

VIAVI

EtherASSURE

A scalable service-assurance solution for the reliable delivery of profitable Ethernet services

The Explosion of Ethernet Services

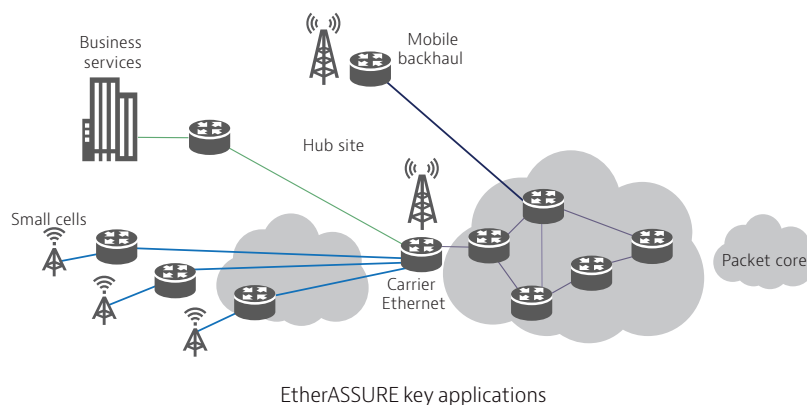
Carrier Ethernet provides a substantial economic and implementation benefit due to its intrinsic scalability and its ability to deliver cost-effective, flexible, and high-performance solutions to service providers and end users. It is the technology of choice for many applications, including:

- Mobile backhaul
- Small cells
- Business services enabling cloud applications

As service providers mix these applications onto common core networks, it is increasingly important to find ways to validate service level agreements (SLAs), quickly activate new services for faster time-to-revenue, and identify problems before they create catastrophic issues and potentially damage the customer experience—which can lead to financial penalties.

Operationalizing Ethernet Services

EtherASSURE is a scalable, vendor-agnostic service-assurance solution ideally suited to enable lean and efficient processes for new Ethernet services activation and quality-level monitoring. EtherASSURE lets service providers deliver a high level of service quality to match their customers' expectations. It increases subscriber satisfaction and loyalty while reducing operational costs and increasing profits.



Key Benefits

Accelerate deployment, minimize service-activation time, and shorten time-to-revenue

- Implement repeatable and automated turn-up test methodologies
- Reduce repetitive dispatches associated with service turn-up and troubleshooting
- Scale faster than competitors by turning up more services in less time using best-in-class test tools and applications

Improve customer retention, encourage loyalty, and increase profitability

- Know the health of your services 24/7/365 with performance metrics to ensure SLA compliance—all the time
- Quickly detect service performance degradations before they affect your customers
- Reduce MTTR with increased visibility and faster fault segmentation techniques

Key Applications

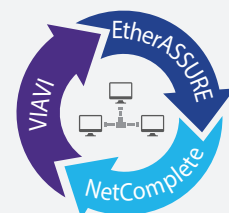
Service activation and acceptance

- Automated, standards-based turn-up testing
- Trouble identification, isolation, and recovery

Continuous performance management and SLA verification

- Standards-based performance monitoring
- Value-added threshold monitoring

Real-time performance monitoring with live traffic and segmentation

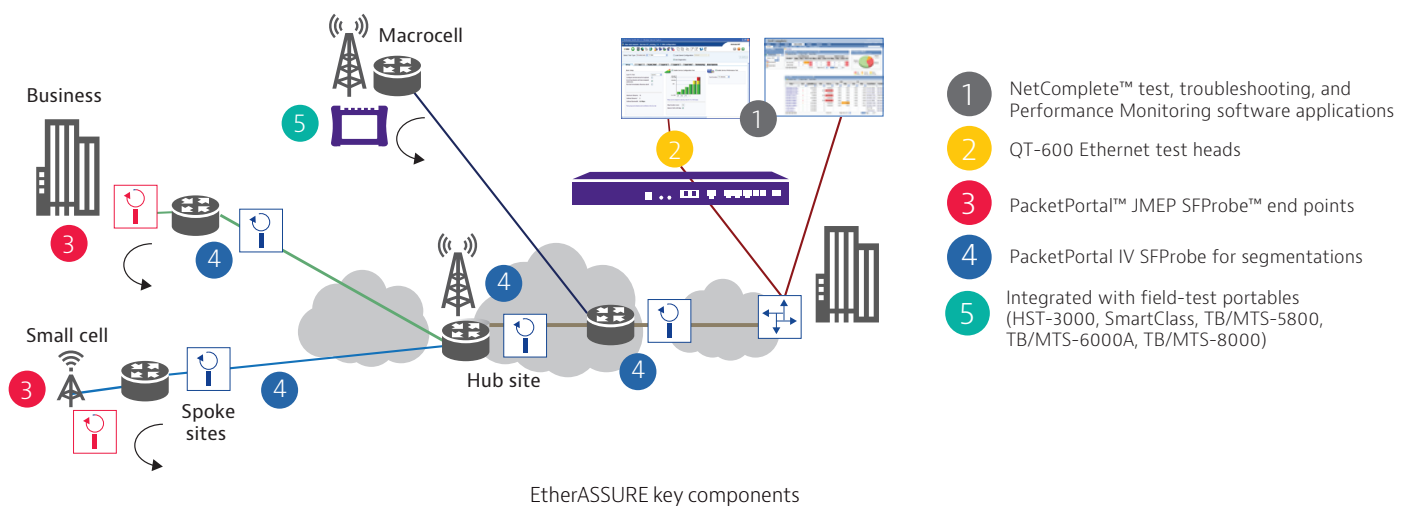


The Challenges of Deploying Ethernet Services

Fixed and mobile operators are migrating to carrier Ethernet because of its price competitiveness, flexible bandwidth increments, and ability to add new services using only one technology. However, Ethernet deployment brings challenges that providers can't ignore. Commonly cited issues include:

- Limited resources to meet a service rollout timetable
- Inconsistent services with a lack of interoperability between multiple vendors' architectures
- Difficulties isolating problems, creating slow response times
- Expensive, time-consuming truck rolls/field-service dispatches to find problems and change services
- Limited visibility to easily segment and diagnose performance issues

These challenges put successfully deploying profitable Ethernet services at risk.



A Single Solution to Overcome Assurance Challenges

EtherASSURE overcomes these challenges with a combination of VIAVI Solutions software and hardware components. Third-party, standards-compliant end points/network interface devices (NIDs) or test heads can also be integrated into the solution. Unique intelligence visibility (IV) probes at intermediate aggregation points provide segmentation and visibility into the performance of live traffic. The EtherASSURE service assurance solution delivers:

Workflow Automation

Automate turn-up testing to scale your deployments and troubleshooting for timely problem isolation

Service-Aware OSS

Boost productivity with test and planning applications designed with service in mind

Continuous and Real-Time Performance Monitoring

Increase customer retention with standards-based and unique live-traffic-based performance monitoring and mesh testing for today's dynamic networks

Scalable Networks

Accelerate deployments with innovative microprobes seamlessly integrated into networks

Rapid Troubleshooting

Meet customer SLAs by quickly segmenting issues and getting an on-demand view of network packets

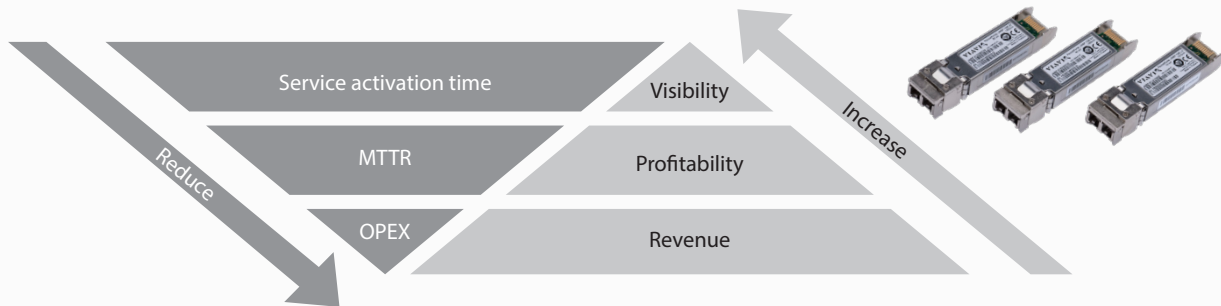
Accelerate Deployments, Minimize Service-Activation Times, and Speed Time-to-Revenue

As demands for mobile backhaul and business services increase, providers must operationalize the carrier Ethernet life cycle. An efficient and effective service activation model helps accelerate deployments, minimize risk, and reduce capital and operating expenses. Further, it enables easily scaling deployments to market demands.

EtherASSURE also speeds deployments with a scalable platform architecture, centralized operations, and workflow automation. With the help of next-generation probe technology integrated into SFPs that are already part of the network, VIAVI increases the number of test points to extend testability and visibility to the network edge. This removes the need for additional instrumentation.

Innovative PacketPortal™ SFPProbes

The PacketPortal family of SFPProbes combines VIAVI Ethernet test expertise with VIAVI technology leadership in transceiver design. Vendor-agnostic SFPProbes enable cost-effective, end-to-end performance monitoring across network architectures. The PacketPortal micro Ethernet probe (JMEP) seamlessly integrates into the network as well as into VIAVI Ethernet assurance applications to simplify service activation, performance management, and fault isolation. It provides enhanced demarcation capabilities in customer premises equipment (CPE) and reduces equipment footprint and power consumption. The PacketPortal Intelligence Visibility (IV) probe provides segmentation, enhances performance monitoring, and enables efficient troubleshooting by providing a view of live traffic at various points in the network without increasing equipment footprint or power consumption.



The PacketPortal SFPProbe family enhances the VIAVI EtherAssure solution, helping providers overcome the rollout, assurance, and performance monitoring challenges associated with complex deployments such as small cells.

Expedite Service-Activation Testing from a Central Location

Use cases show that for a given number of services to turn up, EtherASSURE reduces service-activation duration from weeks or months to days. Managed directly from the network operations center (NOC), EtherASSURE tests network characteristics in the ways end-customers use the network. It extensively validates all attributes during the service-activation phase, certifies application-layer performance, and documents the results in a database, giving the operator a “birth certificate” as a reference for their services.

Perform the right test every time

EtherASSURE reduces the time needed to identify, configure, and execute tests by automating redundant tasks and by letting technicians instantly make modifications to remove unnecessary test cycles—expediting service delivery.

EtherASSURE:

- Ensures the system is turned up right the first time
- Speeds up the process, uniquely enabling activation of hub-and-spoke architectures in one step
- Provides repeatable results
- Reduces repetitive truck rolls

VIAMI provides the industry’s most comprehensive portfolio for small-cell activation, monitoring, and optimization. We understand that deploying small cells translates into many more network elements to be commissioned, maintained, and monitored. As a result, it is now even more important to focus on efficient test and monitoring solutions, take control of operating expenses, and minimize time-to-revenue.

VIAMI solutions for small cells deliver unmatched visibility to help you plan, protect, and profit from your deployments.

Improve Customer Retention, Encourage Loyalty, and Increase Profitability

Rapidly deploying services improves time-to-revenue. However, providers also need to operate, maintain, and assure infrastructure performance to consistently provide high quality of service (QoS) to their subscribers—a critical factor driving customer satisfaction. Increased performance visibility and monitoring lets providers stay ahead of the competition, differentiate themselves within the market, and build greater customer retention and loyalty.

Continuous and Real-time Performance Monitoring with Real User Traffic

Continuous performance monitoring with EtherASSURE:

- Detects issues before they impact customers with unique visibility into performance of real user traffic
- Validates service performance by measuring key performance indicators (KPIs)
- Delivers highly customized performance reports to prove that contractual commitments are met and to avoid SLA penalties

Positive customer experience drives loyalty, enabling a fast return on investment and sustained profitability

EtherASSURE fits easily in multivendor network topologies. It interfaces with network interface devices (NIDs) and manufacturers’ element management systems (EMS) to collect statistics from all over the network.

Dispatch to FIX not FIND

Improved Visibility, Segmentation, and Isolation Techniques

EtherASSURE isolates problems, remotely collects real-time data, and provides actionable information. It can isolate customer experience problems caused by the network and root out the causes from the physical layer up to the application layer for fast and reliable fixes. With the use of PacketPortal Intelligence Visibility, EtherAssure provides a hop-by-hop view of real user traffic in real-time. Operators can now immediately diagnose problems such as service impacting micro-bursts, significantly improving their mean-time-to-isolation (MTTI).

EtherASSURE fault-segmentation techniques let operators quickly assess whether a problem is caused in the customer domain or by their network. This eliminates many trouble tickets and can prove network operation. If the problem is the operator's, EtherAssure points to the cause of the issue. Shorter mean-time-to-understand means shorter mean-time-to-repair (MTTR). This reduces operational costs by decreasing the deployment of multiple technicians to remote locations.

Better Decision Making for Cost Savings

With the use of EtherAssure's live-traffic-based performance monitoring solutions, operators can manage network performance, and backhaul upgrades using more accurate, real traffic-based data, compared to using traditional statistical models. This more accurate view of customer use patterns and traffic distributions helps optimize investments and save on or defer opex and capex decisions.

Leverage Standards to Ensure Maximum QoS

EtherASSURE supports international carrier Ethernet standards so that links and applications perform consistently:

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| Layer 2/3 RFC 2544/Y.1564 Simplification/configuration guidance/application-layer troubleshooting/vendor agnostic |
| ITU-T Y.1731/RFC 5347 (TWAMP) Service-layer performance monitoring |
| RFC 2544/ITU Y.1564 Service-activation test |
| IEEE 802.1ag Connectivity layer OAM |



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