

## THE CONTROL PLANE SOFTWARE TESTING TOOL AT YOUR FINGERTIPS



**Fulfil Carrier Grade  
requirements**

**MARBEN GMPLS EMULATOR BASED ON MARBEN PROTOCOLS EXPERTISE WILL BRING CONFIDENCE FOR NEW GMPLS DEPLOYMENTS.**

**PROVEN SOLUTION** – *MARBEN GMPLS EMULATOR IS THE REFERENCE FOR CONFORMANCE TESTING THANKS TO ITS OIF INTEROP DEMOS PARTICIPATIONS.*

### SAVE MONEY ON YOUR INTEROP TESTING

- Get a conformance and performance testing tool for control plane deployment.
- Get expert support close to your development team.

### ADAPTIVE TO UP-TO-DATE EVOLUTION

- Support ASON/OIF UNI v1.0R2 & v2.0 – E-NNI signaling v1.0 & v2.0 and E-NNI routing v1.0 and v2.0, EPL & EVPL services – IETF GMPLS Peer model
- Support GELS, connected transport Ethernet such as PBB-TE.

**GET THE MOST STRESSING TESTING SOLUTION** – *ENABLING TO BUILD LARGE AND COMPLEX PSEUDO TRANSPORT TOPOLOGY FOR EXCEEDING LIMITS.*

### LARGE TOPOLOGY SUPPORT

- Validate and stress your control plane software- e.g., protocol implementations, embedded in real network element.
- With up to hundred nodes without software limitation.

### MEET MULTI LAYER AND INTER DOMAIN REQUIREMENTS

- Multi-layer transport solution from Ethernet to WDM through TDM and OTN through ASON or MLN/MRN architecture.
- PCE architecture combined within GMPLS signaling and routing.

**MEET CARRIER GRADE REQUIREMENTS**– *TEST YOUR FIVE 9'S SERVICES.*

### RESILIENCY

- Stress your Graceful Restart implemented on all GMPLS protocols.
- Trigger Transport Node/link failure, SCN Node/Connection failure.

### REGRESSION TESTING CAPACITY

- Script facilities enabling users to replay and check scenarios.

### TARGET APPLICATIONS

Stress and validate GMPLS-enabled MSPP, Optical cross-connect, Metro ROADM, Core Cross-connect  
Stress BoD, BoS, Automatic Inventory, protection / recovery.  
Support with Path computation Element.

### About Marben

A leading provider of key software solutions for next generation service-driven networks.

**More than 25 years of  
experience**

Delivers interoperable, robust and efficient signaling, routing and AAA solutions to accelerate the delivery of network services.

### Marben Customers

Alcatel-Lucent, Ciena, Cisco, Ericsson, Fujitsu, HP, NEC, Nokia Siemens Networks, Tellabs, Verizon, ...

## TECHNICAL OVERVIEW

MARBEN GMPLS Emulator fully conforms to the IETF GMPLS standards, and implements both a peer model and the overlay model. In the overlay model, the OIF/ITU-T UNI and OIF E-NNI Signaling and routing interface are supported for SONET/SDH as transport technology. In the peer model, the following features are implemented for SONET/SDH, Ethernet and PBB-TE as transport technology:

- Explicit routing, both strict and loose hops; a hop may specify a node IP address, or an TE-Link identifier and an optional label that is, explicit label control is implemented.
- Exclude routes specifying nodes or TE Links.
- Make-before-break rerouting.
- Dynamic and pre-planned end-to-end rerouting,
- 1+1 protection.
- Multiple levels of tracing facility from every emulated nodes.

Bi-directional connections are established in SE style based on the signaling RSVP protocols.

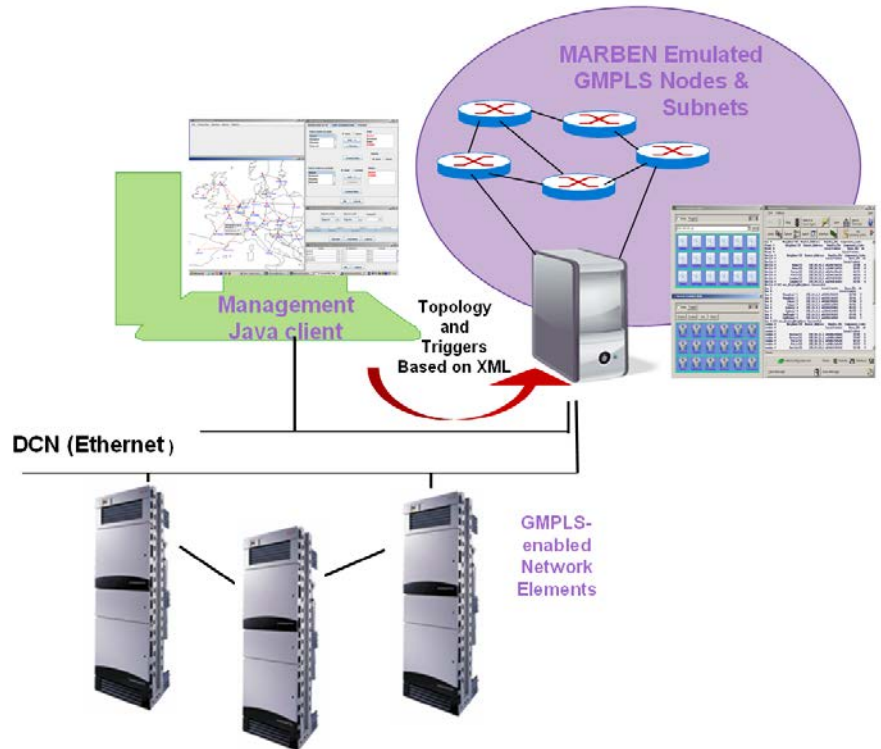
## ARCHITECTURE

The diagram below highlights the different components and the multiple interfaces offered.

- An emulator running on your hardware - setup in your lab plugged to your GMPLS enabled equipment.

- A Java GUI that simulates a management client to remotely Create/Delete/Modify your switch connections.

Interactions between these two are based on XML interfaces (Netconf exchanged over TCP connections or XML files for configuration). RSVP-TE, LMP, PCE and OSPF-TE packets can be exchanged with real GMPLS-enabled nodes (such packets can get in/out through the one or multiple Ethernet boards available on the workstation hosting the emulator, so that control channels can be brought up between the external nodes and some emulated nodes). The emulator can run up to 100 nodes on a regular PC-x86 configuration. For much more complex topology users can run running multiple emulators on several platforms managed globally through a unique interface.



## CONTACTS

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## CONFORMANCE

CCAMP/PCE IETF RFCs and drafts  
OIF UNI v1.0 R2 and v2.0  
OIF E-NNI Sig v1.0 and v2.0 and Routing  
v1.0 and v2.0

## RELATED OFFERS

MARBEN GMPLS, MARBEN MPLS, MARBEN PCE, MARBEN RSVP-TE, MARBEN OSPF-TE.  
Consulting, training and custom services.

## SYSTEM REQUIREMENTS

Full compatible with all 32/64 Linux and provided within a Debian package:

Required JRE1.6 for Java Manager.

CPU : minimum of Dual core 2GHz.

Memory.: approx. 120 MB per emulated node.  
Minimum of 2GB.

File system : Install and logging 300MB