VIAVI Solutions

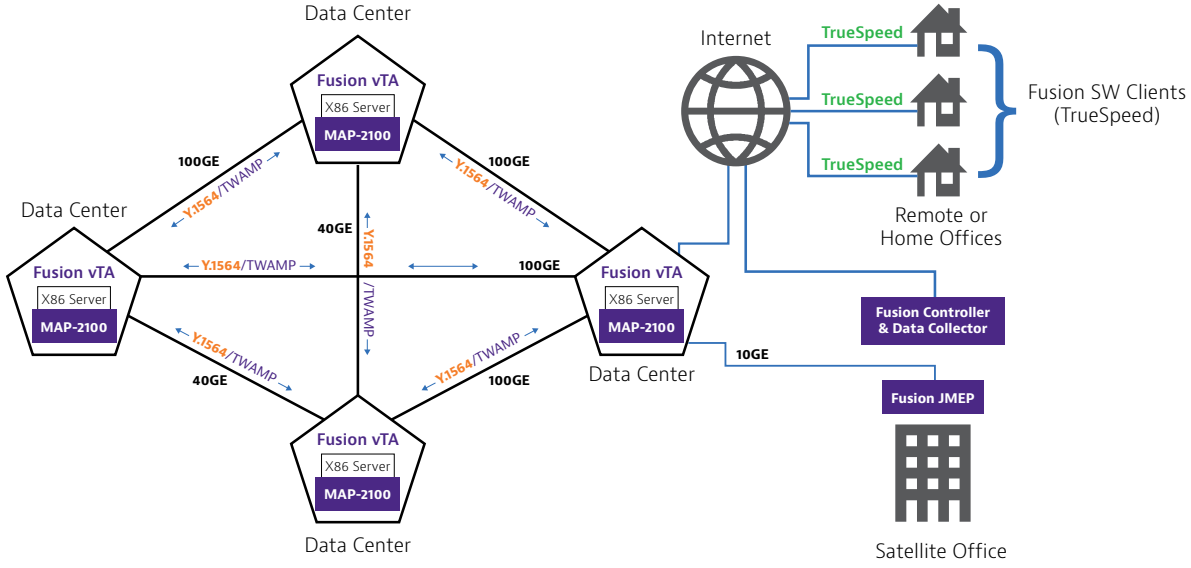
Brochure

VIAVI
NITRO Transport | Fusion
Virtual Network Test and Monitoring

Three Emerging Use Cases for Automated and Virtual Testing in Data Centers

Data centers have become the epicenters of the digital world, and thus continue to grow in speed, complexity, and importance. Given the critical nature of the data and applications now hosted in data centers, the emphasis on network testing by data center operators (DCOs) has grown commensurately.

In addition to rack-mounted or portable test gear, the use of software-based virtual testing has become more prevalent in the last year. Many of our data center customers are leveraging virtual test agents as part of a VIAVI Fusion System, often in combination with the physical test gear they already have, to create dynamic network test strategies that provide the transmission information necessary to snuff out network issues before they become customer problems.



NITRO Transport Fusion: How Does It Work?

A Fusion system consists of a central element, and multiple test agents/endpoints. The centralized elements common to all systems include a test controller, data collector, and the analytics function. The test endpoints can vary greatly, which is one of the benefits of the system - flexibility. Fusion can use any combination of virtual, or software-based test agents, portable VIAVI test devices, and fixed or semi-fixed test devices and pluggable transponders.

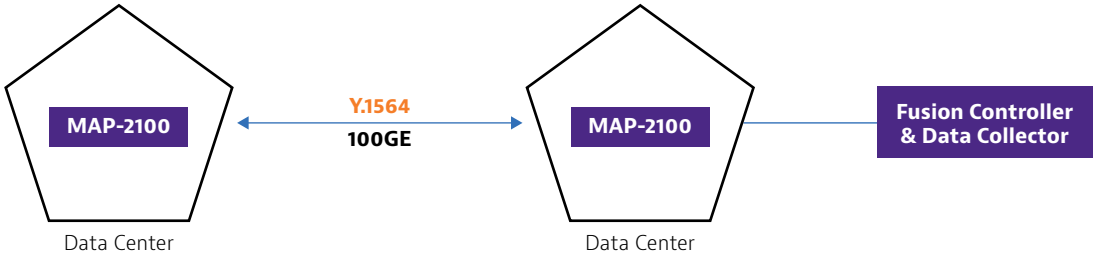
The test controller is software that can reside on either virtual resources in a datacenter, or dedicated compute, and is the brains of the system. For Service Activation Testing and Performance Monitoring, the controller sets up the test parameters, then initiates and controls the test with the agents. The test results are then sent in real-time to the data collector, which resides on the same server as the controller. From the data collector, results can be displayed individually in near-real-time or displayed in a network wide analytics dashboard to allow wider trends to be identified. Or if the customer desires, test results can be exported via standard interfaces e.g., KAFKA to the customer's chosen destination, e.g., analytics application/data lake.

Below are the three most common automated/virtual test use cases for Fusion:

Use Case 1: DCI Automated Network Test

Problem

The majority of DCOs back up data to other data centers via high-capacity network links. To maintain the performance of those connections and to verify SLAs, a DCO must frequently perform bit-error rate (BER) tests on Ethernet line rates up to 100G and beyond, as well as OTN, CWDM, or DWDM circuits. The problem is that many data centers or operators have very few, if any, technicians to run tests ensuring the quality of connections.



Solution

The VIAVI MAP-2100 was designed to enable DCOs to securely run high-performance throughput tests in and to unmanned data centers. The MAP-2100 is a dual port, 100G network tester that can be controlled remotely to set up and run tests via remote tools like SCPI, VNC, or the VIAVI-proprietary Smart Access Anywhere.

Or, if there are multiple MAP-2100s in a data center network, the highly-scalable controller for the VIAVI Fusion is perfectly suited to be the central control point for all test devices in the network, whether physical or software-based test agents.

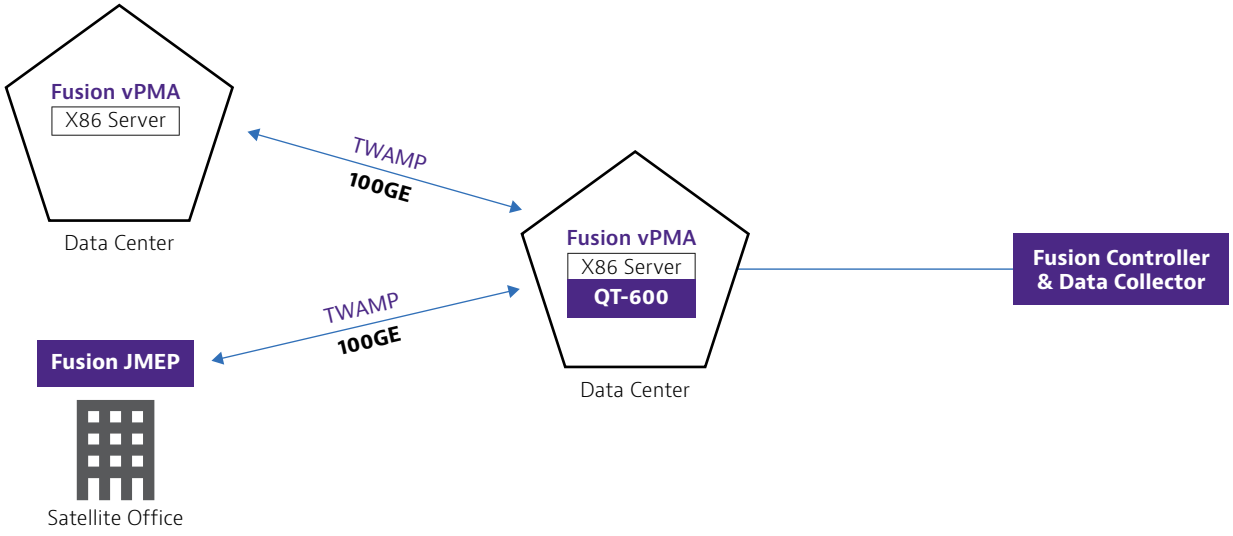
In the diagram, the user at the Fusion Controller GUI can initiate a standards-based Y.1564 test (frame loss, latency, throughput, et al), between MAP-2100 units in different data centers on circuits up to 100GE. A Y.1564 test can also be run between a VIAVI portable device, like the T-BERD/MTS 5800-100G, and a MAP-2100. In that case the test can either be initiated manually by a technician, or by the Fusion Controller.

Fusion is an ideal system to run in a multi-data center network where it can run sophisticated, high-bandwidth throughput tests to quickly monitor transmission quality between data centers, store results, and all with minimal human intervention.

Use Case 2: Automated Network Performance Monitoring

Problem

While network transmission quality is critical when a circuit is activated, it is equally important post turn-up, when live customer traffic is running on the network. After DCI turn-up a DCO must focus on monitoring the availability of network around the clock.



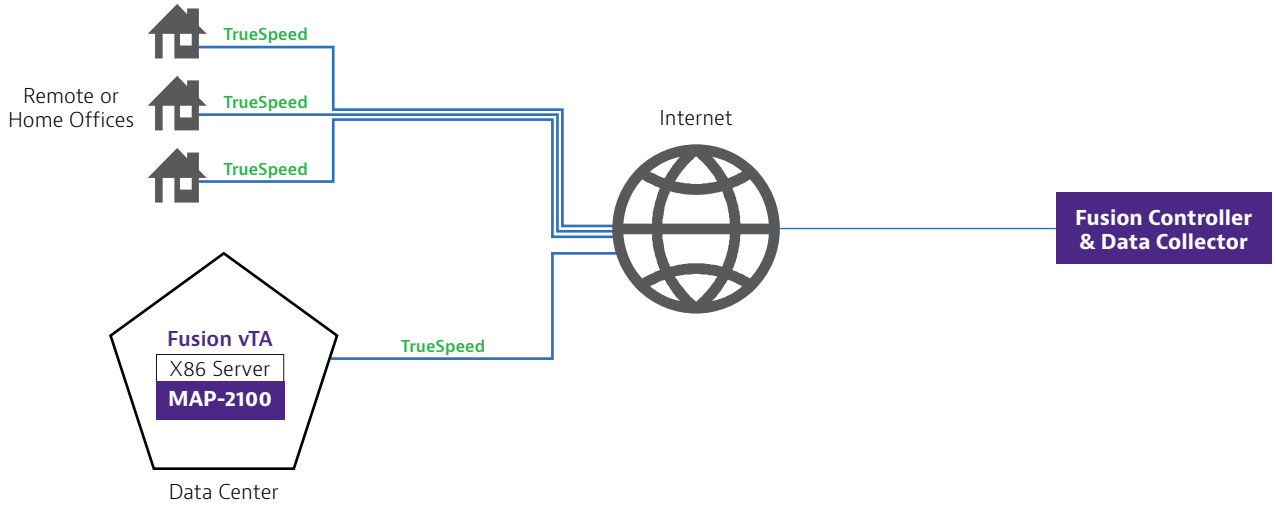
Solution

VIAVI Fusion continuously generates test packets between different test points in the network via test protocol RFC 5357, or simply TWAMP ("two-way active monitoring protocol"). The permanent surveillance of round-trip-times (RTT) and frame loss ratio (FLR) provides valuable insights into the availability and transmission quality between the different network endpoints. Combined with its reporting functionality, Fusion can also be a valuable network forensic tool.

Use Case 3: Virtual TCP Throughput Test for Remote & Home Offices

Problem

2020 was a year when many employees began working from home full-time, and data centers were no different. All employees need high-performance Internet connectivity, but when a user's Internet experience suffers, carriers often struggle to diagnose the problem quickly. Carriers resort to using generic speed tests to assess the problem, but those free tests deliver inconsistent results and even mask problems in some situations. The worst aspect of the commodity speed tests is that do not t give the service provider information regarding why the Internet throughput is bad or how to fix it.



Solution:

Built on industry standards, Fusion TrueSpeed runs rigorous throughput tests that yield accurate, consistent results and produce valuable diagnostic information that can help a DCO troubleshoot an employee's home connection, or one to the data center - quickly and easily.

Many times, the fault lies not with the service provider's network, but with the user environment. Common causes of TCP throughput degradation are the laptop running the test is overloaded with proxy devices "in the middle" of the network segment (firewall, virus scanner, Internet content filter, etc.), another is using WiFi instead of the wired interface, and so on. Fusion TrueSpeed will identify many non-network root causes.

If the problem is truly a network related, Fusion TrueSpeed will reduce diagnostic time by verifying that before the DCO calls in a trouble ticket with the service provider. Fusion TrueSpeed helps DCOs identify and resolve TCP throughput problems rapidly and remotely, at a data center or at an employee home office, and without sending a technician out to investigate.

VIAVI Solutions

Contact Us **+1 844 GO VIAVI**
(+1 844 468 4284)

To reach the VIAVI office nearest you,
visit viavisolutions.com/contact

© 2021 VIAVI Solutions Inc.
Product specifications and descriptions in this document are subject to change without notice.
fusion-datacenter-br-nto-nse-ae
30193034 900 0321