# Layer 2 VPN(L2VPN) Service Model (L2SM)

Interim meeting, Thursday May 25, 2017  14:00~15:30 Europe/London Time

Adrian Farrel

Qin WU

http://tools.ietf.org/wg/l2sm/charters

# Note Well

- Any submission to the IETF intended by the Contributor for publication as all or part of an IETF Internet-Draft or RFC and any statement made within the context of an IETF activity is considered an "IETF Contribution". Such statements include oral statements in IETF sessions, as well as written and electronic communications made at any time or place, which are addressed to:
  - The IETF plenary session
  - The IESG, or any member thereof on behalf of the IESG
  - Any IETF mailing list, including the IETF list itself, any working group or design team list, or any other list functioning under IETF auspices
  - Any IETF working group or portion thereof
  - Any Birds of a Feather (BOF) session
  - The IAB or any member thereof on behalf of the IAB
  - The RFC Editor or the Internet-Drafts function
- All IETF Contributions are subject to the rules of RFC 5378 and RFC 3979 (updated by RFC 4879).
- Statements made outside of an IETF session, mailing list or other function, that are clearly not intended to be input to an IETF activity, group or function, are not IETF Contributions in the context of this notice.  Please consult RFC 5378 and RFC 3979 for details.
- A participant in any IETF activity is deemed to accept all IETF rules of process, as documented in Best Current Practices RFCs and IESG Statements.
- A participant in any IETF activity acknowledges that written, audio and video records of meetings may be made and may be available to the public.

# Administrativia

- Charter: http://datatracker.ietf.org/wg/l2sm/charter/
- Mailing List: https://www.ietf.org/mailman/listinfo/l2sm
- We will record conclusions during the meeting
- Minutes:
  - Any other Volunteer?
- Virtual Bluesheet: http://etherpad.tools.ietf.org:9000/p/l2sm-interim-2017-05-25-bluesheet

# Agenda

- Administrivia and Agenda Bash - (Chairs,5min)

- WG Status (chairs, 5 min)

- Latest revision of draft-ietf-l2sm-l2vpn-service-model (Authors -10 mins)
  - summary of changes

- Discussion of outstanding issues (Authors)
  - 1. Customer Information
  - 2. Relation between Customer Service Model and Service Delivery Model
  - 3. Revisit all protocol-specific parameters
  - 4. UNI position in the network
  - 5. CE Provider Managed or CE Customer Managed?
  - 6. How do we better model signaling option?
  - 7. The relation between UNI, EVC, OVC, Site, Network Access
  - 8. Multicast Support
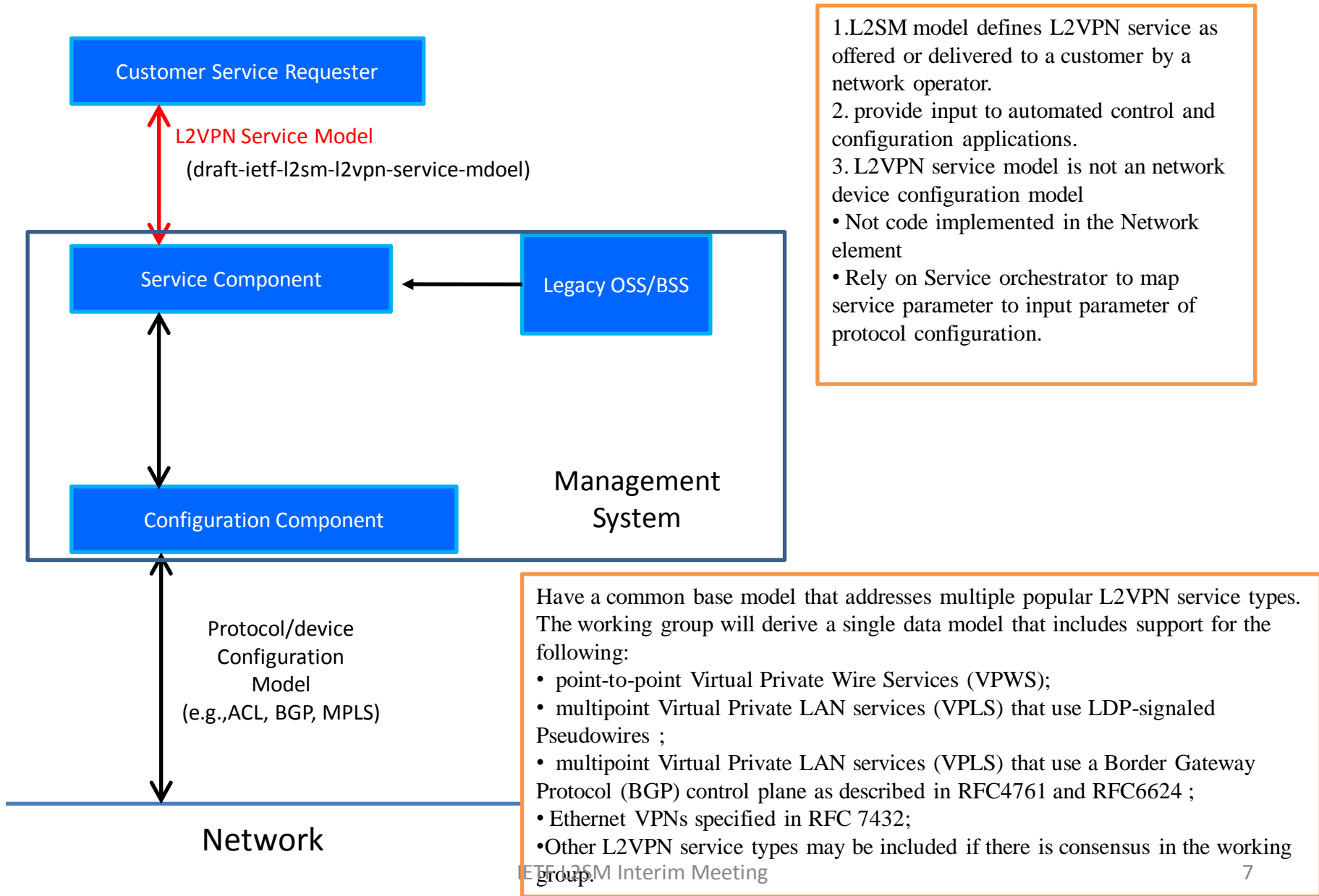  - 9. H-VPLS Support

- Next steps (Chairs)

# Deliver L3SM work in OPS area

- L3SM WG  has  drived operators to **successfully** deliver L3SM work in February 2017 and published it as RFC8049.
  - Thanks for many vendor and operators inputs on various VPN scenarios such as Vendors ALU, Nokia, Juniper, Huawei ,Cisco,Tail-F and operators DT, Bell, China Telecom, China Mobile.

# Kick off L2SM work since IETF97 meeting

- Milestone
  - Oct 2017 L2VPN Service (YANG) Model to the IESG for publication as Proposed Standard RFC
- Document status
  - Initial version of I-D by L2SM design Team comprising 4 operators before Seoul
    - draft-wen-l2sm-l2vpn-service-model-04
    - Four revisions issued
  - 1st L2SM meeting (IETF97) in Seoul
    - Discussed relationship with MEF
    - Discuss L2SM Charter and the Definition of Customer Service Model
    - Discuss L2SM Design Team work and several open issues.
  - Adopted L2sm draft in Feb 21 after Seoul Meeting
    - Two WG adoption calls on v-03 and v-04 of L2SM draft draft-wen-l2sm-l2vpn-service-model
    - V-04 adds usage example and change model structure to get in line with L3SM WG document (RFC8049)
  - No Face to face L2SM meeting in Chicago. But Design Team members in Chicago has a short meeting with the following actions:
    - Move the issue tracker from github to the IETF system (Adrian)
    - Edit and post revisions of the document (Giuseppe)

# Purpose and Focus of L2SM

Customer Service Requester

**L2VPN Service Model**
(draft-ietf-l2sm-l2vpn-service-mdoel)

Service Component

Legacy OSS/BSS

Configuration Component

Management System

Protocol/device
Configuration
Model
(e.g.,ACL, BGP, MPLS)

Network

1.L2SM model defines L2VPN service as offered or delivered to a customer by a network operator.
2. provide input to automated control and configuration applications.
3. L2VPN service model is not an network device configuration model
• Not code implemented in the Network element
• Rely on Service orchestrator to map service parameter to input parameter of protocol configuration.

Have a common base model that addresses multiple popular L2VPN service types. The working group will derive a single data model that includes support for the following:
• point-to-point Virtual Private Wire Services (VPWS);
• multipoint Virtual Private LAN services (VPLS) that use LDP-signaled Pseudowires ;
• multipoint Virtual Private LAN services (VPLS) that use a Border Gateway Protocol (BGP) control plane as described in RFC4761 and RFC6624 ;
• Ethernet VPNs specified in RFC 7432;
•Other L2VPN service types may be included if there is consensus in the working group.

# Open Issue List

- Customer Information
- Relation between Customer Service Model and Service Delivery Model
- Revisit all protocol-specific parameters
- CE Provider Managed or CE Customer Managed?
- How do we better model signaling option?
- UNI/OVC/EVC position in the network
- The relation between UNI, EVC, OVC, Site, Network Access
- Multicast Support
- H-VPLS Support

# Open issue 1: Customer Information

- Suppose we have multiple customer and multiple VPN service, which VPN service belong to which customer is not clear in

  [I.D-ietf-l2sm-l2vpn-service-model-00]

- Proposal:

  – Merged customer info into 'vpn-svc' list under 'vpn-services' container and remove customer operation center related parameters in v-(01).

# Open Issue 2: Relation between Customer Service Model and Service Delivery Model

- In Seoul meeting, one issue raised is to decouple customer service model from service delivery model

- Discuss with YANG model classification authors Dean and reach agreement on how to update YANG model classification draft

- And will update draft-wu-opsawg-service-model-explained-05 to align with draft-ietf-netmod-yang-model-classification-07.

# Open Issue 3: Revisit all protocol-specific parameters

- In Seoul meeting, one issue raised is about whether all protocol-specific parameters are needed.

- We believe protocol specific parameters are needed which will help generate input parameter of protocol configuration on the underlying network devices.

- We will double check all these protocol specific parameters in the next revision.

# Open Issue 4: UNI/EVC/OVC position in the network

- UNI is described as being between C and CE in the figure 3 and figure 4 which is not consistent with MEF specification such as mef 7.1

- EVC starts from one CE and terminate at another CE which is not correct since EVC is association of multiple UNIs.

- Proposal:
  - Fixed in the v(-01)

# Open Issue 5: CE Provider Managed or CE Customer Managed?

- In the current model, the CE can be either managed by Provider or by Customer or both.

- The text claims that "CE Provider Managed" is the most common case. I even wonder whether there is a mis-definition of CE such that a CE in this context is a dumb Ethernet switch and not an edge router with an Ethernet (or virtual) port. (Adrian??)

- Suggestion?

# Open Issue 6: How do we better model signaling option?

- Signaling option
  - LDP based Signaling and BGP based Auto Discovery (both)
  - BGP based Signaling and Auto discovery (Kompella)
  - LDP based Signaling with manual provision (martini)
- L2VPN Classification
  - L2VPN
    - VPWS
    - PWE3
    - VPLS
  - EVPN
    - Base EVPN
    - PBB Based EVPN
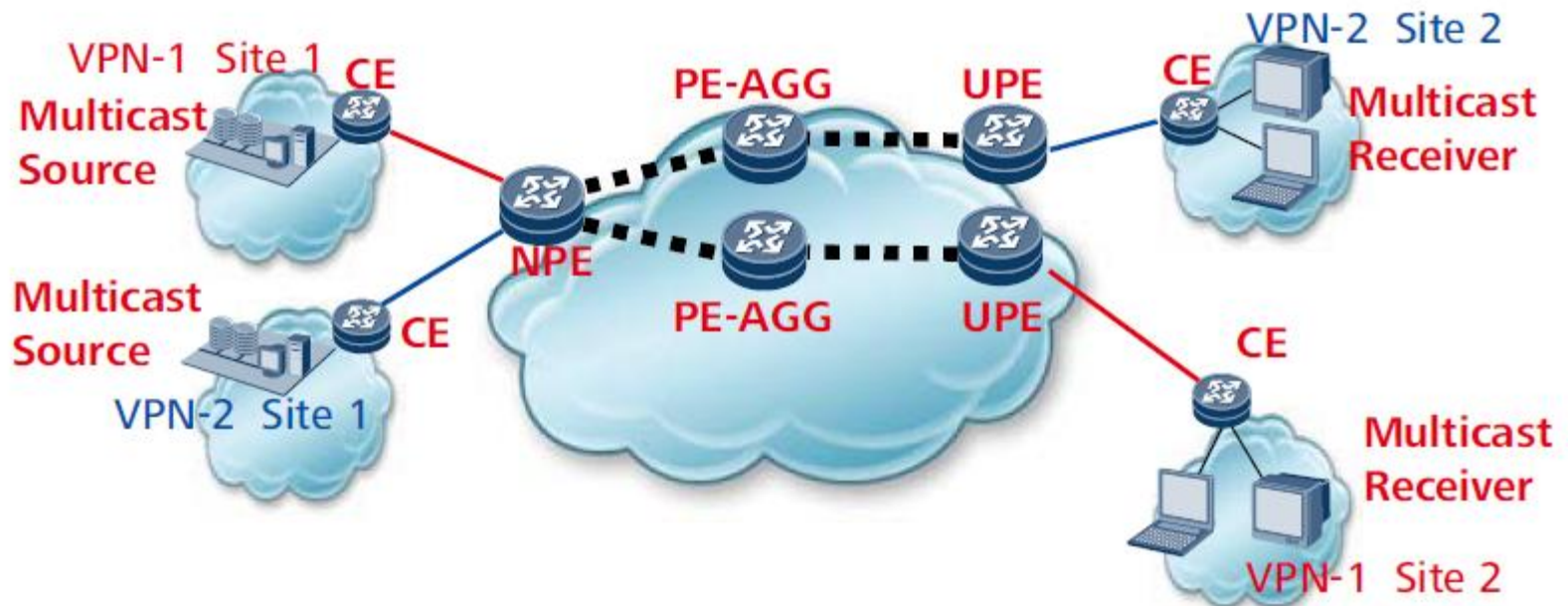
# Open Issue 7:

## The relation between UNI, EVC, OVC, Site, Network Access

- One single UNI might have multiple EVC
- One EVC composes of multiple OVC.
- One site might contain multiple Site Network Accesses, Each Site Network Access corresponds to one connection.
- Therefore:
  - OVC = Site Network Access
  - UNI is closely related to Site concept defined in RFC8049.
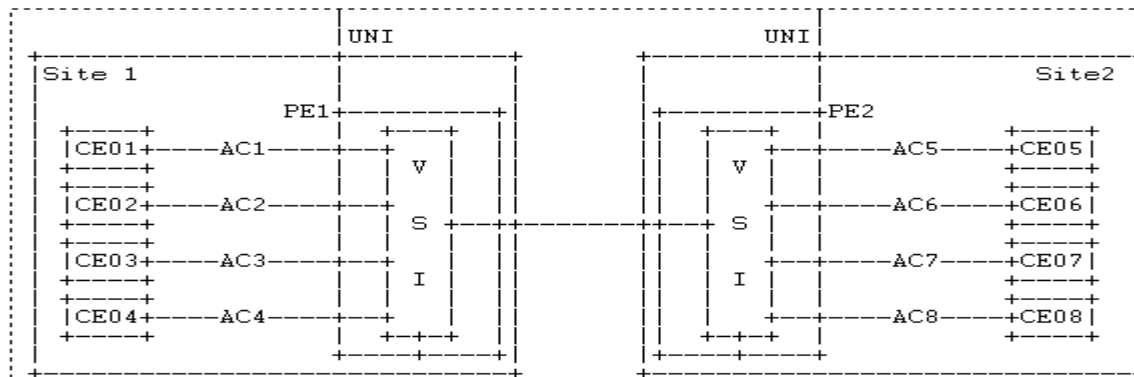
# Open Issue 8: Multicast Support

- Multicast VPN is a technology transmits muticast data between different sites in MPLS/BGP VPN based on encapsulation of the multicast protocol
- Does L2VPN needs to support multicast?
  - E-Tree supports root-leaf communication with multicast support
  - E-Tree also supports root-root communication with multicast support

# Open Issue 9: H-VPLS Support

- The difference between VPLS and H-VPLS is H-VPLS adds a switch which usually called User facing PE (u-PE) between network PE (n-PE) and customer edge (CE).
- The connection between this u-PE (User facing PE) to n-PE (network facing PE) can use Q-in-Q.
- The connection between n-PE needs to be setup first.
- Do we need to support H-VPLS in L2VPN Service Model?

n-PE1

102.102.102.102

u-PE1

P1

n-PE3

101.101.101.101

104.104.104.104

n-PE2

103.103.103.103