



## SERVICE DESIGN TESTING & CONFORMANCE TESTING FOR IP and ETHERNET



Enables service providers and equipment vendors to quickly validate and fine tune network equipment to meet committed SLAs

## HIGHLIGHTS

- IP and Carrier Ethernet and testing based on RFC 2544, ITU-T Y.1564 and MEF CE 2.0 methodologies
- Verifies all CE 2.0 service types
- Burst Testing in accordance with MEF 10.3
- Validates Control (L2CP, SOAM)
- Multi-CoS Service Testing
- Auto Diagnostics
- One Touch Execution
- Test Queuing

SAMTEST solution is ideally suited for Service Design testing and Conformance testing.

SAMTEST automated test libraries deliver substantial reduction in time and effort in performing these testing tasks with ease.

## BENEFITS

- Enables significant speeding up of testing cycles and reduces the "time-to-market"
- Built in automation and reporting Capabilities
- Ensures conformance for every cycle of service customization



Verx SAMTEST provides a comprehensive test solution to facilitate the engineering of IP and Carrier Ethernet 2.0 services. SAMTEST's pre-built automated test suites provide enable service providers to efficiently design and roll-out IP and Carrier Ethernet 2.0 services.

Using SAMTEST network design teams can

- Verify conformance of their services to standards
- Benchmark SLA compliance
- Benchmark network scalability
- Avoid over-provisioning for effective equipment utilization
- Benchmark network equipment
- Verify interoperability of equipment



Figure 1 : Verx hardware test probes

### SAMTEST RFC 2544 Test Library

**SAMTEST RFC 2544** test library provides verification of services based on the popular IETF RFC 2544 benchmarking methodology for throughput, latency, and frame loss for a range of frame sizes.

### SAMTEST Y.1564 Test Library

**SAMTEST Y.1564** test library provides verification of services based on the ITU-T Y.1564 methodology for verification of both performance (throughput, latency, and frame loss) and configuration. The tests verify performance at CIR, EIR, and Discard Rates, and validate QoS parameters for multiple services over the network. In addition, SAMTEST improves on the methodology by additional tests supported for CBS and EBS, step load CIR testing and Traffic Policing.

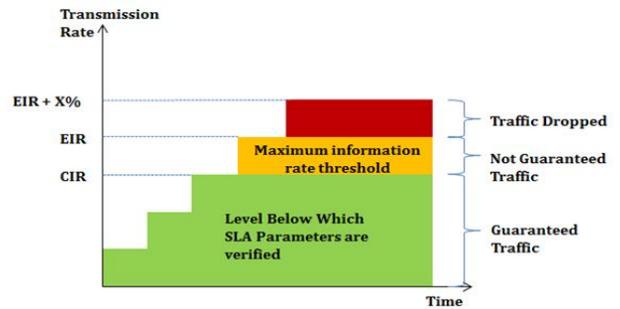


Figure 2 : Y.1564 Service Configuration Test

### SAMTEST MEF CE 2.0 Test Library

**SAMTEST MEF CE 2.0** test library verifies conformance to MEF Carrier Ethernet 2.0 for both Ethernet Subscriber Services (E-Line, E-LAN and E-Tree) as defined in MEF 6.1 and Ethernet Access (E-Access) services as defined in MEF 33.

#### Ethernet Services - Subscriber

SAMTEST MEF CE 2.0 test suite supports test cases for verification of service attributes, bandwidth profile and performance parameters for all the six subscriber focused Ethernet services namely E-line (EPL and EVPL), E-LAN (EP-LAN and EVP-LAN) and E-Tree (EP-Tree and EVP-Tree).

#### Ethernet Access (E-Access) Services

SAMTEST MEF CE 2.0 test suite supports test cases for verification of service attributes, bandwidth profile and performance parameters for both Access EPL and Access EVPL services.

Service Type	Private Service Port-based	Virtual Service VLAN-based
<b>E-line</b> (Point-to-point EVC)  Ethernet Subscriber Service	<b>EPL</b> (Ethernet Private Line)  	<b>EVPL</b> (Ethernet Virtual Private Line)  
<b>E-LAN</b> (Multipoint-to-Multipoint EVC)  Ethernet Subscriber Service	<b>EP-LAN</b> (Ethernet Private LAN)  	<b>EVP-LAN</b> (Ethernet Virtual Private Line)  
<b>E-Tree</b> (Rooted-Multipoint EVC)  Ethernet Subscriber Service	<b>EP-Tree</b> (Ethernet Private Tree)  	<b>EVP-Tree</b> (Ethernet Virtual Private Tree)  
<b>E-Access</b> (Point-to-point OVC)  Ethernet Access Service	<b>Access EPL</b> (Access Ethernet Private Line)  	<b>Access EVPL</b> (Access Ethernet Virtual Private Line)  

Table 1 : MEF CE 2.0 Service Types

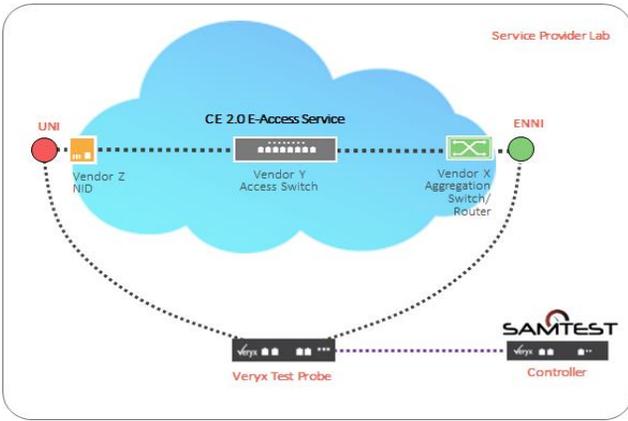


Figure 3 : E-Access Test Topology in Lab

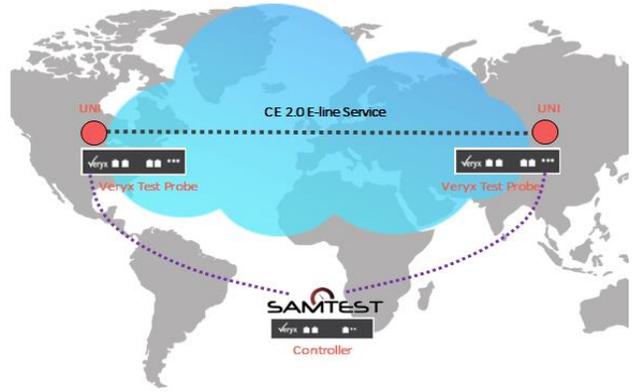


Figure 4 : E-line Test Topology in Field

Using SAMTEST network architecture teams in service providers can verify their service design in the lab or the circuits in the real deployment from a central office, by deploying probes at suitable points across geographical locations. They can perform long performance duration test for up to 48 hours. SAMTEST's live performance graph shows the measured performance during the course of the test execution.

### Verity SAMTEST MEF CE 2.0 Coverage

#### Service attributes

MEF defines several service attributes for each of the eight CE 2.0 service types. Attributes such as CE-VLAN ID, CoS preservation, All-to-one bundling/Bundling, L2CP frame handling, SOAM frame handling etc. can be validated quickly using SAMTEST due to its high degree of automation. SAMTEST performs automatic diagnostics on test failure and provides accurate information such as MTU, VLAN IDs allowed/not allowed, provide packet dissections and highlight mismatches in the service frames to help engineers troubleshoot and resolve issues faster. SAMTEST also supports validation of handling proprietary Layer 2 control protocol such as CDP, PVST+, etc.

#### Bandwidth Profile

Burst handling is one of the complexities of CE 2.0 that requires thorough understanding of the test methodology and token bucket behavior. SAMTEST simplifies the process of validating bandwidth profile parameters like CIR, EIR, CBS, and EBS based on procedures defined by MEF. SAMTEST can identify the exact throughput, and burst supported by the service.

#### Multi-CoS Service

MEF CE 2.0 introduced Multi-CoS service as a standardized feature. Service providers can offer different performance objectives for different CoS IDs (PCP/DSCP) within the same service. SAMTEST approaches Multi-Cos service testing holistically instead of the user executing tests for each Class of Service separately.

Service providers can test up to 3 different Classes of Service using SAMTEST and avoid false positives or latent issues that may result due to testing of different Classes of Service separately.

#### Performance Testing

MEF CE 2.0 defines five performance parameters – FD, MFD, FDV, FDR, and FLR. It also mandates that the measurements conform to performance objective 99.9 percentile for FD, FDV and FDR. SAMTEST measures all these performance parameters, and performs percentile calculations while validating these parameters which helps service provider ensure that the service performance meet the desired service acceptance criteria.



Figure 5: SAMTEST test progress and diagnostics

## Features

Testing and Troubleshooting Features
Test Methodologies <ul style="list-style-type: none"> <li>- RFC 2544</li> <li>- Y.1564+,</li> <li>- MEF CE 2.0</li> </ul>
CE 2.0 service attribute verifications <ul style="list-style-type: none"> <li>- VLAN/CoS Transparency</li> <li>- Bundling</li> <li>- MTU</li> <li>- Service Leakage</li> <li>- L2CP/SOAM handling</li> <li>- And more</li> </ul>
Bandwidth Profile and Performance Parameter Verification
Burst Testing as per MEF 10.3
Tagging Support: 802.1q, Q-in-Q
Multi-Cos Testing
Auto diagnostics
802.1ag/Y.1731 and Smart Loopback
Pre-built automated test suites
Graphical performance charts and PDF reports and test logs

## Test Probe

Physical
<b>Dimensions:</b> 1.75"H x 17.5"W x 8.8"D (44.45mm x 444.5mm x 223.52mm)
<b>Weight:</b> 10 Lbs
Interface and Indicators
<b>Front I/O:</b> 1xVGA Port 2xRJ-45 GbE LAN ports 2xUSB ports Test port options : 4x1GbE SFP ports, 2x10GbE SFP+ ports
Power
<b>Power Supply:</b> 160W (200W peak) DC-DC
<b>Power Adapter:</b> 102W AC Adapter with 100-240V AC input and 12V DC output

## For more information

Contact [sales@veryxtech.com](mailto:sales@veryxtech.com)

### About Veryx Technologies

Veryx Technologies is a leader in IP and Carrier Ethernet testing and offers comprehensive range of test solutions to enhance the Carrier Ethernet service assurance. Veryx provides innovative testing, automation and monitoring solutions for network service providers, cloud service providers, data centers, Enterprise IT and network equipment vendors. Leading service providers and equipment vendors rely on Veryx solutions for network testing, performance monitoring and equipment testing applications for technologies such as Carrier Ethernet, IP, Cloud, SDN, NFV and Smart Networks.

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