

## Wholesale Ethernet Service testing



### APPLICATION NOTE

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## Scalable Ethernet Service testing

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By installing low-cost and scalable Ethernet test platform in the edge of the network, the technical network operations teams are able to determine precisely whether or not any errors originate from the edge/access network, as opposed to doing only end-2-end testing across the core network.

## Service Activation

Service activation relates to validating that the Ethernet service has been installed and provisioned correctly, and for generating the ubiquitous RFC 2544 benchmark reports for customer review related to their specific service level agreements (SLAs).

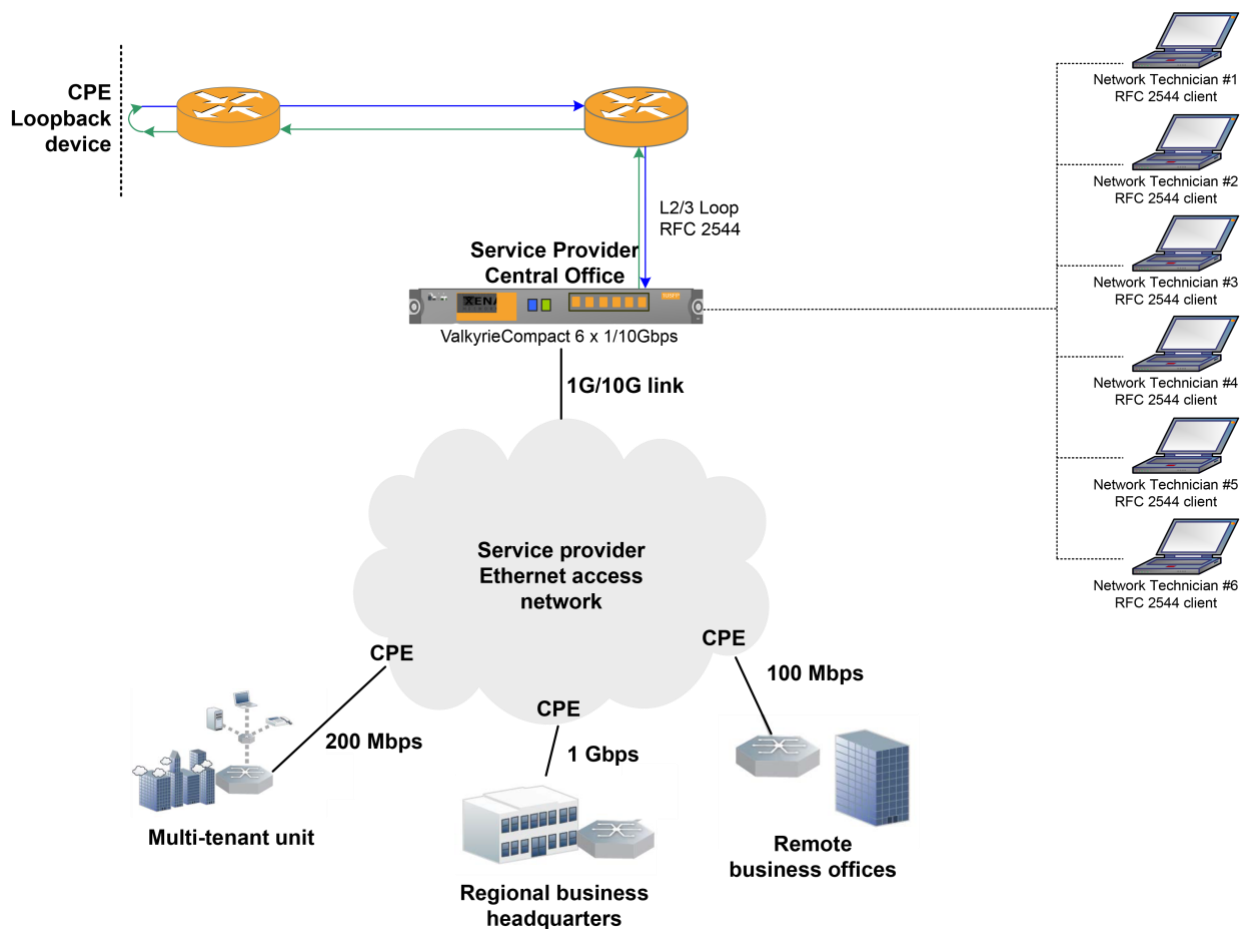
Multiple technicians can simultaneously perform end-to-end RFC 2544 service activation testing through RFC 2544 client remote control of the central office based Teledyne LeCroy Xena tester and loopback devices located at the Ethernet service access points (CPE).

## Density and port speeds

The XenaCompact (<http://xenanetworks.com/html/Valkyriecomact.html>) series C-Odin-1G-3S-6P and C-Odin-10G-1S-6P test devices provide 6 x 1 Gbps and 6 x 10 Gbps test ports respectively. These 1U rack mounted central office based XenaCompact testers supports RFC2544 testing and report generating sessions for up to 1 or 10 GbE speeds. For very high test density requirements and further scalability, the 4U XenaBay chassis (<http://xenanetworks.com/html/Valkyriebay.html>) supports 72 x 1 or 10 Gbps test ports.

## Service Activation Test Application

The network setup for centralized wholesale Ethernet service testing in the network edge is shown in the figure below.



▪ Figure 1 Ethernet Service RFC2544 testing from service provider edge (central office) to customer edge (CPE)

The network technician must remotely set the CPE demarcation device in L2/3 loopback mode, and then execute the RFC2544 test suite client using a single test port on the central office based XenaCompact tester. This way, round-trip throughput, loss, burst, and latency can be tested (bi-directional results). The testing can be done at layer 2 (VLAN) or layer 3 (IP).

The RFC 2544 client is started on any workstation that is connected to the same management network as the XenaCompact tester, or remotely via the allocation of a public IP address for the XenaCompact tester.

Each network technician will require one test port for RFC 2544 test session. With six 1 or 10 Gbps test port per XenaCompact tester, up to six network technicians can simultaneously and fully independent of each other perform RFC 2544 testing and report generation.

The RFC 2544 reports are configured to include customer specific information (customer name, service level agreement bandwidth, service ID, access ID, or any other field proprietary to the service provider) as shown in the report snippet below.

| RFC 2544 - THROUGHPUT Test                |                |       |       |       |
|---|----------------|-------|-------|-------|
| Customer name:                            | Enterprise "A" |       |       |       |
| Customer service bandwidth (Mbps):        | 100.0          |       |       |       |
| Service ID:                               | 102030         |       |       |       |
| Access ID:                                | 3467           |       |       |       |
| Test duration (sec):                      | 1.0            |       |       |       |
| Number of pairs:                          | 1              |       |       |       |
| Number of trials:                         | 1              |       |       |       |
| Date:                                     | 11-Apr-2012    |       |       |       |
| Time:                                     | 5:00 PM        |       |       |       |
| Maximum port-pair throughput with no loss |                |       |       |       |
| =====                                     |                |       |       |       |
| Frame size                                | 64             | 128   | 256   | 512   |
| Maximum physical port speed (Mbps)        | 1000           | 1000  | 1000  | 1000  |
| Configurable maximum speed (Mbps)         | 100            | 100   | 100   | 100   |
| 100 Mbps maximum Rate (fps)               | 148810         | 84459 | 45290 | 23496 |
| Passed rate (%)                           | 100.0          | 100.0 | 100.0 | 100.0 |
| Acceptable loss percent                   | 0.00           | 0.00  | 0.00  | 0.00  |

CUSTOM LOGO from SERVICE PROVIDER here...

▪ Figure 2 RFC 2544 Test Report header sample

For complete RFC 2544 report examples, see <http://xenanetworks.com/html/datasheets.html>