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Generate more revenue. This is why more service providers are looking for something new to offer—products that stem from new, value-added services for enterprise networking. EXFO's Gigabit Ethernet testing solutions are ready to help them achieve this.

Developing new Internet protocol technology calls for the deployment of new access technology. In enterprise networks, Ethernet is the transport infrastructure of choice, and service providers are now deploying Ethernet technology as a means of interconnecting all enterprise locations. However, certain issues must be resolved.

By providing these new services, service providers are now facing the same quality-of-service (QoS) problems faced by traditional DS1/DS3/OC-3 access. These traditional transport technologies were using Frame Relay or ATM to transfer traffic across a network. Unlike Ethernet, traditional transport technologies, especially ATM, were created with QoS in mind. As a result, service providers defined service-level agreements (SLAs) based on:

- Network and application uptime/downtime and availability
- Mean time to repair (MTTR)
- Performance availability
- Transmission delay
- Link burstability
- Service integrity

Important Ethernet Questions

The main issue is, will service providers be able to certify the QoS as defined in the SLA? Network and application availability and MTTR parameters are available, but what about performance availability, transmission delay, link burstability and service integrity?

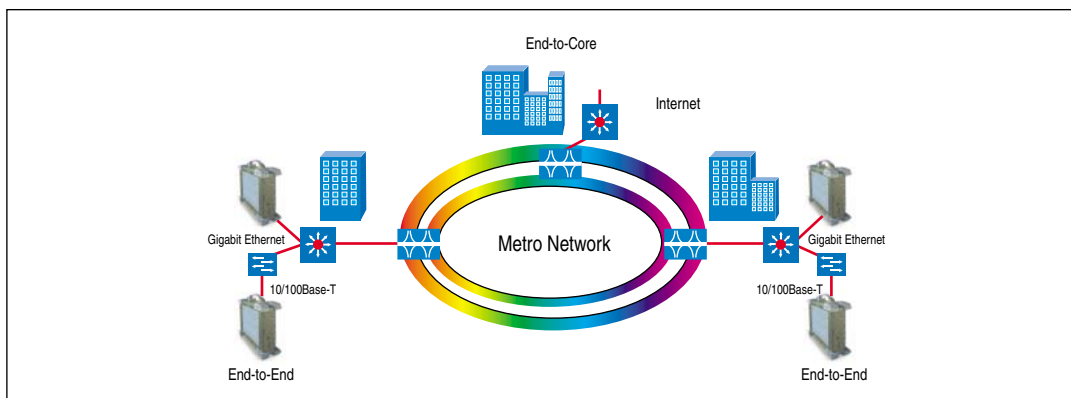
Fortunately, the data-communication industry has put together a test methodology to address these issues. RFC 2544, a benchmarking methodology for network-interconnect devices, specifies the requirements to test performance availability (throughput), transmission delay (latency), link burstability (back-to-back frames) and service integrity (frame loss).

When these measurements are performed, they provide a baseline for service providers to define SLAs with their customers. These measurements become the reference. They enable service providers to validate the quality of the service delivered and can provide them with a tool to create value-added services that can be measured and demonstrated to customers. By having different classes of services, a service provider can create new revenue sources based on better, measurable performance.

With automated testing, service providers obtain repeatable results. Automation also provides ease of use for technicians in the field by enabling accurate, efficient measurements and providing reports they can give to customers for future reference.

Test tool capability also needs to be examined. A customer who pays for high-speed services expects to have the maximum possible throughput. If the test instrument is not capable of transmitting at full-line rate, how can a service provider certify that the circuit is efficient and error-free at 100% utilization?





Complete EXFO Solutions

The FTB-8500 Packet Blazer, a module for the FTB-400, is the industry's first truly portable, fully integrated test instrument capable of testing 10/100 Mb/s and Gigabit Ethernet systems at full wire speed. RFC 2544 is the industry-approved method for verifying SLA in Ethernet-based packet services. The procedures that make up RFC 2544 were created by data-communication professionals for use with the hardware and software of devices like switches and routers. Because transparent LANs, virtual private networks and datacom services rely on these devices, RFC 2544 is the recognized method for certifying that networks are working as defined in SLAs.

RFC 2544 measurements provided by EXFO's Packet Blazer include throughput, latency, burstability and frame loss. These measurements are performed automatically. And because of the multiple frame size, duration of the tests and measurement methodologies, automation ensures results that are both reliable and repeatable.

By using the master-remote Packet Blazer modules combination, one installation technician can test an end-to-end Ethernet circuit to RFC 2544 without any external connectivity. By using the LAN connection when it's not being tested, a measurement can be done bidirectionally and the results displayed on one test instrument. An FTB-8500 Packet Blazer configured in remote mode will provide testing capability to a master Packet Blazer.

The master-remote functionality of Packet Blazer can also be used for RFC 2544 measurements of Internet access to customer premises. A technician can use a remote Packet Blazer installed at the network's core and perform SLA verification of the Internet access network.

Efficient Testing for Service Providers

By providing control of the remote unit through the service under test, performance assessment in both directions is available at one location. This means fewer technicians needed in the field, increased return on investment for testing equipment and reduced overall service costs. The end benefit for service providers? More revenue.

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