

«Take control of your traffic»

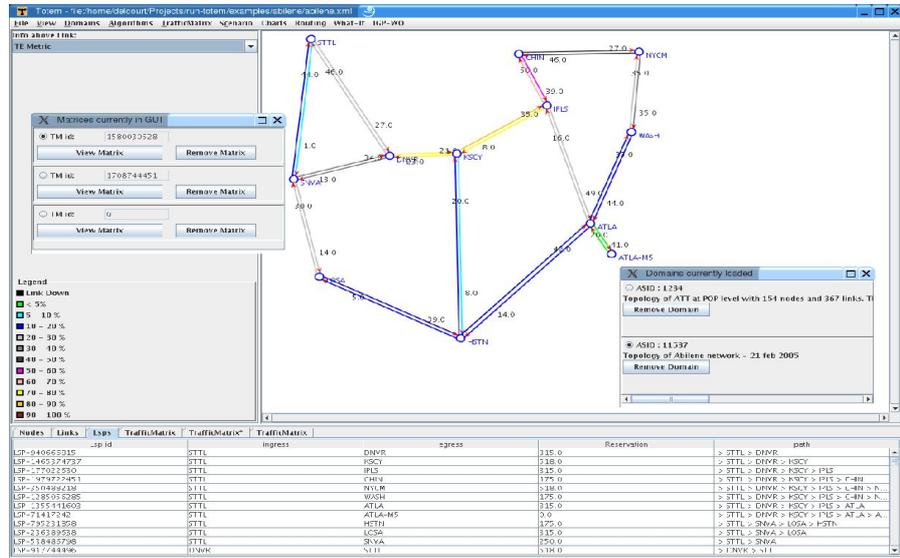
TOolbox for Traffic Engineering Methods

Supported Standards

- OSPF/IS-IS
- BGP
- MPLS
- DiffServ
- Fast reroute

New features of TOTEM 2.0

- Big improvements to the Graphical User Interface
- NetController: Event manager to maintain up to date all the algorithms databases
- Automatic Chart Generation
- Integration of new TE algorithms
- Listing of all the Shortest Paths



IP and MPLS simulations

The toolbox can be used to simulate how the traffic will be routed on a network using SPF, CSPF or other TE routing algorithms. TOTEM can simulate “what-if” scenarios to help understand the effects of metric changes, failures, traffic changes or BGP policy changes.

Traffic engineering methods

- **IP-metric based Traffic Engineering:** TOTEM integrates an IP metric optimisation tool based on a tabu-search meta-heuristic. This tool can be used to balance the traffic load by using an optimised metric set.
- **MPLS source-based routing:** TOTEM provides several efficient tools for computing paths in an MPLS network. The first tool - DAMOTE - can optimise different score functions like load-balancing, resource minimisation or a hybrid combination. It can be used in a centralised or decentralised on-line mode and is DiffServ-TE aware. The second algorithm is based on MIRA, which lies on the principle of Minimum Interference Routing. The third one - SAMCRA - is an exact multi-constrained shortest path algorithm. Different kinds of CSPF algorithms are also integrated in the toolbox.
- **MPLS resilient network routing:** another module provides an MPLS backup computation functionality. This tool is unique in its ability to optimise bandwidth sharing between backup and primary paths that cannot be active at the same time. It can compute local or end-to-end backup, link/node disjoint from the protected primary path.
- **Hybrid IP/MPLS Optimisation:** the toolbox includes the tool called SAMTE for Scalable Approach for MPLS Traffic Engineering. This approach lies between the pure IP metric-based optimisation (as IGP-WO) and the full mesh of LSPs. SAMTE uses the simulated annealing meta-heuristic to find a small number of LSPs (given as parameter) to establish in the network.
- **BGP decision process simulator:** TOTEM includes C-BGP, an efficient BGP decision process simulator. This tool can be used to evaluate the impact of input/output policies on the routing tables of various ASes. It can also be used to experiment with a modified decision process and additional BGP attributes.

