Enabling Offline DWDM Transceiver Tuning

Case Study: Reducing Sparing and DWDM Tuning Complexities in Multi-Platform Environments

Summary

Customer
- Fiber infrastructure provider

Challenges
- Sparing and DWDM tuning complexities in multi-network/multi-platform environments

Solution
- Tunable DWDMs and Integra Optics' Smart Coder tuning software, with easy offline wavelength selection (no Wifi required!)

Result
- A secure offline DWDM transceiver tuning solution for Integra Optics' transceivers, as well as 80+ OEM transceivers

Equipment Used
- SFPP and XFP tunables and Integra Optics' Smart Coder tuning software

Reducing Sparing and Tuning Complexities

You're a fiber squeezing, bandwidth boosting ninja. Negotiating spares, necessary OEM involvement, and required tuning knowledge to support conventional, fixed-channel DWDM solutions in a multi-network, multi-platform environment can be maddening though. To use an OEM platform, a technician has to have access to the GUI/CLI and program the DWDM channel from the head unit. If the technician doesn't have the right channel transceiver, or enough spares on hand, he or she has to make several trips to complete the installation or repair.

A much faster and efficient method is to use tunable DWDM transceivers and a portable coding system capable of handling a diverse set of OEM tunable DWDMs, which also reduces sparing. What's not to like? The reality of tunable DWDM transceivers, however, is rarely a stroll in the park.

Not all OEM coder devices/systems are straightforward or alike. In a multi-platform environment, technicians typically need in-depth knowledge and carry the necessary tuning hardware for each transceiver, much like the learning curve when trying to program an old VHS tape player. In the end, most coding systems are either limited to their OEM branded transceivers or require internet connectivity for the technician's PC to code. Not ideal.

integra optics
an INFINIT brand

Strike a Tune

Recognizing the need for a one-stop shop solution that empowers technicians with more flexible DWDM tuning and coding capabilities, Integra developed its Smart Coder suite of products. This patented technology puts the power back in engineering's hands, with the ability to code/recode all Integra transceivers, from 1G to 400G for over 80+ OEM platforms.

Technicians are able to code tunable transceivers an unlimited number of times, and recode 10G tunable transceivers to 10G fixed DWDM channels and 1G fixed DWDM channels. Even platforms that don't directly support wavelength tuning can use tunable DWDM transceivers after being reconfigured by Integra's Smart Coder.

An added benefit the Smart Coder offers is diagnostic monitoring on both Integra and non-Integra brand transceivers, including transmit power, receive power, temperature, and a range of other critical diagnostic measurements.

With all these benefits, there was still one roadblock to overcome. Technicians still needed internet connectivity for their PCs to tune DWDM transceivers in the field, so Integra's team put there heads together to develop a solution.

No WiFi? No Problem!

After investigating the application and listening to customer needs, Integra Optics hardware and software development teams got together and augmented the Smart Coder application with new offline tuning capabilities and compatibility with the Integra Smart Coder and Smart Coder+ hardware. The enhanced Integra Tuner application now enables seamless offline transceiver tuning. This feature has already directly addressed customer installation issues in the field, and makes tuning DWDM transceivers seamless and more efficient than ever.

With offline tuning capability, technicians are still able to tune DWDMs while visiting remote installations or in secure facilities with little to no internet connectivity on their PCs. Offline tuning is also useful in the case of local or regional internet outages, which may be intentionally or unintentionally caused by infrastructure issues or electromagnetic pulse (EMP) events from natural or man-made sources.

Therefore, offline DWDM tuning enables much more robust maintenance and troubleshooting, while also improving OpEx in nominal network installation and maintenance scenarios.