

L2VPN Yang Model

IETF 93

Prague, CZ

[draft-shah-pals-mpls-l2vpn-yang-00.txt](#)

The Crew

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Metaswitch: Jonathan Hardwick

Comcast: Jason Walker, Bin Wen, Mannan Venkatesan

Verizon: Nick DelRegno, Luay Jalil, Nabil Bitar

+ the EVPN members

+ new comers.

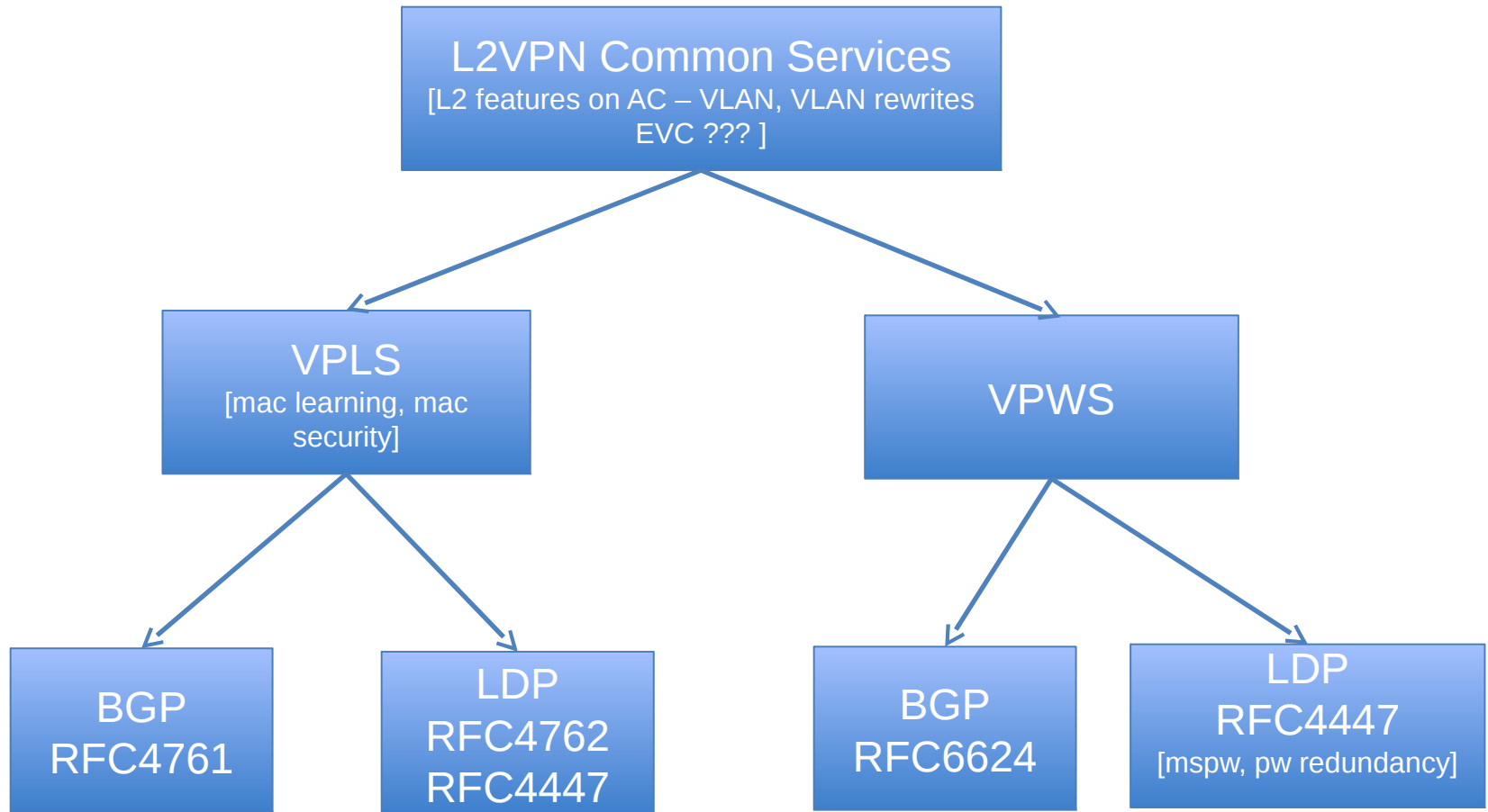
Work Method

- To speed-up the our progress on framework and HL container, meeting are every weeks.
 - The meeting time is scheduled on **Wednesday 10am EST**
- Meeting **every weeks** to discuss the design of the L2VPN Yang models.
 - The meeting time is scheduled on Wednesday 10am EST.
 - Vendor-specific part will be left out.
- The progress will be published in the IETF mailing list on time.
- The important issue can be proposed in the **mailing list** for discussion.

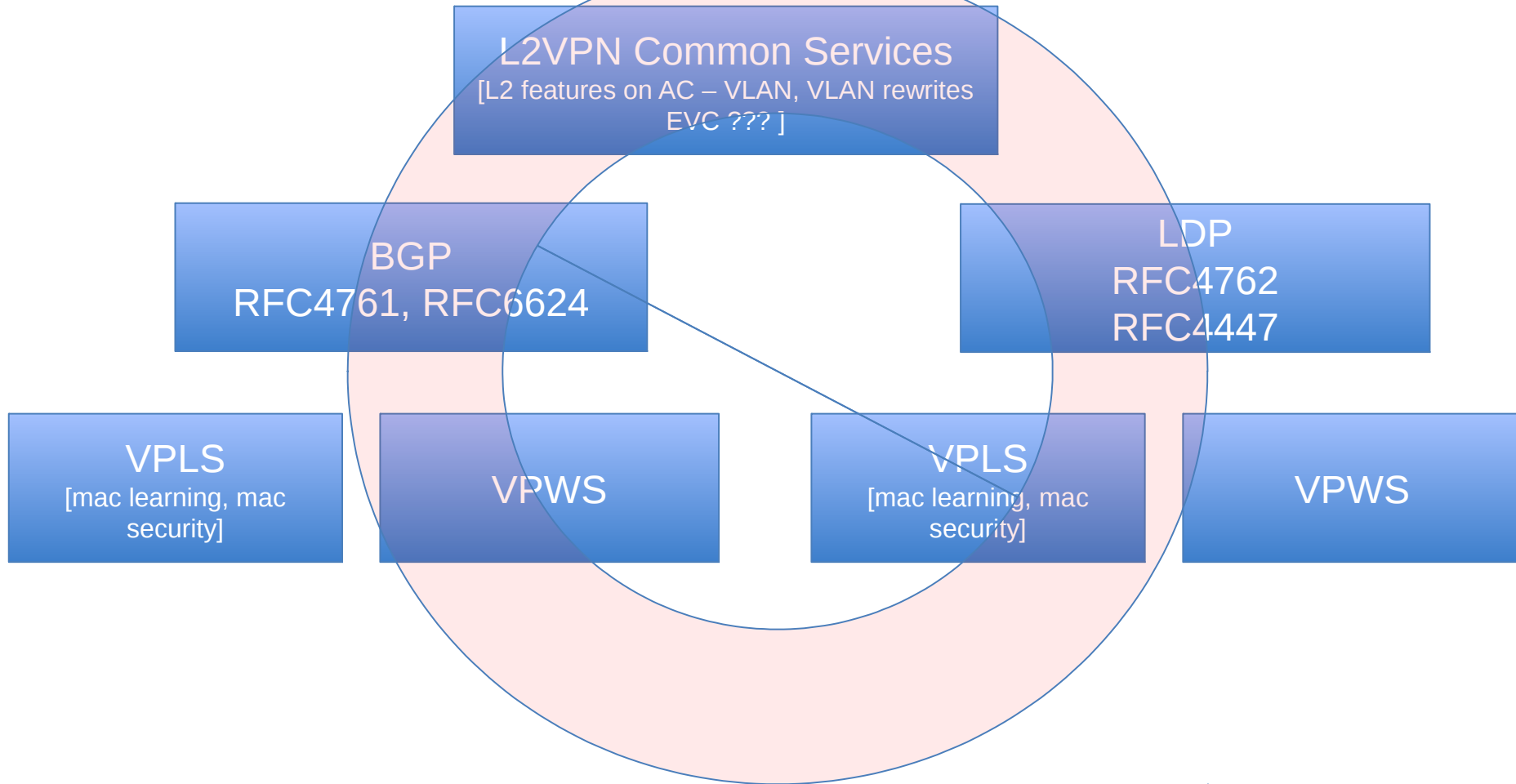
Design Work Plan

- Phase 0: **Architecture Design**
- Phase 1
 - **Configuration Data**
 - RPC
 - Notification
- Phase 2
 - Operation Data

Instance Centric Approach



Protocol Centric Approach



Scope – L2VPN RFC List

- L2VPN RFC List
 - Prepare an RFC list for L2VPN and PWE3 for your reference. RFCs are identified as "1" @ "4". The meaning of the number is as follows:
 - 1 -- Very Popular
 - 2 -- Popular
 - 3 -- Not Popular yet now
 - 4 -- Out of scope of L2VPN Yang team

RFC list example

A	B	F	G	H	I	J	K	L	M
RFC Name	RFC Title & Functions	Cisco Systems	Himanshu-Ciena Input	Matthew-ALU Input	Ericsson	Verizon	Comcast	Classification	Consen
RFC3916	Requirements for Pseudo-Wire Emulation Edge-to-Edge (PWE3).	1	1	Out of scope?	1	1	1	Almost Same	
RFC3985	Pseudo Wire Emulation Edge-to-Edge (PWE3) Architecture	1	1	1	1	1	1		
RFC4446	IANA Allocations for Pseudowire Edge to Edge Emulation (PWE3)	1	1	1	1	1	1		
RFC4447	Pseudowire Setup and Maintenance Using the Label Distribution Protocol (LDP)	1	1	1	1	1	1		
RFC4448	Encapsulation Methods for Transport of Ethernet over MPLS Networks	1	1	1	1	1	1		
RFC4385	Pseudowire Emulation Edge-to-Edge (PWE3) Control Word for Use over an MPLS PSN	1	1	1	1	1	1		
RFC5254	Requirements for Multi-Segment Pseudowire Emulation Edge-to-Edge (PWE3)	1	1	Out of scope?		1	2	Almost Same	
RFC5659	An Architecture for Multi-Segment Pseudowire Emulation Edge-to-Edge	1	1	1		1	2	Almost Same	
RFC6073	Segmented Pseudowire	1	1	1		1	2	Almost Same	
RFC4197	Requirements for Edge-to-Edge Emulation of Time Division Multiplexed (TDM) Circuits over Packet Switching Networks	later	TDM circuits are still being deployed but since DT agreed to do Ethernet first - hence 2	2		3	3	Will not be taken into account in phase 1 (before IETF 93)	
RFC4553	Structure-Agnostic Time Division Multiplexing (TDM) over Packet (SAToP)	later	2	2		3	3	Will not be taken into account in phase 1 (before IETF 93)	
RFC4618	Encapsulation Methods for Transport of PPP/HDLC over MPLS Networks	later	3	3		2	3	Will not be taken into account in phase 1 (before IETF 93)	

VPWS first...then VPLS, and the rest

```
template-ref AC // AC template attributes
template-ref PW // PW template attributes
```

```
vpws-instance name // container
  svc-type
  // list of AC and PW being used
  AC-1 // container
  template-ref AC
  attribute-override
  PW-2 // container
  template-ref PW
  attribute-override
  PW-3 // container
  template-ref PW
  attribute-override
  // ONLY 2 endpoints!!!
  endpoint-A // container
  AC-1 // reference
  endpoint-Z // container
  redundancy-grp // container
  PW-2 // reference
  PW-3 // reference
```

VPWS & Endpoint

```
module version1-l2vpn {
  grouping vpws-endpoint-grp2 {
    choice ac-or-pw-or-redundancy-grp {
      case ac {
        leaf ac {
          type leafref {
            path "../../service-instance/name";
          }
        }
      }
      case pw {
        leaf pw {
          type leafref {
            path "../../pseudowire/name";
          }
        }
      }
      case redundancy-grp {
        leaf primary-pw {
          type leafref {
            path "../../pseudowire/name";
          }
        }
        leaf backup-pw {
          type leafref {
            path "../../pseudowire/name";
          }
        }
        must "primary-pw != backup-pw";
      }
    }
  }
  container l2vpn {
    container vpws-instance {
      list vpws-instance {
        container endpoint-A {
          uses vpws-endpoint-grp1;
        }
        container endpoint-Z {
          uses vpws-endpoint-grp2;
        }
      }
    }
  }
}
```

```
Template-AC-1 // template
  attributes

Template-PW // template
  attributes

vpws-instance name // container

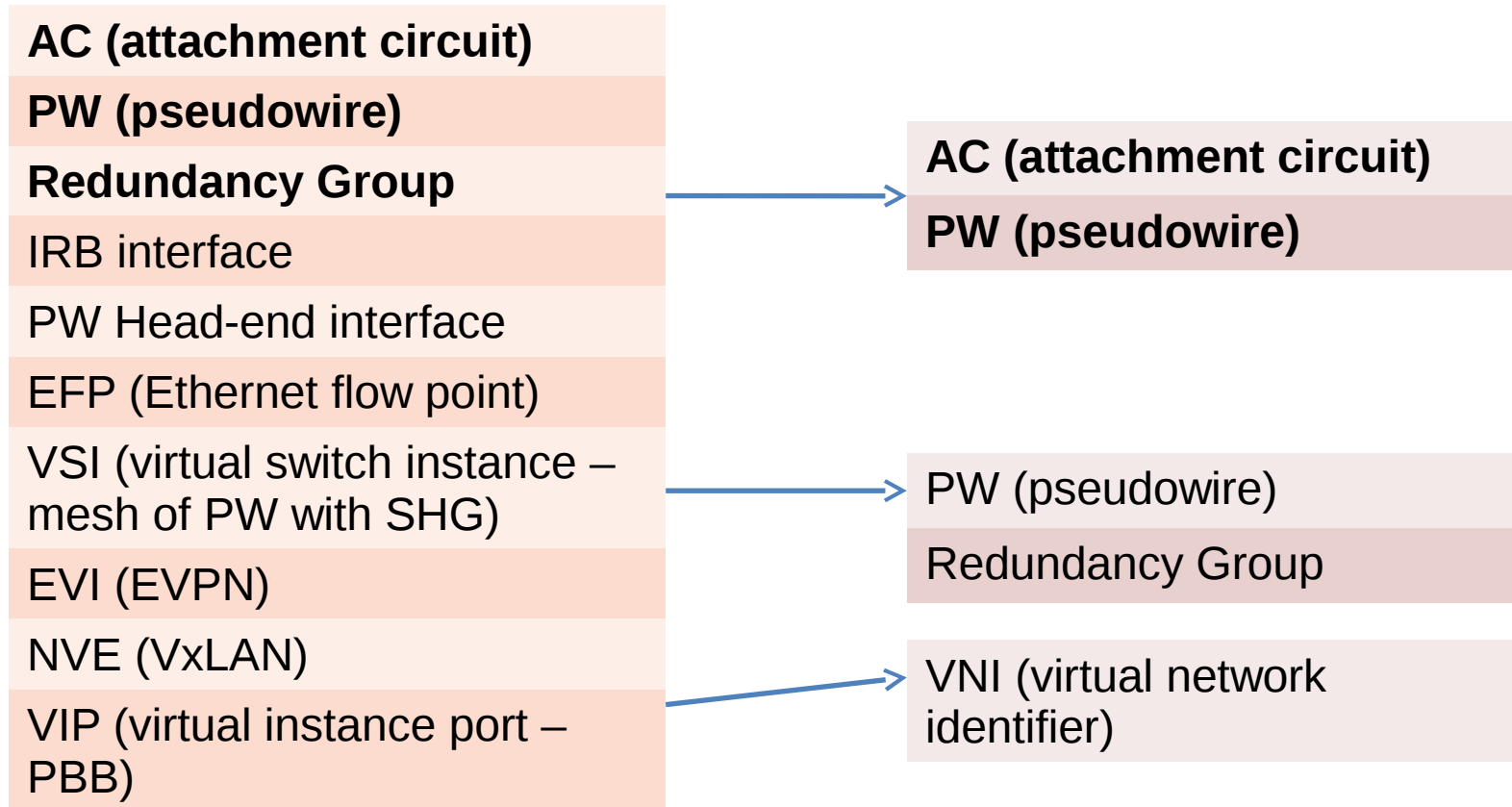
  svc-type

  // list of AC and PW being used
  AC-1 // container
  template-ac-1
  attribute-override
  PW-2 // container
  template-pw
  attribute-override
  PW-4 // container
  template-pw
  attribute-override

  // ONLY 2 endpoints!!!
  endpoint-A // container
  AC-1 // reference

  endpoint-Z // container
  redundancy-grp // container
  PW-2 // reference
  PW-4 // reference
```

Various Types of Endpoint



EVPN Yang model

The crew

<i>Juniper :</i>	Kishore Tiruveedhula, Tapraj Singh
<i>Cisco :</i>	Ali Sajassi, Patrice Brissette, Deepak Kumar
<i>Alcatel/Lucent :</i>	Jorge Rabadan,
<i>Ericsson :</i>	Xufeng Liu, Autumn Liu
<i>Ciena :</i>	Himanshu Shah
<i>Huawei :</i>	Robin (Zhenbin) Li
<i>Metaswitch:</i>	Jonathan Hardwick, Alan Elder
<i>Verizon:</i>	Luay Jalil

Scope

- Requirements for EVPN: RFC 7209
- EVPN: RFC 7432
- PBB-EVPN draft: draft-ietf-l2vpn-pbb-evpn-10
- VPWS support in EVPN: draft-ietf-bess-evpn-vpws-00
- E-TREE Support in EVPN & PBB-EVPN: draft-ietf-bess-evpn-etree-00
- IP Prefix Advertisement in EVPN: draft-ietf-bess-evpn-prefix-advertisement-01
- (PBB-)EVPN Seamless Integration with (PBB-)VPLS: draft-ietf-bess-evpn-vpls-seamless-integ-00
- VXLAN DCI Using EVPN: draft-boutros-l2vpn-vxlan-evpn
- A Network Virtualization Overlay Solution using EVPN: draft-ietf-bess-evpn-overlay-00
- Interconnect Solution for EVPN Overlay networks: draft-ietf-bess-dci-evpn-overlay-00
- Integrated Routing and Bridging in EVPN: draft-ietf-bess-evpn-inter-subnet-forwarding-00
- EVPN Virtual Ethernet Segment: draft-sajassi-bess-evpn-virtual-eth-segment-00

Initial Focus

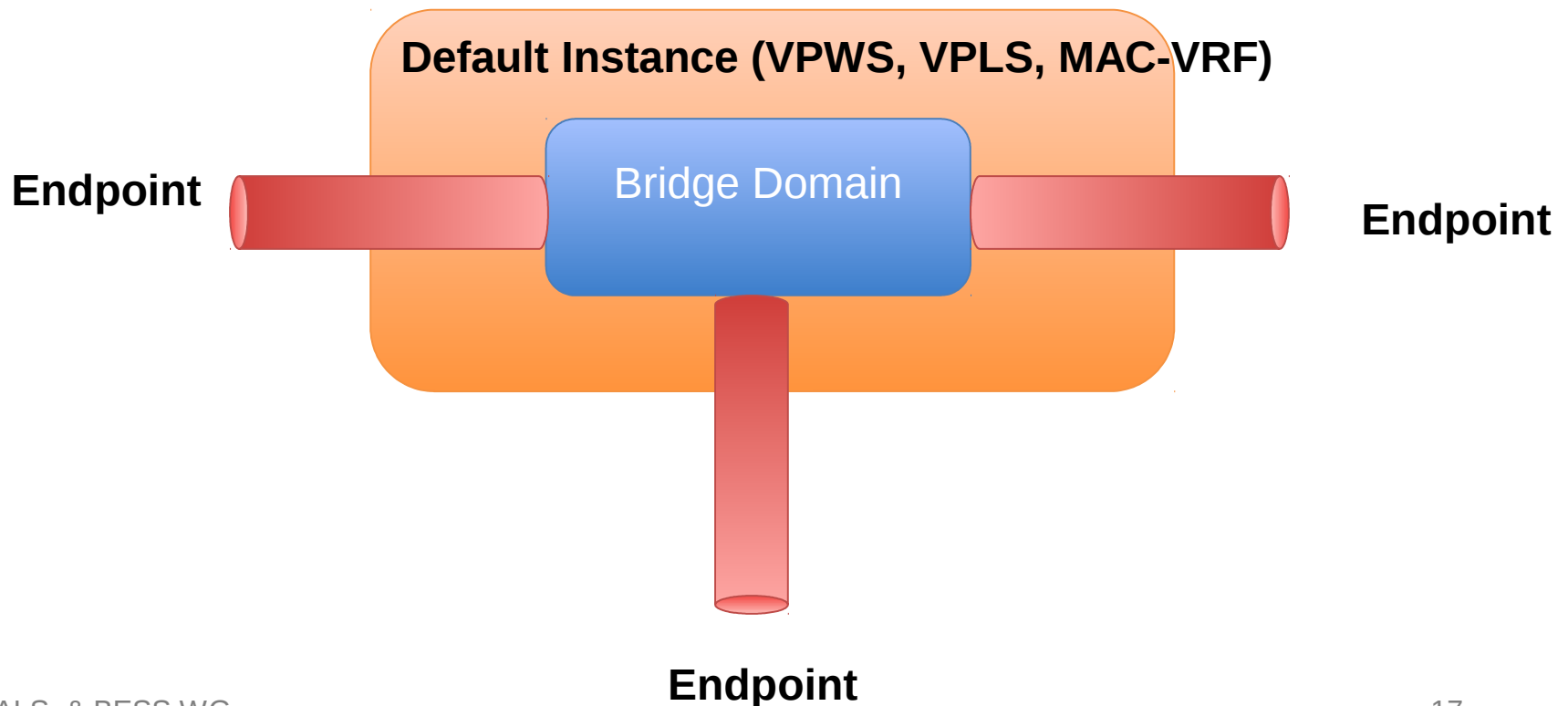
- Configuration & ~~Operational Data~~ for
 - EVPN: RFC 7432
 - PBB-EVPN draft: draft-ietf-l2vpn-pbb-evpn-10

EVPN Yang

- Agreement was to focus on L2VPN architecture and VPLS Yang first...
- The discussion moved quickly on endpoints, vpls-instance, bridge domain and MAC-VRF.
- Agreed on EVPN (as a forwarder) to be an Endpoint
- Coming back from Prague, the crew can start working on EVPN [as an endpoint]!

L2VPN Architecture

Basic instance



...and L3VPN Yang

- Currently setting up the team
- Please contact me if you are interested
- Please contact me if you want to share your thoughts or any work which has been done already

I'm done!

Thank You!

Please provide your comments!

There are always room for new members!

I'm done, Did I tell you?