

Private Line Emulation

[draft-schmutzer-bess-ple-00](#) &
[draft-schmutzer-bess-ple-vpws-signalling-00](#)

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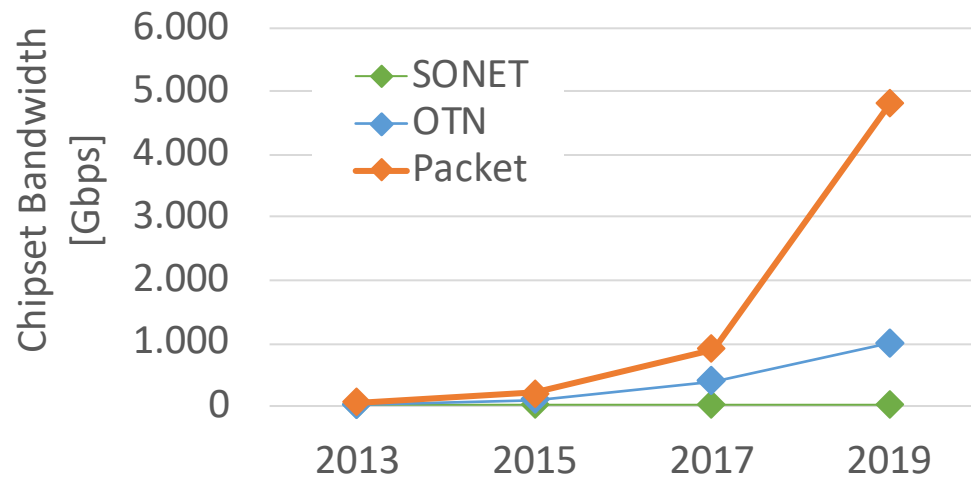
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Overview

- [draft-schmutzer-bess-ple-00](#)
 - New encapsulation for bit-stream signals over PSN
 - Complements SAToP (RFC4553) to address new high-speed signals such as 10GE, 100GE, OC192, ODUk, and others
 - Underlay agnostic to address MPLS and SRv6 networks
- [draft-schmutzer-bess-ple-vpws-signalling-00](#)
 - Signalling mechanisms to setup PLE VPWS
 - New BGP PLE path attribute and a series of TLVs

Motivation

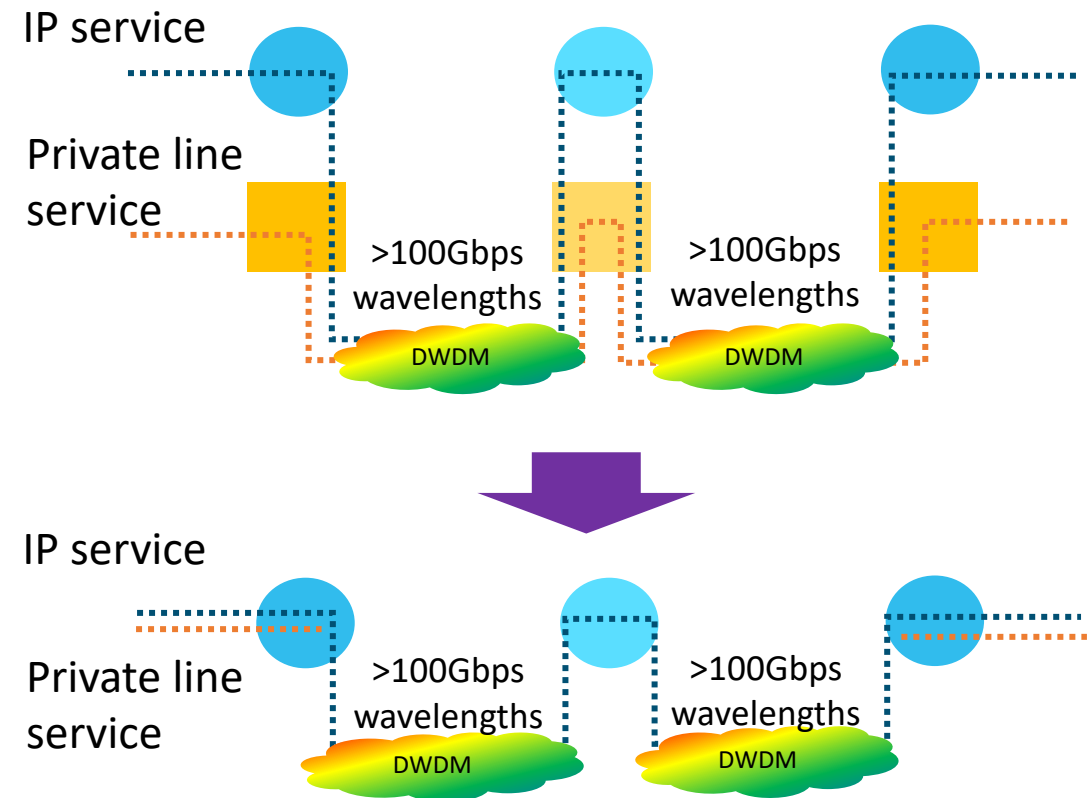
1. Chipset Evolution



2. DWDM Interface Evolution

- 400G coherent transceivers
- Rapid spec definition via MSAs and IEEE

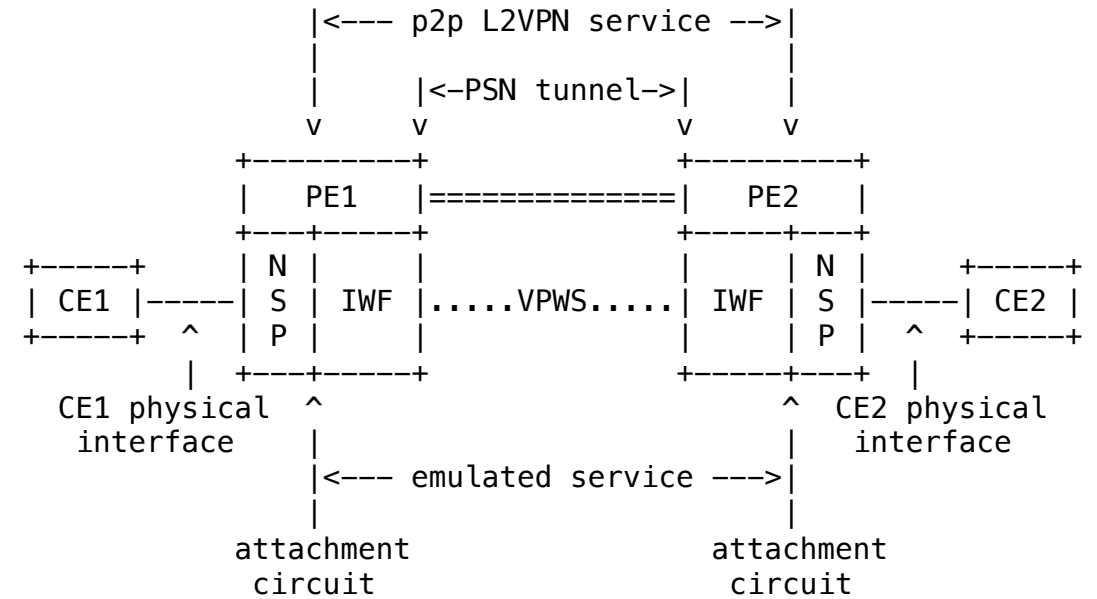
3. Network Transformation



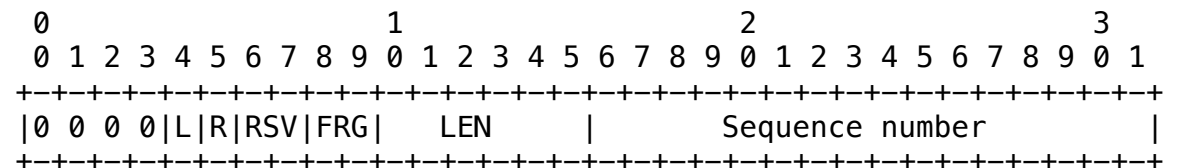
Solution Overview

- Bit-stream encapsulation
 - Constant bit rate (CBR) payload
 - ODUk frame aligned payload
- Control word
 - Sequencing
 - Client layer signal failure (L bit)
 - Server layer backward failure (R bit)
- Differential clock recovery

Reference Model



PLE Control Word



Solution Overview

- Leverage existing EVPN-VPWS mechanisms
- Add new BGP PLE path attribute to
 - establish non-ethernet VPWS instances (bit-streams)
 - Exchange of bit-stream specific endpoint parameters
- LDP extensions for further study

PLE Attribute TLVs

TLV Type	Name	Length	Mandatory
1	PW Type TLV	3	Y
2	PLE/CEP/TDM Bit-rate TLV	5	Y
3	PLE/CEP Options TLV	3	Y 1*
4	TDM Options TLV	13	Y 2*
5	PLE/CEP/TDM Payload Bytes TLV	3	N
6	Endpoint-ID TLV	0..80	N

1* PLE/CEP only, 2* TDM only

Thank you very much for your attention!

Any questions ?

We appreciate your review and input!