

ESG-NetCOP

Network Configuration, Optimisation and Planning Tool

PDH/SDH transmission network planning

Layered Approach to Network Planning

The ESG-NetCOP PDH and SDH module supports the design, modelling, planning and analysis of PDH and SDH transmission networks. As part of the ESG-NetCOP tool-suite, traffic demands handled in this module are automatically forwarded from the TDM, ATM and IP/MPLS modules. Alternatively, the user may import demands generated outside of the planning tool-suite. The PDH/SDH module covers the SDH layer by multiplexing virtual containers into the SDH multiplex sections. The PDH and SDH layer itself can act as the client layer for the transmission module to finalise the routing over physical (duct, microwave or WDM) links.

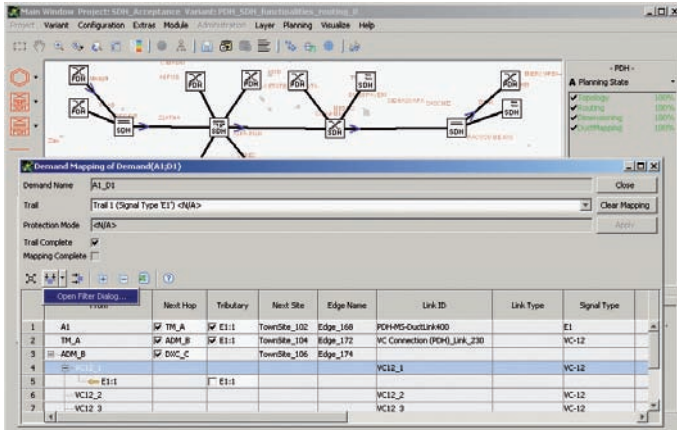
Planning Objectives

The PDH/SDH module

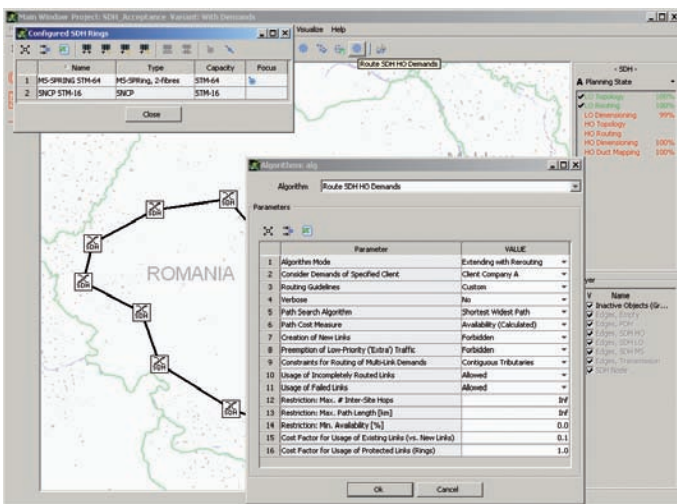
- ▶ supports the modelling of virtual containers and routes them over SDH multiplex sections (up to STM-256)
- ▶ supports the modelling of protection mechanisms such as SNCP, MS-Spring 2Fibres, MS-Spring 4Fibres, MSP
- ▶ accurately reflects existing capacities
- ▶ supports manual, semi-automatic, and automatic routing of demands
- ▶ calculates key performance indicators for the routing of demands across layers, such as geographical path length, hop count, cost, availability
- ▶ analyses the effect of failures and re-routes demands on alternative paths or sets up rings to circumvent problems caused by such failures
- ▶ focuses on dedicated routing of single demands or circuits in geographical or logical view

HIGHLIGHTS

- ▶ Modelling of PDH/SDH layers according to ITU specifications
- ▶ Creation of a cost-efficient PDH/SDH topology
- ▶ Manual, semi-automatic, and automatic routing of demands
- ▶ Supporting protection mechanism such as SNCP, MS-Spring 2Fibres, MS-Spring 4Fibres, MSP
- ▶ Failure case analysis



Manual routing of E2E connection over E1 and VC12



Automatic routing of client demands with customised parameters

PDH/SDH Planning and Configuration

ESG-NetCOP focuses on offering network analysis functionalities and powerful routing algorithms. The main purpose of the SDH module is to receive traffic demands from the transport modules (TDM, ATM, IP/MPLS) or from the PDH module and automatically (or manually) route them on multiplex sections between source and destination, while taking into account user-defined constraints and parameterisation of the routing algorithms. The demands entering the SDH module from the transport module or those directly imported from external sources may contain a request to be transported in "Protected" mode. Ring-based protection entities can be defined by the user and used during the routing of the demands requiring protection. SDH trails at VC-4 level can be pre-configured by the user for express routing of demands between remote elements in the network.

Provisioning

The PDH/SDH module provides all information which is necessary to determine and order new virtual containers, to dimension the required capacity in terms of multiplex sections, and to route the demands over optimal paths, using algorithms such as "Shortest Widest Path", "Widest Shortest Path", or "Shortest Path", and taking into account different optimisation criteria (hops, distance, cost, availability).

Benefits

- ▶ Layered approach to network planning
- ▶ Optimisation of network cost across layers
- ▶ Capacity planning, taking into account the demands from the transport modules (TDM, ATM, IP/MPLS) or manually imported demands
- ▶ Effective support of SDH/PDH provisioning tasks
- ▶ Impact analysis of network failures considering ring protection in the network