

## THE PSEUDOWIRE CONTROL PLANE BASED ON LABEL DISTRIBUTION PROTOCOL



Re-evaluate  
your stack provider

**MARBEN LDP FOR PSEUDOWIRE SOFTWARE IS THE MOST CURRENT, TECHNICALLY ADVANCED SOLUTION THAT HAS BEEN DESIGNED FOR NEXT GENERATION TELECOM HARDWARE.**

**THE FULL-FEATURED SOLUTION – ADAPTED TO ANY VPLS, VPWS OR CES APPLICATIONS IN OEM TELECOM BUSINESSES.**

### OEM SOLUTION FROM ACCESS TO THE CORE

- Single segment pseudowire setup and maintenance per RFC4447.
- LDP adjacencies: basic and extended discovery.
- Fully managed LDP session establishment and maintenance.
- Compatible with either liberal or conservative label retention mode.
- Support for private objects and TLVs and proprietary MIB.
- Hop count and path vector loop detection.
- MIB management through API or CLI per RFC3815.
- Graceful Restart per RFC3478.

**CARRIER GRADE COST EFFECTIVE SOLUTION – MARBEN LDP IS CARRIER GRADE AND HIGHLY SCALABLE TO PROTECT YOUR INVESTMENT.**

### SCALABLE BY DESIGN

- Support several thousand to millions of VCs.
- Extensible to support more MPLS features such as RSVP-TE or OSPF-TE.

### PORTABLE

- C source code delivery.
- Small memory footprint.
- Qualified on Linux, VxWorks, OSE and QNX and many other RTOS.

### INTEROPERABLE SOLUTION

- Cisco ios 11.0 and later, JunOS and RBOS interoperable.
- Marben warrants that interoperability issues are fixed in the regular maintenance agreement within the same schedule than defects.

### TARGET APPLICATIONS

Telecom: Access equipment, Enterprise switches, line tester, IP/MPLS routers, MSPPs, Carrier Ethernet and MPLS-TP equipment  
Defense: Secure access box.

### 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

MPLS requires that two Label Switching Routers (LSRs) must agree on the meaning of the labels they both use to forward traffic between and through them. Thus IETF has defined a label distribution protocol (RFC5036). This basic protocol has been quite successful in the last decade. LDP is deployed in small but also larger networks that have been demanding more dedicated features that are covered in the targeted LDP extensions.

Marben provides a set of C source building blocks to enable Marben customers to quickly develop their own pseudowire-based application such as Virtual Private LAN Services (VPLS), Virtual Private Wire Service (VPWS) Circuit Emulation Services (CES).

The key advantages of choosing such components are avoiding interoperability issues and bringing the suitable carrier-grade features to Marben customer devices.

## ARCHITECTURE

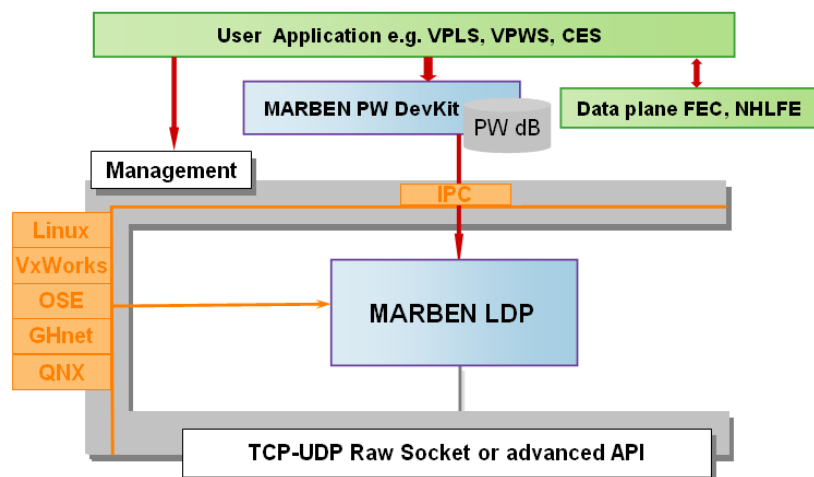
MARBEN LDP for Pseudowire (PW) provides all the functionality required to build a pseudowire control plane. The user application uses a set of APIs that are offered through a re-entrant development kit library MARBEN PW that relies on a communication stack, MARBEN LDP.

- MARBEN PW DevKit gathers all the required functions to setup/maintain LSP information and the management library that offers the full MIB description for the management of the stack. The PW database stores all the information exchanged through the LDP protocol for each PW. This memory database with Red black binary trees and hash code is optimized for efficient read/write access.
- MARBEN LDP, the relying stack, can be seen as a daemon or a standalone task or a Linux process depending on the Real time OS. It manages all adjacencies and session management, transparently for the user application.

MARBEN LDP for Pseudowire takes advantages of the MARBEN development framework:

- Zero copy buffer management.
- Fine grain timer management based on timer heaps and lists.
- MIB based management framework.
- Fine debug and multi level trace management.

MARBEN LDP for Pseudowire is straight forward pluggable solution to the native TCP and UDP provider of the system. Such solution can also rely on more advanced API provided by the system for efficiency or security concern within a limited effort of development.



## CONTACTS

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## CONFORMANCE

IETF:  
RFC5036 LDP specification,  
RFC3478 Graceful Restart,  
RFC3815 Definitions of Managed Objects for  
MPLS and LDP,  
RFC4447 Pseudowire Setup and maintenance  
using LDP.

No hard coded limits to number of interfaces  
or pseudowires.

## RELATED OFFERS

MARBEN MPLS /GMPS Control plane, MARBEN Management Protocols for DCN.  
Consulting, training and professional services for custom software development.

## SYSTEM REQUIREMENTS

Portable solution with qualified porting kits on:

- All 32/64 commercial or home-grown Linux,
- Real time system as VxWorks (5.5 to 6.8),  
FreeBSD 5.0, OSE 5.4, QNX,
- Sun Solaris 8, 9 and 10 ( Spark & Intel),
- HP-UX on PA-RISK and Itanium,
- Windows XP, 2003, 2008 (32/64).

Flash memory 2.2MB, RAM memory, 10MB to  
120 MB.