Hands-on Demonstration of Open-Source Filterless-Aware Offline Planning and Analysis Tool for WDM Networks

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http://metro-haul.eu

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METRO-HAUL: METRO High bandwidth, 5G Application-aware optical network, with edge storage, compute and low Latency

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NFV over IP over WDM (NIW) library for techno-economic studies

- NIW library developed within Metro-Haul (open-source)
  - Based on abstract model of an **IP over WDM network with IT resources in the nodes**.
  - Simplifies development of Net2Plan algorithms, automatic reports etc. for these networks.
  - Simplifies import/export from defined Excel-based template.
- Publicly available: shipped with Net2Plan (www.net2plan.com)
Hands-on demonstration based on NIW (main characteristics)

**Legend:**
- WSS for R&S
- Splitter for B&S and Filterless
- WSS for R&S, B&S
- Coupler for Filterless
- WSS for colorless
- Mux for colored

**Automatic detection of fiber lasing loops in (partially) filterless networks**
In this demo you will be able to:

• Download and use the software in your laptop!!!
• Create hybrid filterless/ed networks from scratch
• Observe/analyze results using solely the graphical user interface (GUI)

Demo functionalities included in NIW:

i. (Filterless) node and network modeling
ii. Algorithms for the allocation of amplifiers and transponders, and RSA
iii. Analysis tools for spectrum inspection, line engineering and cost/energy consumption
Hands-on demonstration based on NIW (activities in stream 1)

6. Creating a WDM topology
   Set-up NIW library and what-if

6.1. Creating the WDM plant

6.2. Adding lightpaths
   Explore GUI features for RSA (e.g. link-disjoint 1+1 protection)

7. Creating an IP topology

7.1. Create IP demands and IP links

7.2. Dimension the IP layer

8. Creating the IP over WDM design
   Couple lightpath requests for IP links
6. Creating the WDM topology
   - Activate NIW, activate what-if analysis
   - Set length of all the WDM links to 240 km
   - Setting the OADM parameters

7. Line engineering
   - Create 16 bid. lightpath requests per node pair

7.1. Spectrum occupation
7.2. Lightpath optical signal performances
7.3. Adding amplifiers to the design
7.4. Producing an OSNR valid design
7.5. Power equalization

Bonus!!! The generic OADM type in NIW