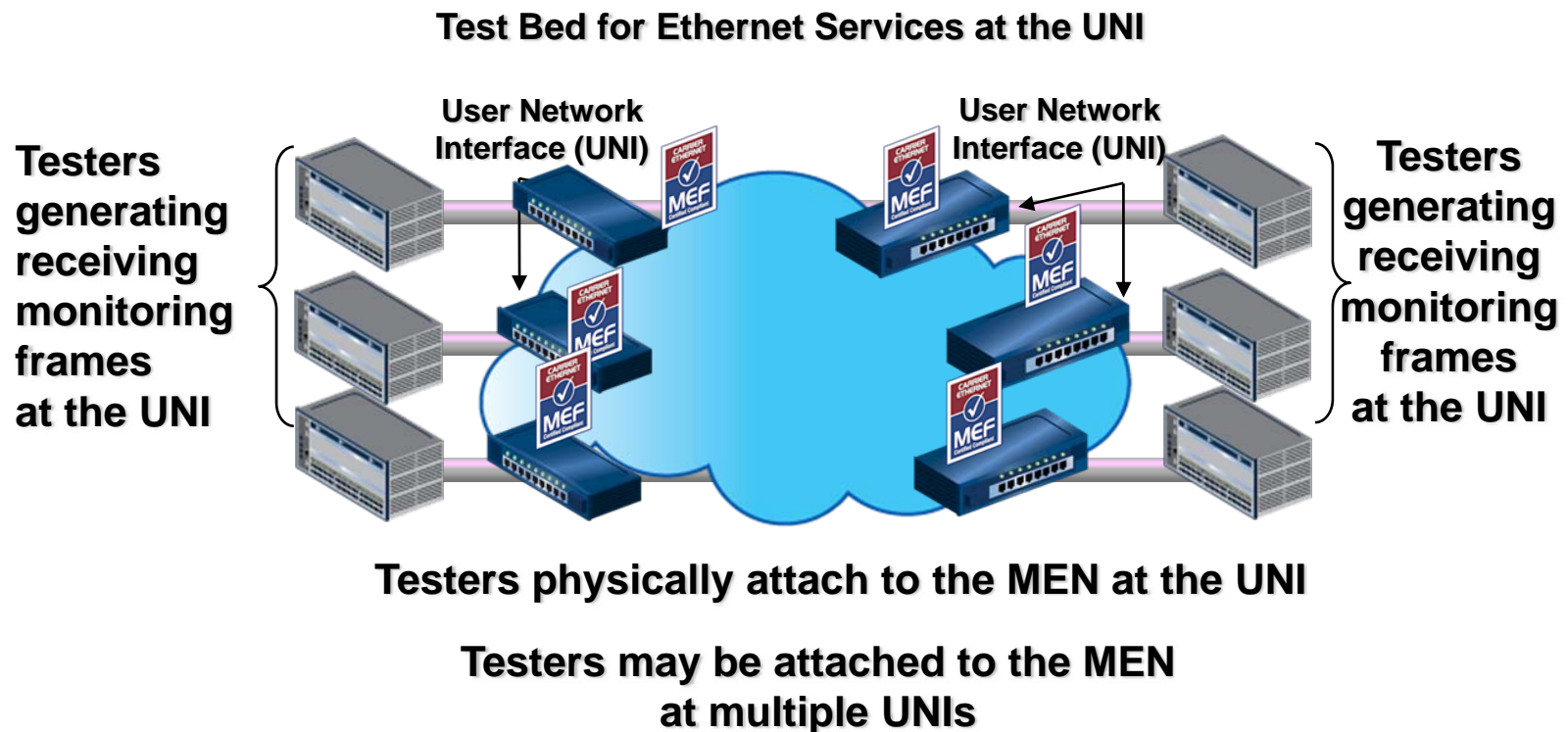 - Implements state-of-the-art test methodologies

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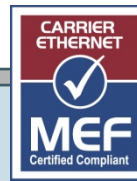
MEF 9 - Abstract Test Suite for Ethernet Services at the UNI

- Tests Service Compliance from the Enterprise Point of View

- MEF 9 tests conformance of Ethernet Services at the UNI where the Subscriber and Service Provider areas of responsibility meet

Test Bed for Ethernet Services at the UNI

User Network Interface (UNI)

User Network Interface (UNI)

Testers generating receiving monitoring frames at the UNI

Testers generating receiving monitoring frames at the UNI

Testers physically attach to the MEN at the UNI

Testers may be attached to the MEN at multiple UNIs

Introduces Standards Based SLS/SLA Verification of Carrier Ethernet Service Quality

- **SLS (Service Level Specification) refers to the parameters of the performance objectives**

- **SLA (Service Level Agreement) refers to the contractual obligations binding the Subscriber and the Service Provider**

- **Based on Traffic Management specifications in MEF 10**

- **Ethernet Service Performance Attributes**
  - Frame Delay Service Performance
  - Frame Delay Variation Service Performance
  - Frame Loss Ratio Service Performance

- **Measured *per EVC* and *per Class of Service***

- **Requires continuous, accurate, accountable measurements on operational networks**

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MEF 8/18: Circuit Emulation Services over Ethernet

- **Major step in progression toward entirely converged networks**
  - Transports TDM services over Carrier Ethernet services
  - Converged networks for data, video and voice
    - Major applications relying upon CESoETH
      - Mobile backhaul
      - TDM services over Ethernet
      - PBX Interconnect
  - MEF 8 addresses technical challenges, MEF 18 certifies conformance

- **Transition Path**
  - Legacy voice traffic is transported via TDM and CES over Carrier Ethernet (CESoETH)
  - Data growth is handled by Carrier Ethernet
  - Traffic is merged over time



8,18
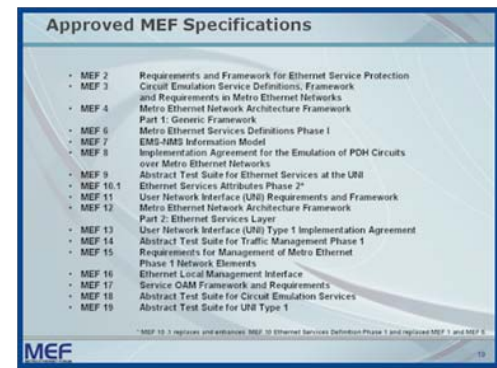
Announced February 2008

2008 Planned Certification Program Milestones

- **UNI Type 2 Certification**
  - Abstract Test Suite for UNI Type 1 (MEF 19) is approved
  - UNI Type 2 requires backwards compatibility with UNI Type 1
  - Target for Pilot Phase: mid-2008
  - Other components, such as Link OAM & E-LMI are WIP
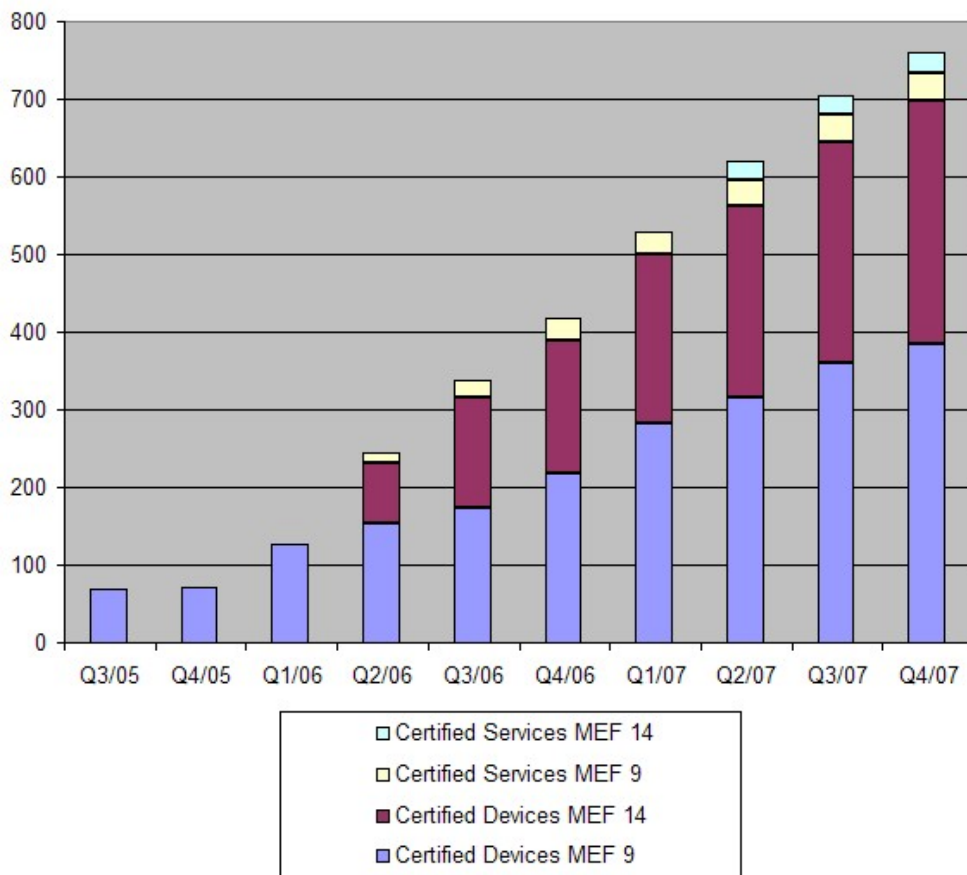
- **E-NNI Certification**
  - Abstract Test Suite is work in progress
  - Plan to include multiple components, such as Link & Service OAM
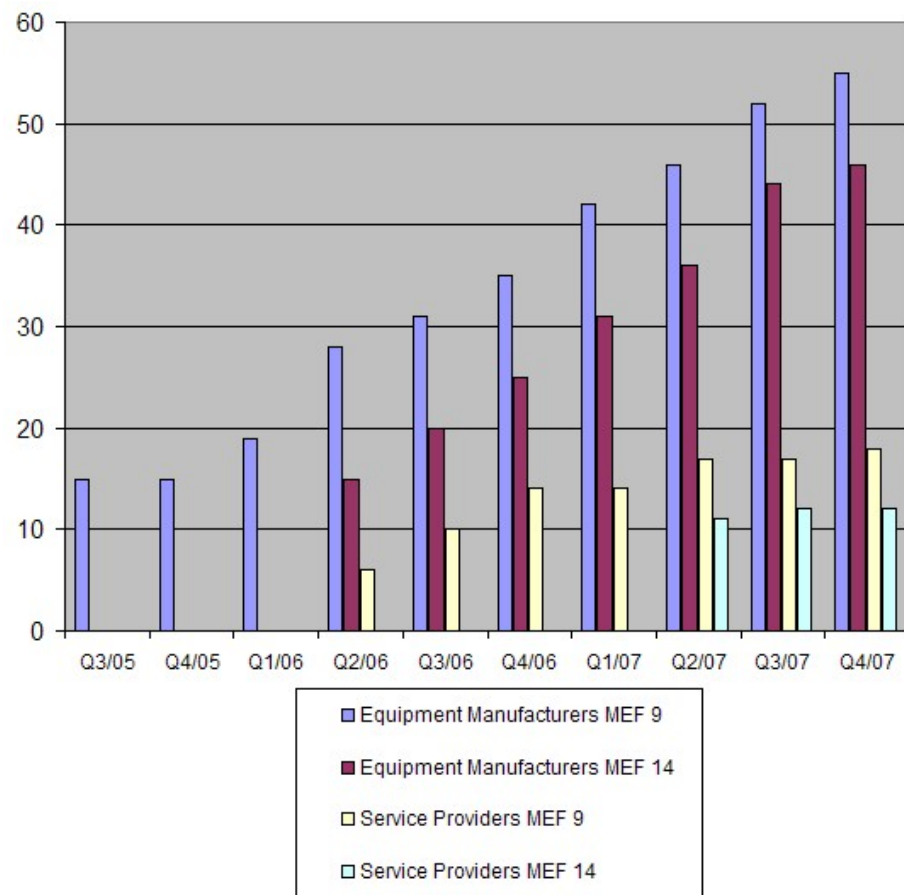 - Targeted for Certification Program in 2008

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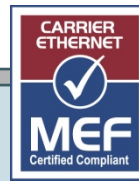
Certification Program Continues to Grow

MEF Certified Services and Devices

MEF Certified Equipment Manufacturers and Service Providers

MEF Certified Companies March 2008

Growth Continues: 70+ Certified Services, 385+ Certified Systems, 1000s tests

19 Service Providers Certified

CARRIER ETHERNET — MEF Certified Compliant™

MEF Certification Lab

iometrix — THE STANDARD FOR TESTING

56 Equipment Manufacturers Certified