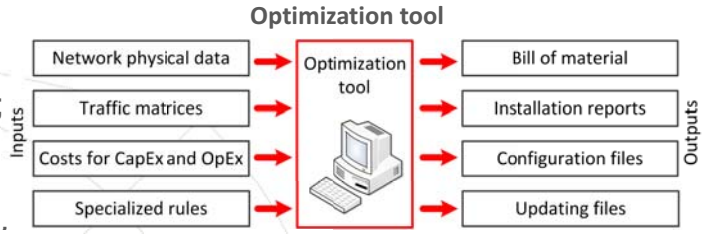
instituto de telecomunicações
Coriant
FCT Fundação para a Ciência e a Tecnologia
MINISTÉRIO DA EDUCAÇÃO E CIÊNCIA
PEst-OE/EEI/LA0008/2011
PEst-OE/EEI/LA0008/2013

Optical Networks Optimization

Background and challenges

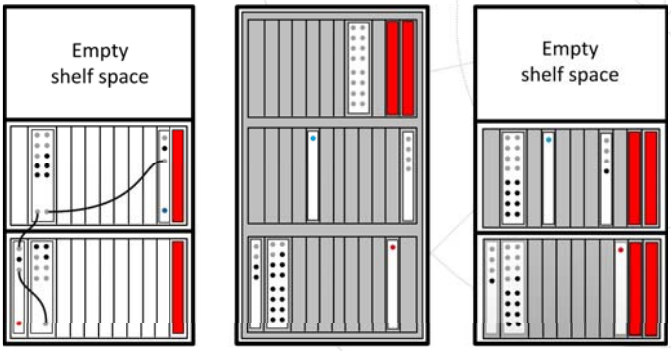
The planning tool affect the competitiveness of a vendor or an operator:

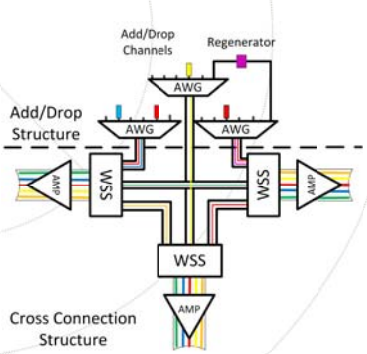
- Prospective studies on competing technologies;
- Take into account specialized implementation constraints;
- Search for more accurate optimization methods.

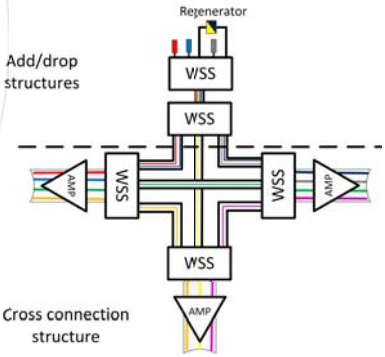


Description and main innovation

Various fixed and flexible architectures are available to implement multilayer transport nodes

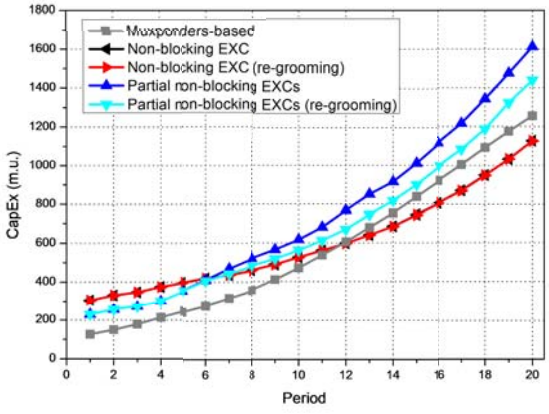






Optimization models were developed for all the architectures

- The novel models take into consideration the various hardware implementation constraints.
- An optimization method based on node architecture selection to minimize the OpEx was proposed.
- The models cover all the stages of the planning process namely: survivable topology design; greenfield planning; and multi-period planning.
- Traffic conditions where hitless re-grooming can brings benefits were highlighted.



Achievements

- **5 papers** published in **IEEE/OSA** (3 as first-author);
- **2 papers** published in collaboration with Coriant;
- **23 publications** in international conferences:
  - 8 as first author;
  - 8 with oral presentations;
  - 3 as invited speaker.
- **1 book chapter** as first-author.

- Collaboration with **industry**:
  - This work was partially supported and hosted by **Coriant Portugal;**
  - The developed algorithms and methods were implemented in the planning tool of Coriant;
  - The methodologies were used for proprietary technology comparison.
- Collaboration with **National projects**:
  - 1 project in collaboration with industry;
  - 1 FCT project.

NET-OPT
ONECI - PTDC/EEITEL/3303/2012