VPLS Interoperability with Provider Backbone Bridges

Ali Sajassi

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Authors

- Samer Salam

- Chris Metz

- Nabil Bitar

- Dinesh Mohan

History

- Rev. 00 March 07

- Rev 01 July 07

- Rev 02 Nov. 07

    (but could not be presented because of lack of time)

Changes Relative to Rev 01

- Added a more precise definition of administrative boundaries in terms of I-SID domain and B-VID domains
    - Tightly-coupled I-SID domain
    - Loosely-coupled I-SID domain
    - non-coupled I-SID domain
- Re-drawn diagrams based on above definitions for better clarity
- Added Migration scenarios
    - e.g., a VPLS instance where only some of the PEs are .1ah capable
- Added additional H-VPLS scenarios
   - e.g., .1ah capability at u-PE versus n-PE

Main Sections

1. Native 802.1ah network Interoperability with VPLS core

    - e.g., 802.1ah access network with VPLS core

2. 802.1ah encapsulation over H-VPLS

    - e.g., MPLS access network with VPLS core

3. Mixed mode VPLS

    - e.g., some PEs are 802.1ah capable and some not

Connectivity between Native 802.1ah and VPLS core

- Only applies to native 802.1ah network connectivity to VPLS core

  - e.g., H-VPLS w/ 802.1ah access and not H-VPLS w/ MPLS access

- Three types of interfaces

  Type-I: B-tagged Service I/F w/ B-tag as service delimiter

  Type-II: B-tagged Service I/F w/ I-tag as service delimiter

  Type-III: I-tagged Service I/F w/ I-tag as service delimiter

Native 802.1ah network Interoperability with VPLS
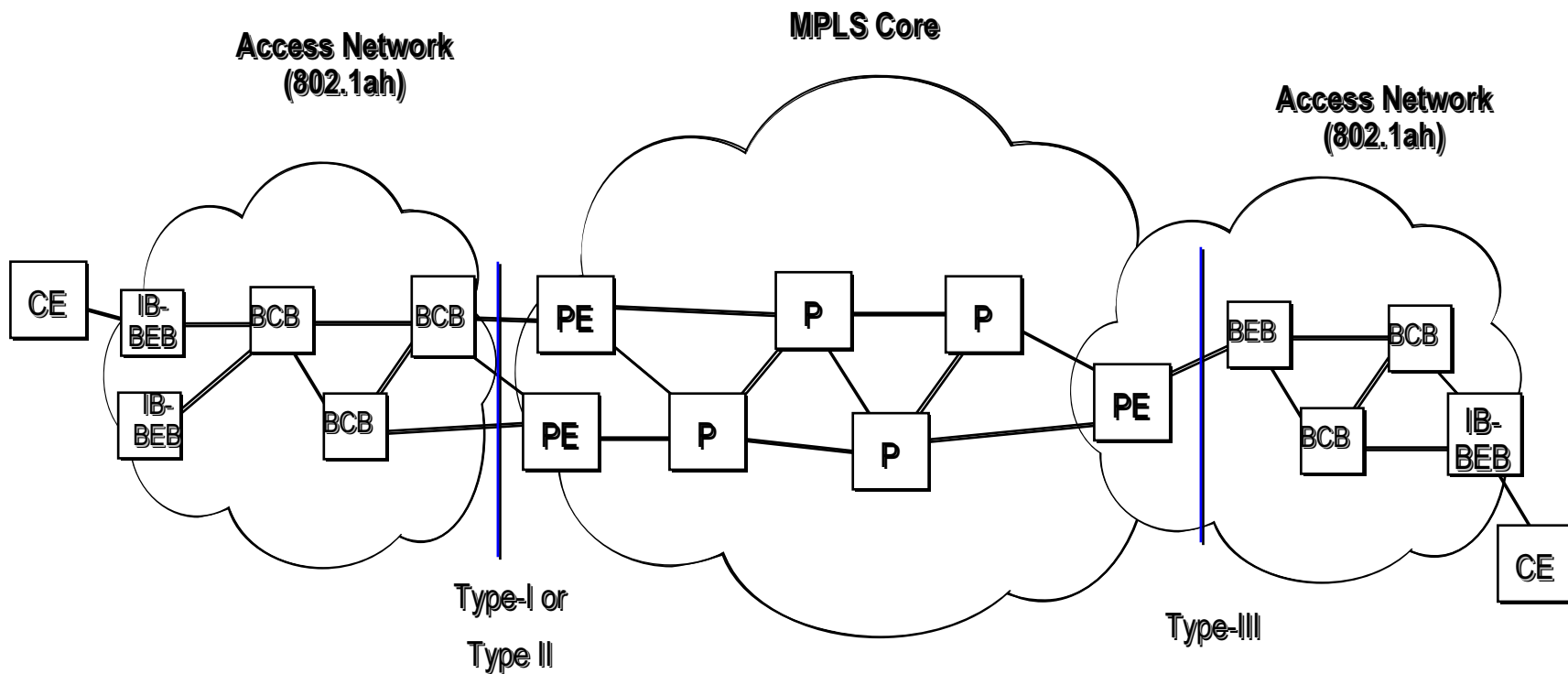
Summary: VPLS w/ 802.1ah Access

| Interface	Service Delimit.	I-SID domain	Mode	VPLS instance per	PW Requirements:
Type I B-Tagged	B-Tag	Tightly Coupled	Port	Port	Type 5 as default (may use type 4)
			VLAN	B-Tag	Type 5 as default (may use type 4)
			VLAN Bundle	Group of B-Tags	Type 5 as default (may use type 4)
Type II B-Tagged	I-SID	Loosely Coupled	I-SID	I-SID	New type to carry I-Tagged Frames. No I-SID Translation is needed.
			I-SID Bundle	Group of I-SIDs	Type 5 as default (may use type 4)
	I-SID	Different domains	I-SID	I-SID	New type to carry I-Tagged Frames. I-SID translation at the egress PE
Type III I-Tagged	I-SID	Loosely Coupled	I-SID	I-SID	New type to carry I-Tagged Frames. No I-SID translation is needed
			I-SID Bundle	Group of I-SIDs	Type 5 as default (may use type 4)
	I-SID	Different domains	I-SID	I-SID	New type to carry I-Tagged Frames. I-SID Translation at the egress PE or on CBP of B-BEB (symmetric)
			I-SID Bundle	Group of I-SIDs	Type 5 as default. I-SID Translation on AC (symmetric) or on CBP of B-BEB (symmetric)

802.1ah Encapsulation over H-VPLS
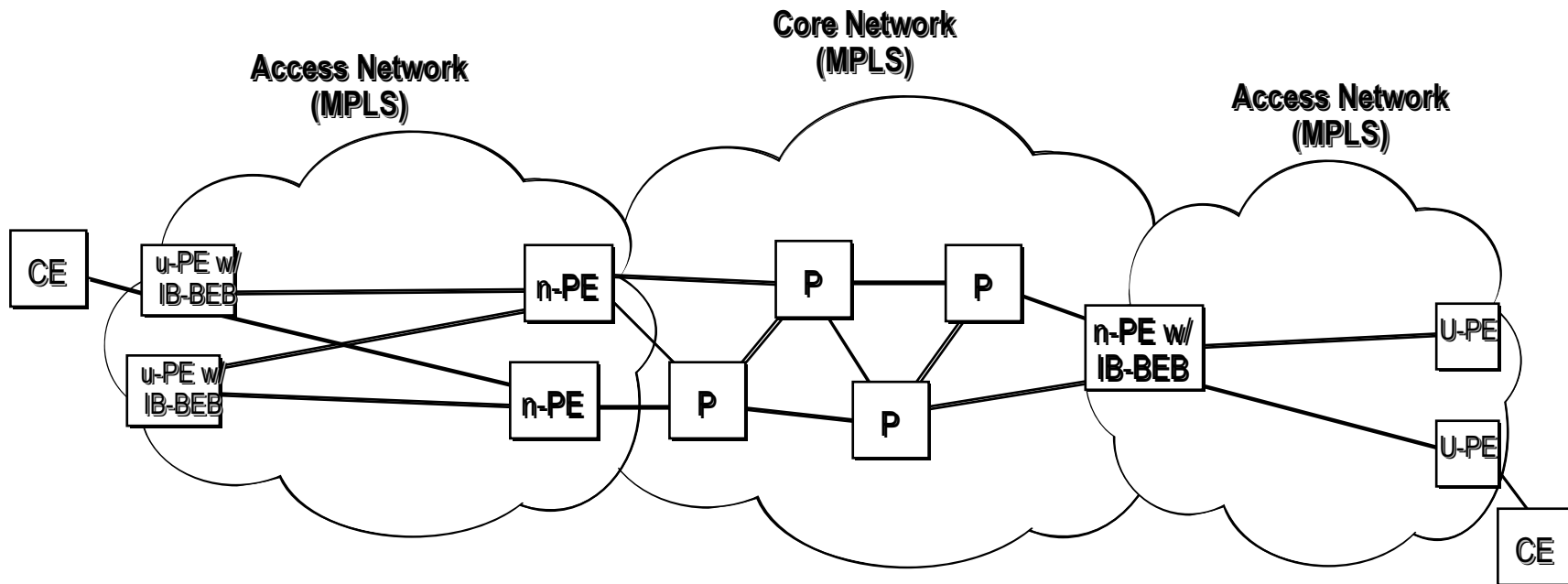
- 802.1ah encap can be either at u-PE or n-PE

- Two cases to consider

  - All MPLS access/agg networks are part of the same I-SID domain All MPLS
  - Each MPLS access/agg network is an independent I-SID domain

Summary: VPLS w/ MPLS Access w/ 802.1ah on uPE

Interface	Service Delimit.	I-SID domain	Mode	VPLS instance per	PW Requirements:
S-Tagged	S-Tag	Same Domain	Port	I-SID bundle	Type 5 as default (may use type 4)
				I-SID	New type to carry I-Tagged Frames. No I-SID Translation is needed.
			VLAN	I-SID bundle	Type 5 as default (may use type 4)
				I-SID	New type to carry I-Tagged Frames. No I-SID Translation is needed.
			VLAN Bundle	I-SID bundle	Type 5 as default (may use type 4)
				I-SID	New type to carry I-Tagged Frames. No I-SID Translation is needed.
		Different Domains	Port	I-SID	New type to carry I-Tagged Frames. I-SID Translation on egress uPE.
			VLAN	I-SID	New type to carry I-Tagged Frames. I-SID Translation on egress uPE.
			VLAN Bundle	I-SID	New type to carry I-Tagged Frames. I-SID Translation on egress uPE.

Migration Scenario
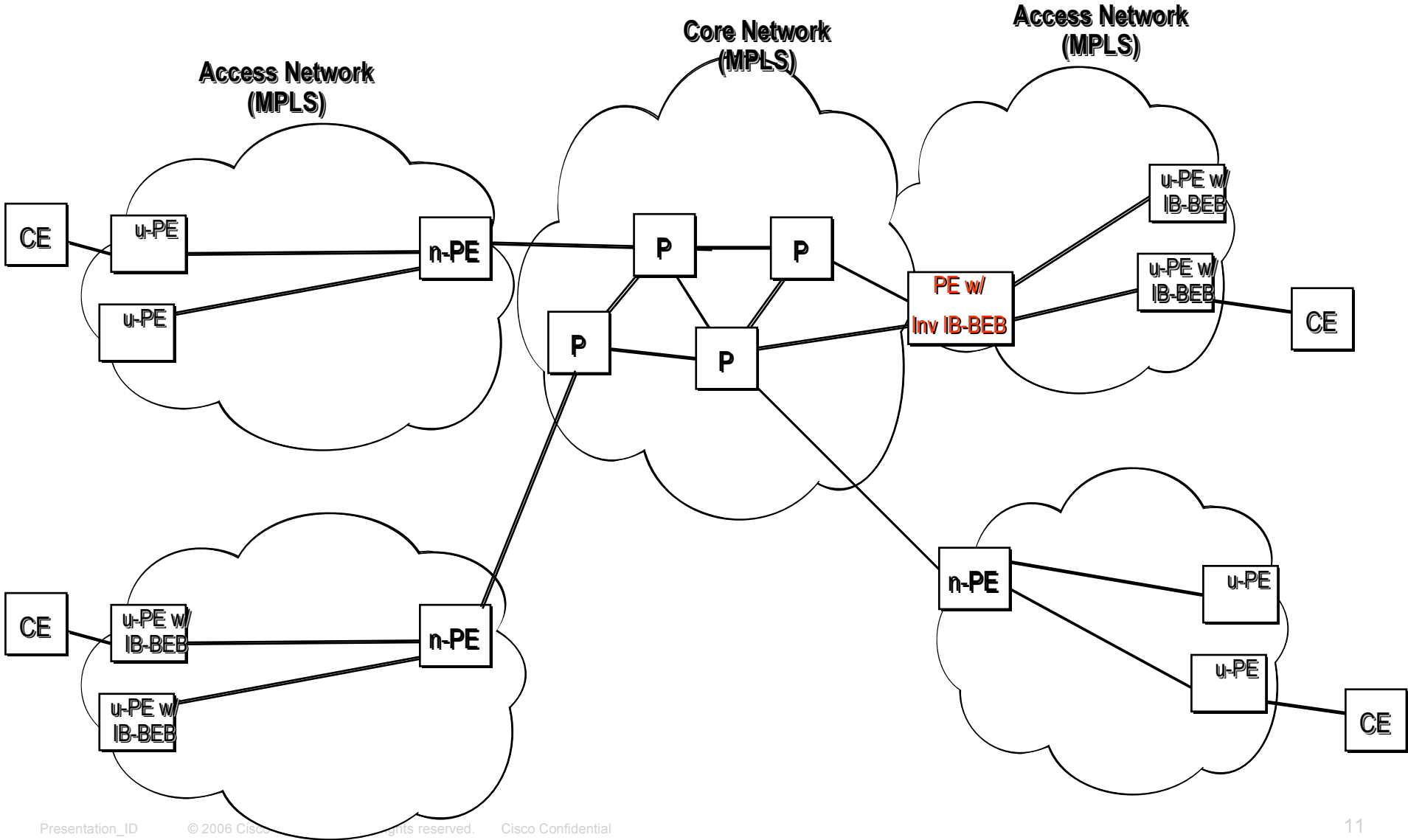
Next Steps

- Now, the coverage of different interworking scenarios is very complete

- Have addressed the previous issues/shortcomings

- Ready for the WG call

- But discussing with the authors and other interested parties regarding re-arranging the contents between this draft and the other draft on .1ah along the following functional lines
    - Data-plane interworking: native 802.1ah w/ VPLS
    - Data-plane interworking: native 802.1ah over H-VPLS & migration
    - Control-plane: Signaling & auto-discovery

- Other areas that need to be addressed
    - MAC flushing
    - Multicast
    - etc.