Lab Automation

Introduction

Enterprise labs use expensive test equipment (TE) to perform various tests before implementing changes in their production networks. The high cost of this equipment necessitates optimizing the use of each unit, rather than simply purchasing new TE to fill new needs. Several complications commonly arise out of this situation:

- Expensive equipment is exposed in a rack for technicians to patch in/out of, risking error or damage that can set schedules back by days or weeks if equipment is brought down.
- Technicians must manually patch their Device Under Test (DUT) to the equipment they want to use, and manually re-patch at the TE side to change the DUT, which runs the risk of damage to the TE.
- The TE is a limited resource, requiring all teams involved in testing to book and schedule both test time and the time required to manually bring down the original connection and configure a new connection to their DUT.
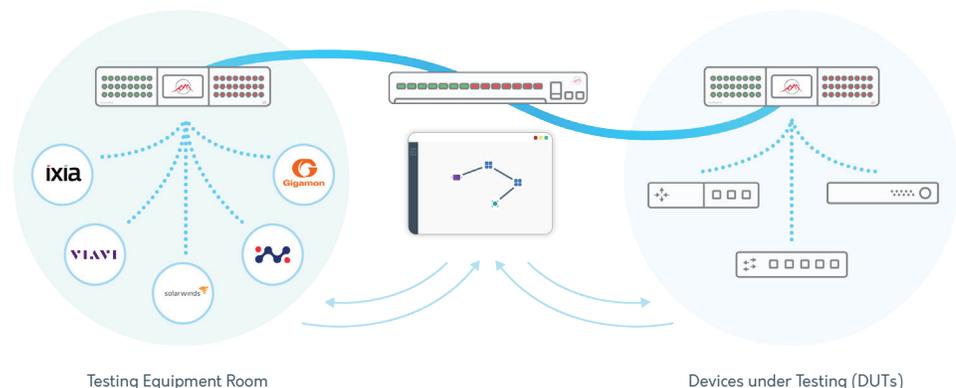
The GlassCore ™

Cable have no place to hide!

- *Track unplugged cables*
- *Track cable types*
- *Auto documented*

Visit www.fibermountain.com to learn more.

Fiber Mountain's Glass Core™ solution provides labs with unprecedented control and automation of their test configurations by introducing software control of the physical connections to their TE. Imagine the versatility of a lab that does not require scheduling a technician every time a connection change is necessary. To tackle these problems, Fiber Port Aggregators (FPAs) can be utilized to aggregate all connections to TEs and DUTs. Connections can then be made from the FPAs to an Optical Path Exchange (OPX), which provides software-controlled cross connections in one-toone or one-to-many configurations.

Testing Equipment Room — Devices under Testing (DUTs)

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Automated Connections

The biggest benefit of The Glass Core™ is the ability to automate connections via Fiber Mountain's orchestration software, All Path Director (APD). Through APD, any connection coming into an OPX can be configured to any port out, with the additional ability to multicast one "receive" port to up to 160 10G "transmit" ports in a single OPX.

Profiles for Lab Sharing and Scheduling:

With cross connections being done via software, lab administrators and test teams can create and save a unique connection profile for each test configuration. This introduces the ability to change between connection profiles in a matter of seconds, with no additional manual patching required. Loading profiles dynamically and instantly sets up connections according to the selected profile.

With a limited number of units, TEs must often be shared between test groups, or between projects within a group. Profiles simplify scheduling by enabling different test groups to operate during each others' daily or weekly downtime, rather than needing to wait for one test project to be completed before starting another. With APIs, labs will also be able to integrate with their scheduling software to dynamically switch to another group's profile and notify them when their time slot comes up.

Remote Access

With software control of connectivity, there is no need for a test administrator to be on-site. Test groups or lab administrators can manage connections to TEs and DUTs from anywhere in the world. An engineering group in China can bring up a connection and perform tests on equipment in a Santa Clara, CA office at 7 PM PST, and bring down that connection at 8 AM PST when the local team starts work. All of this can be done because of automated connections and profiles.

Breakout Visibility

When TEs and DUTs are added to the lab network, all ports are connected to an FPA. This manual patching only needs to be done one time during the initial installation, after which APD and OPX take over to provide the lab with software control and visibility of all connection paths.

Equipment Security

Because TEs no longer use a direct cable connection DUTs, these expensive units can now be locked in a secure cabinet or room to limit the risk of accidental or intentional tampering with tests or damage to equipment.

Port Replicator

Fiber Mountain FPAs can also be used as port replicators for TEs and DUTs (see Port Replicator application note for more details). With FPAs, it is simple to specify which ports belong to a TE or DUT with the use of LEDs and/or APD.

Network Bypass

Using a Glass CoreTM lab architecture introduces the ability to integrate TEs or DUTs into production configurations (or remove them) without the need to physically move equipment or re-patch connections.

Conclusion

Fiber Mountain's Glass Core™ solutions allow unprecedented visibility and agility within the data center. Real-time, accurate documentation becomes an automated process, improving day-to-day management of data center operations and speeding up the resolution of unplanned downtime, security threats and conformance requests.

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