GVPLS/LPE - Generic VPLS Solution based on LPE Framework Update version 01

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Agenda

- Characteristics of the GVPLS Model
- Key elements of the version 01
- Requirements compliance
- Next Steps

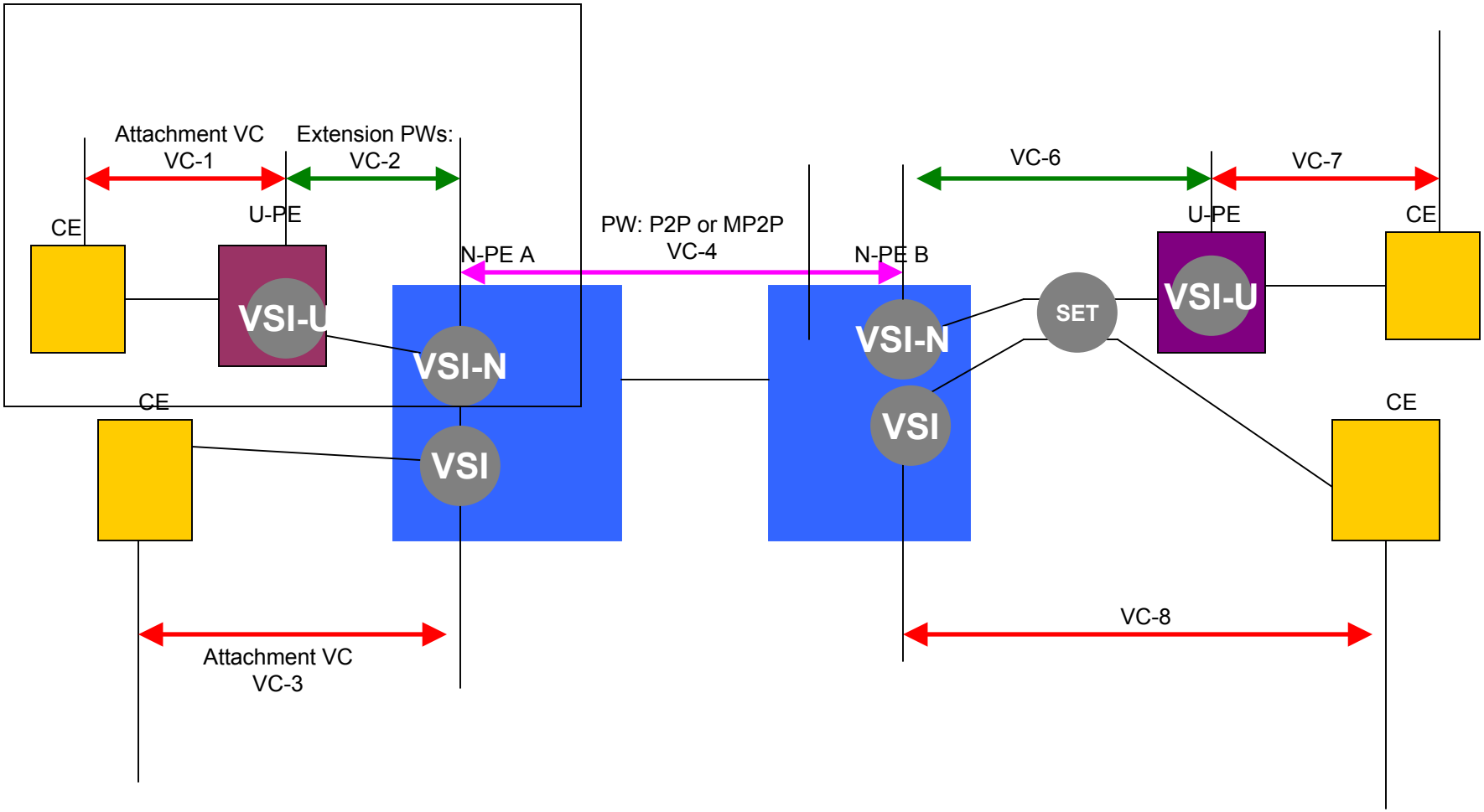
History

- LPE Framework document – September 2001
- GVPLS/LPE solution - November 2002
- draft-rosen-ppvpn-l2-signaling-02.txt – March 2002

Characteristics of the GVPLS model

- Decomposes MAC Learning and Forwarding from the VPLS core forwarding
  - MAC learning is done on the U-PE access devices
  - VPLS core forwarding is done on the N-PE devices
- Minimizes the number of control sessions between the U-PE devices
  - regardless of the number of U-PE devices, each U-PE device has maximum 2 control sessions with the local N-PE device
- The VPLS core PWs identify both the N-PE and U-PE devices
  - tradeoff between MAC-Learning and the number of PWs in the core
- Allows efficient OAM and Multicast schemes to be implemented
  - provides a consistent traceability path between SP U-PE devices

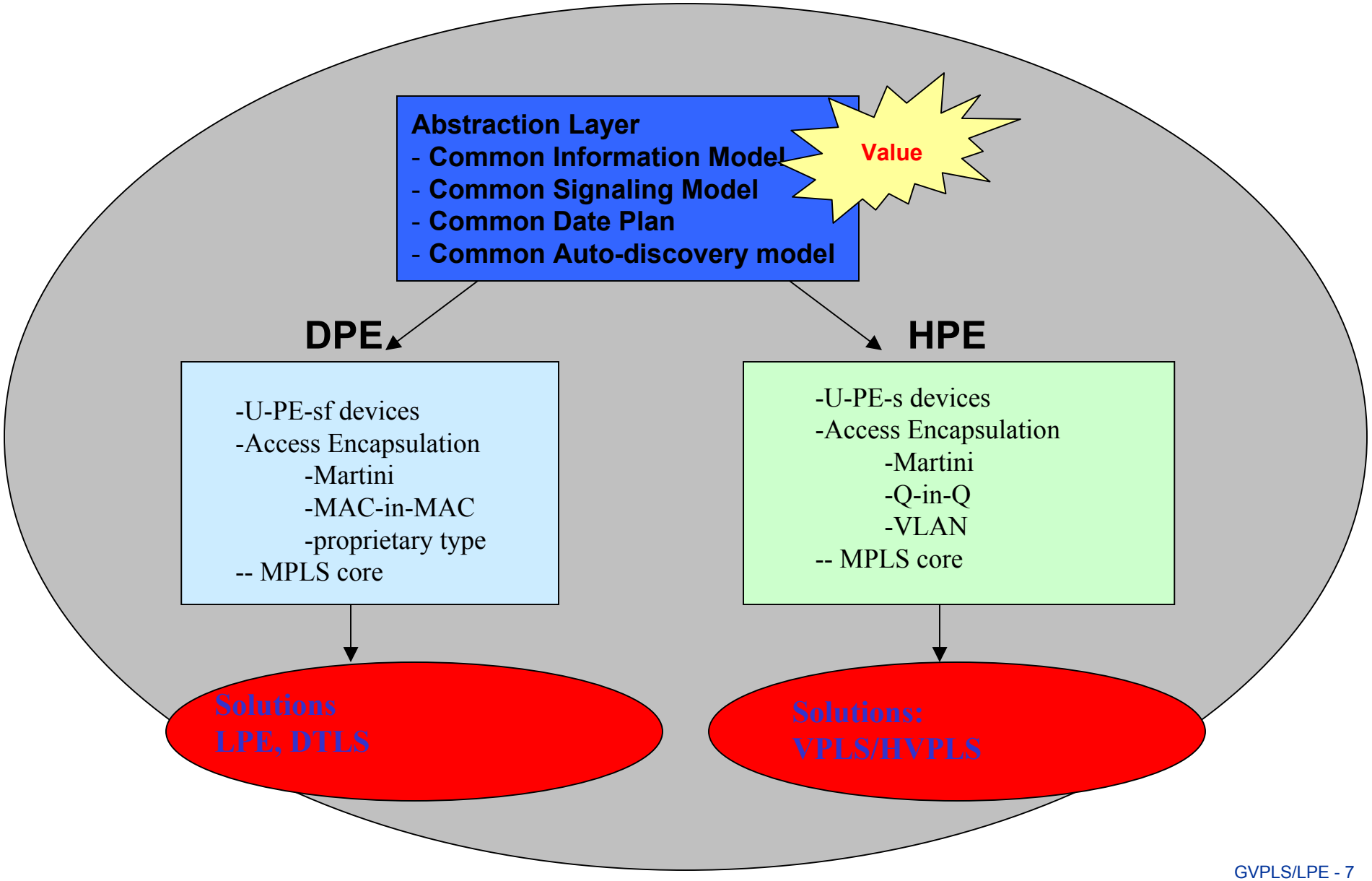
GVPLS Reference Model



Key elements for version 01

- Extends and complements the non-distributed model
  - non-distributed and distributed models can co-exist together
- Aligns with the Functional decomposition proposed by the DT
- Explains the rationale of the Distributed Model and deployment scenarios
- Supports clear separation between access and metro-core networks
  - forwarding the customer packets is based on a **SP Address** scheme instead of the customer MAC addresses
- Supports different access technologies
  - Q-in-Q
  - PW Martini
  - 802.1 Q VLAN
  - flexible to adopt new L2 protocols
- Supports P2P PW and M2P PW in a consistent way
  - The M2P PW are not mandatory, but may enhance the scalability of the model
- Extends the PWE3/Martini signaling method to support both the distributed and non-distributed models– also, it allows P2P, M2P PWs to coexist together
- Allows inter-working between VPLS/HVPLS and GVPLS
- Supports L2 VPN Requirements

GVPLS Solution



Additional Requirements addressed by version 01

- Performance & Scalability transparency to the type & number of CE devices
- Scalable deployment:
  - Incremental build-up
  - # of VPNs
  - # of End-points/VPLS
  - # of customer MAC addresses
- VPLS Customers protection
  - remove Single Point of Failure
  - isolates the customer MAC addresses to the SP Edge U-PE and forward the customer packets using SP address scheme
- Allow the N-PE devices to perform simultaneous multiple services [IPVPN, VPLS, L2VPN]

Future Steps

- Convergence on Signaling
  - draft-rosen-ppvn-signaling-02.txt
- Integrate QoS, Resiliency
- Enhance OAM capabilities
- Convergence with VPLS

History of the Distributed model

- LPE Framework document – publish on September 2001
- GVPLS/LPE solution - publish on November 2002
- DTLS – publish August 2001
- draft-rosen-ppvpn-l2-signaling-02.txt – publish on 2002