



DYNAMIC FIBER LAYER MANAGEMENT FOR NETWORK TEST LAB AUTOMATION

All-optical switching enables rapid reconfiguration of system resources to transform lab efficiency and speed test cycle times

CHALLENGE

Communications service providers (CSPs) and data center operators must thoroughly test new equipment and services before deploying in their infrastructure to verify reliability and performance. Further, they must test this equipment in different real-world configurations interoperating with other equipment to ensure service quality, continuous delivery, and security.

As networks are migrating rapidly to line rates of 100+ Gbps and beyond, and more connected devices and equipment are required to deliver expected services, the Network Test lab is becoming increasingly complex and expensive. Simply using tradition Layer 2/3 infrastructure to interconnect equipment test beds adds complexity, is prohibitively expensive, and equipment needs to be upgraded every time the traffic speed or format change. All-optical switching provides a transparent, user-configurable fiber layer that is independent of the traffic format or bit rate, enabling customers to rapidly reconfigure network test beds in seconds rather than hours or days, to meet the speed and flexibility demands of today's test labs.

OpEx Savings Example

Task	%Time Saved
Cabling	75%
Equipment Search	50%
Configuration	15%
Other Tasks	10%

Based on a lab headcount of 200, time savings equate to ~\$1.5M/yr*

*Source: Mirapath

LAB-AS-A-SERVICE

All-optical switching enables Lab-as-a-Service (LaaS) for remote configuration and testing at any time from anywhere in the world. Using intuitive web-based management software, tests can be scheduled, set-up and run 24x7 without concern for conflict.

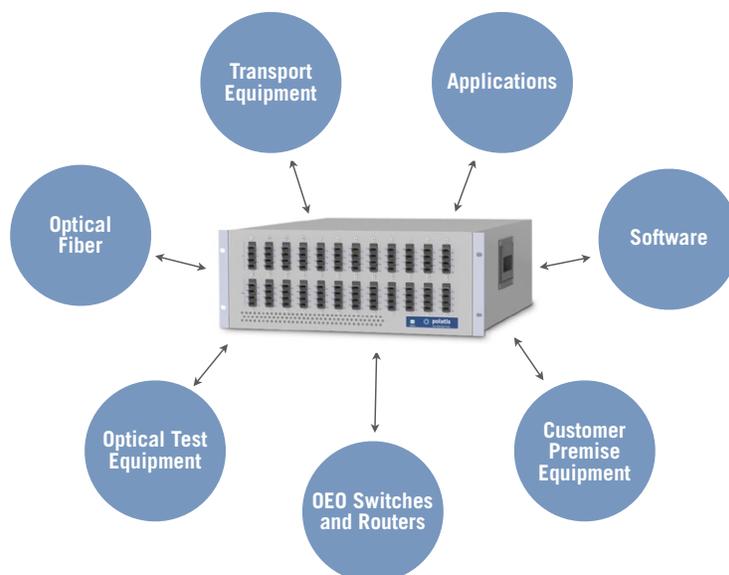


FIGURE 1: With any-to-any port connectivity, equipment can be set up once and tests conducted remotely from a central control point.



Polatis and Quali have partnered to deliver dynamic fiber layer management integrated with Quali's orchestration platform to manage the entire lab and data center/telecom network infrastructure: inventory, modelling, provisioning, lab-wide connectivity, resource planning and reporting. The combination of Quali and Polatis creates a highly efficient, multi-tenant solution that enables fiber and equipment resources to be easily shared across multiple test topologies in "productionlike" environments simultaneously without concern for conflict.



**HUBER+SUHNER Polatis Series 7000
384x384 All-Optical Switch**



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SOLUTION

The introduction of all-optical switching to the Network Test lab environment brings tremendous flexibility and cost-savings:

- **Reduced OPEX.** With the ability to connect any port to any port (Fig 1), equipment can be cabled once and tests can be configured instantly, saving roughly 75% of cabling time. Tests can be configured and conducted remotely in real time, so staffing and travel expenses are greatly reduced.
- **Reduced CAPEX.** Expensive test and network equipment can be shared across multiple tests and multiple lab environments, decreasing repetitive equipment purchases and saving on power and scarce real estate resources.
- **Improved Accuracy and Customer Response Time.** All-optical connections are completely transparent, with no packet processing, so tests are conducted with a high degree of accuracy and repeatability. And, customer network configurations can be simulated on demand so that issues can be identified and resolved quickly.
- **Future proof.** All-optical switches are transparent to transmission wavelengths, direction, protocol and bit rate so the same switch can be used for any media and speed to 400 Gbps and beyond.

THE HUBER+SUHNER POLATIS ADVANTAGE

Polatis has significant advantages over other all-optical (OOO) and optical-electrical (OEO) switching solutions in Network Test lab applications, including:

- Industry's lowest optical loss and superior performance (e.g. repeatability), which are critical to ensuring the most accurate test data.
- Uniquely offers the broadest range of symmetric, asymmetric and single-sided matrix switches required to support the evolving needs of Network Test labs, with modular scalability to tens of thousands of fiber endpoints.
- Programmable shutter feature allows introduction of intermittent and repetitive fiber breaks to stress test system response to physical layer faults.
- True dark fiber switching requires no light to make and hold connections, which is critical when testing with low power signals, bidirectional or intermittent signals.
- Integrated Variable Optical Attenuation (VOA) enables rapid simulation of multiple link and span-loss permutations.
- Integrated with Quali test orchestration software to replicate tests and scripts, schedule tests across multiple organizations and coordinate with higher layer equipment and devices.
- Supports the broadest range of Software Defined Networking (SDN) interfaces, including OpenFlow, NETCONF, and RESTCONF.

SUMMARY

As the network and data center evolve, testing of more complex configurations at higher speeds are critical for system-wide deployment. The introduction of all-optical switching can greatly simplify the configuration of advanced testing environments and fundamentally change the economics of SIT lab operations. HUBER+SUHNER Polatis has the optimal solution sets for these applications. Visit www.polatis.com.