

Network evolution – Where did the test instruments go?

Uncertainty makes operators unhappy

Time is the enemy when you're trying to identify the root cause of a network problem. You urgently need more information. In particular, you require precise data about the status of nodes and the quality of services at every point in your network. With that info, you could easily direct your field services teams and replace the failed component. ADVA and VIAVI have good news. Next time, you'll know everything you need to tackle network failures even before services are affected.

Software-driven networks need new testing technologies

Legacy networks are hardware-centric with network features provided by purpose-built network devices. This is also true for network testing equipment. Failure analysis requires service engineers to visit sites with dedicated test equipment. But this is a slow and far from cost-effective process.

Service providers want software-driven networking with virtual network functions (VNFs) operated on standard servers. With network functions virtualization (NFV), they can transform their networks into agile and flexible service production factories. They can introduce new services by activating software appliances, with no installation of hardware or software, and no site visits.

Service providers need to have the same approach for network testing, which must align with the speed and agility of software-defined networks. They want to move to an automated and softwarecentric mode of operation.

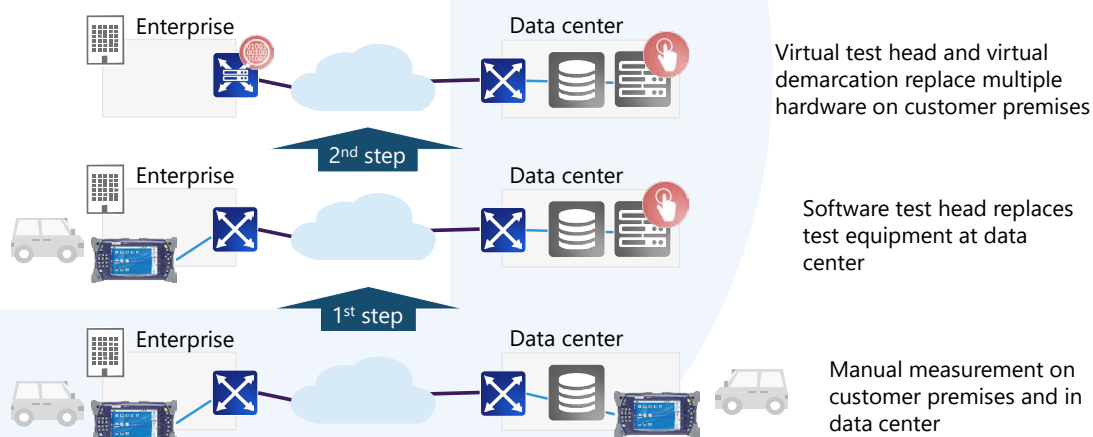
Service lifecycle health monitoring with virtualized network testing

Maintaining or enhancing service quality will be critical to winning business customers and paving the way for a successful transition to virtual services. The nature of an open, VNF-based solution requires a different approach to network and service assurance, since service quality

Virtual testing simplifies operations

- Network services lifecycle assurance with virtualized testers easily deployed at any site
- Minimizing operational cost with central tools connecting to distributed, virtual probes and agents
- Compatibility between virtual probes and agents, legacy equipment and central controllers
- Highest customer satisfaction with self-service portal to real-time service quality information
- Scalable software platform easily aligns with network and services growth
- Open and flexible NFV infrastructure, management and orchestration platform

can no longer be inferred from network and equipment quality metrics alone. By including service assurance VNFs in the service chain, the service orchestrator can automatically test and verify a service (e.g., a service activation test, SAT) before turning it over to the customer and can implement end-to-end service monitoring based on policy or operational needs in a dynamic way. Automating these functions is the only way to address the anticipated need for scalability of new 5G and IoT services.



Technology leaders join forces

By combining their industry-leading solutions, orchestration and orchestrated service assurance, ADVA and VIAVI are enabling CSPs to deliver on the promise of this new paradigm – a fully managed, lower-cost, open assurance solution that delivers a better quality of experience than appliance-based solutions.

As industry leaders in the fields of virtual service infrastructure and orchestration, service activation and service assurance, ADVA and VIAVI are in a unique position to offer a combined solution that allows CSPs to roll out new types of virtual service while at the same time making sure that those services meet the quality and throughput requirements that customers have come to expect. Extensive interop testing ensures customers that VIAVI FUSION service assurance and PM agents can run on ADVA FSP 150 edge compute nodes using Ensemble Connector or off-the-shelf servers, along with Ensemble Orchestrator and Ensemble Virtualization Director.

For years, ADVA and VIAVI have successfully deployed an automated network assurance solution based on VIAVI's NetComplete EtherASSURE and ADVA's FSP 150 network interface devices. Going forward those traditional assurance processes will transition from a static, slow and reactive model to a much more dynamic approach, enabling proactive monitoring, real-time intelligence and analytics using virtual validation and monitoring systems. As part of a common interop effort, both companies have shown that their corresponding solutions can work together flawlessly. VIAVI FUSION service assurance and PM agents were successfully on-boarded onto an ADVA FSP 150 VNF hosting platform using the Ensemble Orchestrator. Consequently, various L2 and L3 throughput tests (Y.1564) and L4 Transmission Control Protocol test methodology (RFC6349) were executed up to the maximum bandwidth. In parallel, the function of the monitoring agents using Two-Way Active Measurement Protocol (TWAMP) was verified. These tests were repeated with various other VNFs in the signal path.

Performance monitoring at any phase of a service lifecycle

Service agility and potential cost savings are the primary motivations for an operator turning up a service using virtual rather than physical network functions. When a new managed service is established, the operator will validate it using a service activation test. Doing so ensures the service was properly assembled, configured and deployed (service chain integrity) and that the network can deliver the service with the characteristics such as latency and bandwidth as defined. This makes sure that the important TL 9000 metric can be met with first-time-right results. The service may then be continuously monitored to ensure its performance remains within predefined boundaries. As part of the service orchestration function, specific test or monitoring

Assuring service quality at the virtualized network edge

- Automated transport assurance and throughput tests
 - Ethernet and IP service activation testing (Y.1564)
 - TCP throughput testing (RFC6349)
 - Ethernet OAM (Y.1731)
 - IP performance monitoring (TWAMP)
 - Server/application response time
- Automated application and service testing
 - Firewall
 - VoIP
 - Video
 - DNS response time

VNFs can be installed in the service chain and activated to perform the required tests. The resources can be freed up when the VNF gets removed prior to turning the service over to the customer. For ongoing service monitoring or troubleshooting, resource-efficient VNFs can be added.

About

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