



Carrier Ethernet technology provides carriers with end-to-end Ethernet services over wide area networks (WAN), and implements both cost and simplicity benefits. However, since Ethernet wasn't originally designed for the carrier space many technical challenges come into play — quality of service (QoS) guarantees, rapid failover implementation, service management, and scalability to name a few. New standards and objectives were defined to address these issues, allowing carriers to effectively and reliably deploy Ethernet-based carrier networks. As a consequence, carriers need new test procedures to validate and verify Carrier Ethernet gear and services. Ixia's testing solutions directly address Carrier Ethernet testing needs, allowing you to qualify your equipment and implementation.

Ixia's solutions evaluate your Carrier Ethernet implementation and let you answer critical questions, such as:

- Does my implementation conform to the new industry standards?
- Does my link and service OAM implementation allow full monitoring of my network?
- Can my provider bridges and provider backbone bridges (PBB) scale and still meet QoS objectives?
- How can I test my Ethernet services using the ITU-T Y.1564 Ethernet service activation measurement methodology?
- How can I test to MEF 9, 14, 21, and UNI-2 certification standards?
- Can I test and verify service level agreements (SLAs)?
- Is my failover implementation acceptable?
- Can my network handle IEEE 1588v2 and Synchronous Ethernet?
- How well will my carrier network interoperate with other carrier networks over external network-network interface (ENNI)?

Network equipment manufacturers and service providers use Ixia's test solutions to ensure operation and conformance to all the new challenges of Carrier Ethernet. Ixia is a market leader in Carrier Ethernet networking test solutions



Product	Feature	Benefit
IxNetwork	Protocol Emulation and Traffic Generation	Validate the functionality, scale and interoperability of a single device or a system under test with integrated traffic generation
IxN2X	Protocol Emulation and Traffic Generation	Validate the functionality, scale and interoperability of a single device or a system under test with integrated traffic generation
IxANVL	Protocol Conformance Testing and MEF certification preparation	Confirm the protocol implementation is compliant to the standard and interoperability with a 3rd party
IxAutomate	Canned benchmark testing	Leverage proven test methodology to quickly and easily perform repeatable benchmark testing
Ixia Anue 3500	Protocol conformance and timing synchronization testing	Validate the performance of synchronization services and Carrier Ethernet functions

Technology	Ixia Solution
Ethernet Switching: STP/RSTP/MSTP, LACP, Provider Bridges, PBB, PBB-TE	IxNetwork and IxN2X- Emulation IxANVL - Conformance IxAutomate - Test Suites
Test Methodology: ITU-T Y.1564 Ethernet Service Activation	IxNetwork - QuickTest
Ethernet OAM: Link OAM IEEE 802.3ah Service OAM IEEE 802.1ag / ITU-T Y.1731	IxNetwork and IxN2X - Emulation IxANVL - Conformance
MPLS Core: VPWS/PWE3, VPLS, MPLS-TP	IxNetwork and IxN2X - Emulation IxANVL - Conformance
Ethernet Management: MEF 16 - ELMI	IxNetwork - Emulation IxANVL - Conformance
MEF Certification: MEF 9,14, 21, 24, 25 MEF UNI-2	IxANVL - Conformance (9,21,24,25) IxAutomate -(14) IxN2X - (9/14)
Registration Protocols: MRP (MMRP/MVRP) IEEE 802.1ak	IxANVL - Conformance
Synchronization: IEEE 1588v2, ITU-T Sync E	IxNetwork and IxN2X - Emulation Ixia Anue 3500 - Timing Sync

For more information see http://www.ixiacom.com/solutions/testing_carrier_ethernet/index.php