SC26 Network Research Exhibition: Demonstration Preliminary Abstract

[Ciena WaveLogic 6 Nano Coherent Pluggable 135 Gbaud Maximum Reach Demonstration]

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Abstract

Ciena's WaveLogic 6 Nano (WL6n) is the latest offering in Ciena's Coherent pluggable product line. Packaged in OSFP800 and QSFP-DD800 form factor with several transmission modes, the Ciena WL6n plug can establish error free channels over extended distances. WL6n enables a wide range of applications from 800ZR metro Data Center Interconnect (DCI) to 800G long-haul and 400G ultra long-haul. Based on 3nm CMOS and using Probabilistic Constellation Shaping (PCS), the latest WL6n variant introduces 135 GBaud modulation to achieve 800Gbps over distances greater than 2000km. For this demonstration at SC26, the WL6n gear would be deployed in the Ciena booth and connected to the Internet2 line system via SCinet. The channel would be looped in a Kansas City remote data center and eventually terminate in the Ciena booth on the showfloor. Ciena is expecting the signal to establish an 800Gbps channel over > 2000 km distance of terrestrial fiber via a remote loop. The line system will be EDFA-based only and will not contain any Raman amplification making the distance challenge that more difficult

Goals

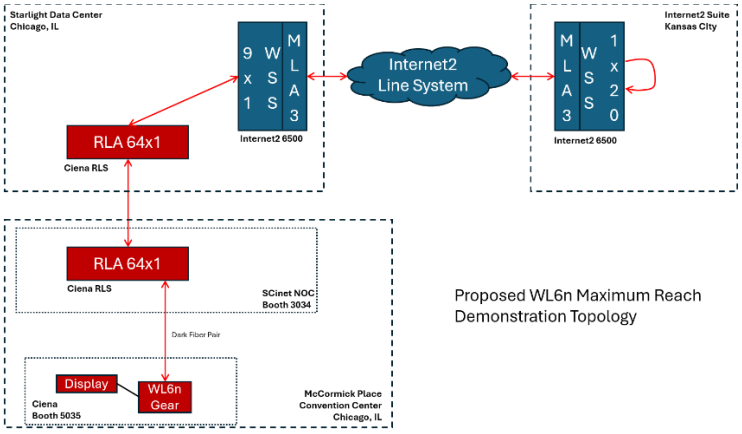
The objective of this demonstration is to establish a long haul 800Gbps coherent pluggable channel using Ciena WL6n over a distance > 2000 km across an Internet2 line system, co-existing with live traffic. Ciena would be actively noise loading the WL6n channel with varying noise floor levels to demonstrate OSNR margin on the channel and effectiveness of Ciena's latest modem technology. Displayed at the Ciena booth will also be live symbol constellation graphs extracted from the plug.

Impacts

This demonstration showcases innovations made possible by advanced digital signal processing and a new era in optical communication technologies with the advent of WaveLogic 6 Nano. This demonstration acts as a proof point for the effectiveness of modem technology over longer distances in an OSFP plug form-factor. Data collected from this unique NRE would generate insights for Ciena, SCinet and the SC community. SCinet's support in bringing this link up would be useful in demonstrating this technology along with its partners.

Resources

Please see topology attached. Ciena is working with its partners, Internet2 and SCinet to allocate the relevant resources for this demonstration. At the show floor, Ciena would request a dark fiber pair directly connected to the Ciena RLS (RLA 64x1 switch port) terminating on the Ciena booth 5035. Internet2 has agreed to collaborate and would allocate spectrum on their line system beyond Chicago. Ciena booth will host all the necessary gear including noise loading apparatus, test sets, and evaluation boards.



Proposed WL6n Maximum Reach Demonstration Topology

Involved Parties

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