

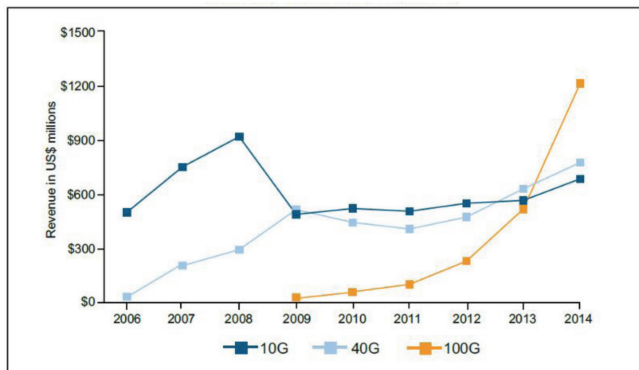
ONPATH 100G MIGRATION

THE NEED FOR SPEED: MIGRATING YOUR TEST LAB TO 100G

What do video, data-center consolidation, high-frequency trading (HFT), social networking, migration of enterprise apps to Cloud Data Centers, and online gaming all have in common? They are the market drivers for higher bandwidth networks. Video is leading the charge as both streaming and downloading HD video content becomes increasingly popular for home and mobile users, forcing service providers to keep up. While data-center consolidation saves money, it only works when performance is as good, or better, than before. This requires an increase in bandwidth at the consolidated site proportional to the decrease in number of sites. HFT, social networking, and online gaming require more bandwidth to improve response times to provide a more satisfactory customer experience.

In order to stay ahead of these demands, Network Equipment Manufacturers (NEMs) are hard at work building, testing, and delivering 100G solutions today. And Service Providers and enterprise customers are beginning to test and deploy 100G networks. In fact, recent research shows that the 100G market will be the leading network transport interface beginning in 2014, and continuing for the next decade.

10/40/100G WDM Line Card Growth



Source: Infonetics Research, 10/40G/100G Networking Ports - Biannual Worldwide and Regional Market Size and Forecasts, April 2011

FIGURE 1. 10/40/100G Networking Port Growth

The market arrival of 100G has come at a time when the networking industry has contracted due to economic conditions. Nevertheless, the powerful market drivers are causing the adoption rate of 100G to accelerate. While it took 7 years for 10G to reach critical mass as a network interface, 100G is predicted to prevail in just 2-3 years. What does this mean for an industry that has been hit hard during the financial troubles of the last few years? It means we must do more in less time, with less people and equipment. So, as you migrate your labs to 100G, one of your key considerations is, "how do I help my company deliver a quality product with the budget and personnel that I currently have?" The answer lies in emulating real-world environments, equipment sharing, and better resource utilization.

"KEEPING IT REAL"

With the predicted adoption rate of 100G technology, and the physical layer complexity of 100G components, reducing the amount and time for product development testing, product services testing, and applications testing is essential. Implementing Physical Layer Switches, which form a class of data access or matrix switches, enables organizations to increase their tool utilization, and even share some of the same tools in different geographical locations for multiple purposes for multiple departments. Physical Layer Switches can decrease the product development time for Network Equipment Manufacturers, but it is crucial that the Physical Layer Switches support 100G without introducing any anomalies in the testing. As a result, they must be completely transparent to the lanes and wavelengths associated with both Local Area Networks (LAN) and Wide Area Networks (WAN) 100 GbE transport, as well as carrier-based 100G Dense Wavelength Division Multiplexing (DWDM) transport. Only all-optical (aka O-O-O) switches meet this need.

For Service Providers, testing their services under "real-world" conditions is an absolute must. The traffic load down to the splice points in their OSP fiber plant must be replicated in order to provide reliable results. Likewise, enterprise customers must be able to reliably emulate real-world conditions in order to ensure their applications remain available under heavy traffic conditions and malicious attacks.

Lane Skewing Issues

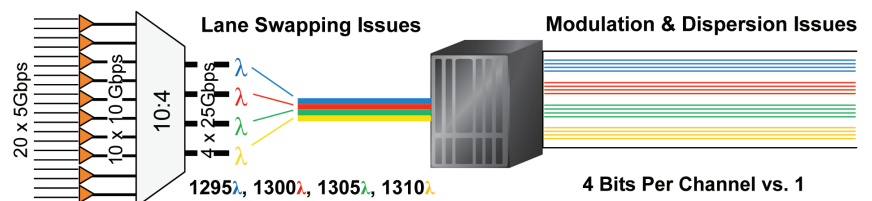
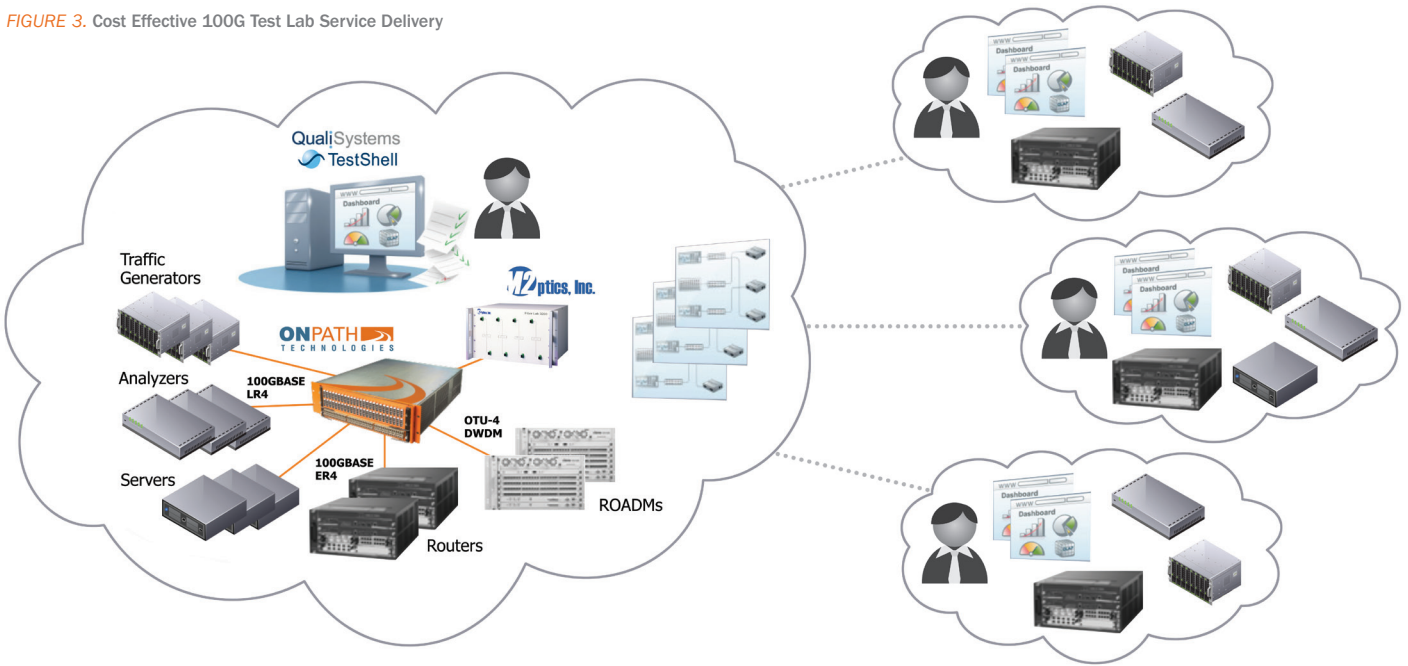


FIGURE 2. 100G lane-based transmission creates lane skewing and swapping challenges

FIGURE 3. Cost Effective 100G Test Lab Service Delivery



MISSION IMPOSSIBLE?

To borrow another slogan, “Impossible is Nothing”! With the combination of ONPATH Technologies, M2 Optics, and QualiSystems, you can emulate your 100G networks for quicker and more reliable testing. Such a solution also enables you to share expensive lab and data center equipment you have already invested in, and to increase the utilization of that equipment. ONPATH Technologies can provide 100G, all-optical, physical layer switches, enabling you to share and better utilize expensive 100G network and test set ports, while switching between different emulated OSP fiber spools provided by M2 Optics. M2 Optics can customize fiber spools to accurately reflect OSP conditions for “real-world” testing, while providing a compact and customizable solution. QualiSystems can interface with, and control, all of your test tools including your ONPATH equipment in order to reliably and quickly set up accurate test environments. In addition, you can save your test environments and recall them when needed, to drastically reduce regression testing times.

Together, ONPATH Technologies, M2 Optics, and QualiSystems deliver the most cost-effective solution for fast and reliable “real-world” testing of 100G network equipment, services, and applications.

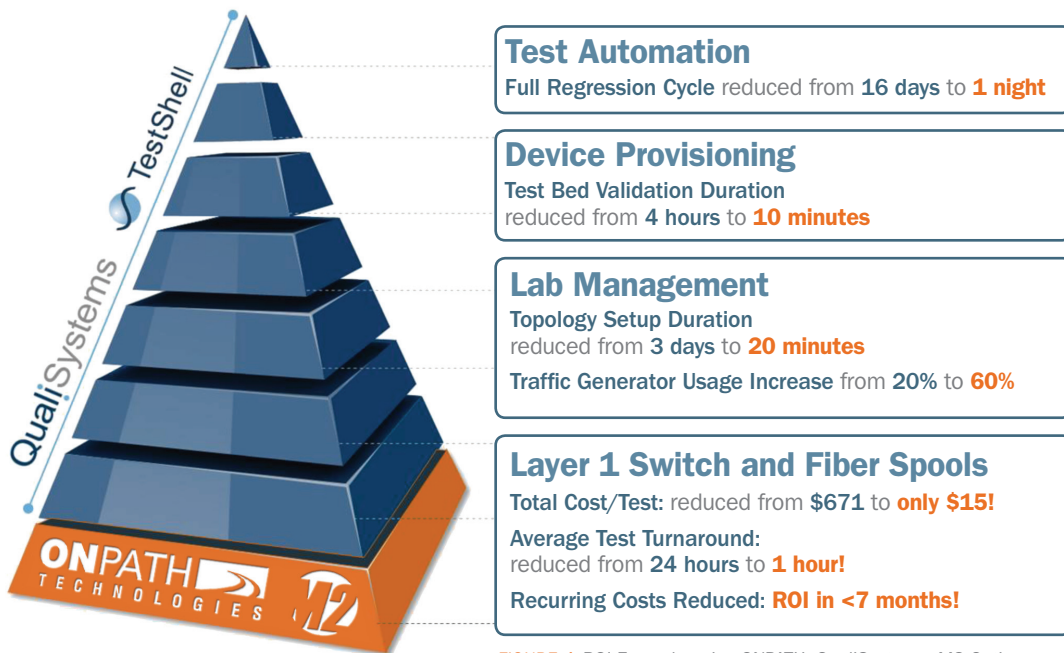


FIGURE 4. ROI Example using ONPATH, QualiSystems, M2 Optics