Multi-Vendor Carrier Ethernet Interoperability Test 2012

European Advanced Networking Test Center
About the European Advanced Networking Test Center

- Vendor independent network quality assurance since 1991
- Unique technical expertise of network design and testing in latest technology areas
- 20-year testing experience matches highest quality standards

Business Areas

- Test and certification of network components for manufacturers
- Network design consultancy and proof of concept testing for service providers
- Request for Proposal (RfP) support, acceptance testing and network audits for large enterprises and government organizations
- Vendor neutral technology seminars
Participating Vendors

albis technologies
Aviat networks
ERICSSON
HFR, Inc.
IXIA

NEC
Omnitron Systems
siae microelettronica
SPIRENT
Symmetricom

Four months of preparation
Two weeks of hot staging
30 vendor engineers
16 pages of public technical report
Carrier Ethernet 2.0: Service Activation

- New: Tests done (terminated) by access devices
- Differing views on how to implement the ITU Y.1564 standard
- Excess information rate testing remains a challenge for now
Carrier Ethernet 2.0: Hierarchical Service OAM

- 3 Different domains
- Alarm Indication (ETH-AIS)
- Lock Message (ETH-LCK)
- Test Message (ETH-Test)
Clock Synchronization – Transparent Clock

- Tested 4 vendor pairs
- All combinations passed G.823SEC mask
- Packet population using 1-3% Floor Packet Percentage (FPP) limit as defined in G.8261.1
- Compared correction fields at transparent clock
Clock Synchronization – Best Master Clock Selection

- Tested 3 vendor pairs
- Including a boundary clock
- Clock selection based on tie breaker and quality
Carrier Ethernet Transport – Microwave MPLS-TP Support

- Tested 4 vendor pairs
- Prioritization based on EXP bits

Figure 4: MPLS-TP QoS over Microwave
Two different rings to accommodate different CFM rates supported by vendors

ERPS in access, MPLS-TP in core
Carrier Ethernet Technology Status 2012

Visibility

IEEE 1588 Boundary Clocks
- Multi-Vendor

Y.1564 Service Activation

MPLS-TP
- Multi-Vendor
- Single-Vendor

IEEE 1588 Slave Clocks

SyncE

Performance Monitoring Y.1731

Ethernet Microwave

ERPS

Plateau of Productivity

Technology Progress

Technology Trigger
Peak of Expectations
Trough of Disillusionment
Slope of Enlightenment

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Hype Cycle model (five stages) © Gartner 1995
Further Information

16-page public white paper available free of charge
- Paper copies at the interop demo area
- http://www.eantc.de/cewc2012

Live interoperability demos at the showcase area:

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<td>MPLS-TP Support in Microwaves (EXP bit prioritization)</td>
<td>Precision time protocol and synchronous Ethernet – hybrid mode</td>
<td>Hierarchical Service OAM</td>
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<td>Floor Packet Percentage testing</td>
<td>Precision Time Protocol : Best master clock selection</td>
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