A Framework for the Control and Measurement of Wavelength Switched Optical Networks (WSON) with Impairments

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Changes from 04 to 05

- Added Terminology Section
- Added Applicability Section
- Cut down PCE section (per Julian's request)
- Removed Document History and Appendix Sections

Applicability Section (Deployment Scenarios)

- WSON is evolving using multi-degree optical cross connects in a way that network topologies are changing from rings (and interconnected rings) to general mesh. **Adding network equipment such as amplifiers or regenerators**, to make all paths feasible, leads to an over-provisioned network. Indeed, even with over provisioning, the network could still have some infeasible paths.
- Within a given network, **the optical physical interface may change** over the network life, e.g., the optical interfaces might be upgraded to higher bit-rates. Such changes could result in paths being unsuitable for the optical signal. Moreover, the optical physical interfaces are typically provisioned at various stages of the network's life span as needed by traffic demands.
- There are cases where a network is **upgraded by adding new optical cross connects** to increase network flexibility. In such cases existing paths will have their feasibility modified while new paths will need to have their feasibility assessed.
- With the recent bit rate increases from 10G to 40G and 100G over a single wavelength, WSON networks will likely be operated with **a mix of wavelengths at different bit rates**. This operational scenario will impose impairment constraints due to different physical behavior of different bit rates and associated modulation formats.

Next Steps/Issues

- Stable and ready to move WG LC ☺