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Z. Fu  
T. . Zhu  
H. Ren  
Huawei Technologies  
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L2VPN VPWS Seamless with EVPN VPWS over SRv6  
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## Abstract

This document provides a solution for migrating L2VPN virtual private wire service (VPWS) to Ethernet VPN Virtual Private wire service (EVPN-VPWS) over SRv6. The service provider may want to migrate L2VPN VPWS to EVPN-VPWS, and deploy EVPN-VPWS over SRv6 network. When co-existing of EVPN-VPWS over SRv6 network and a legacy L2VPN VPWS over MPLS/IP network, the next hop of the EVPN Ethernet-AD per EVI route is different from the nexthop of VPWS AD routes or the source of LDP-LM message of the legacy L2VPN VPWS. As a result, whether the pseudowire of the EVPN VPWS and legacy L2VPN VPWS is same cannot be identified by the next hop of the EVPN Ethernet-AD per EVI route and VPWS AD routes or LDM messages. This document provides a solution to identify whether the pseudowire of EVPN VPWS is same with the pseudowire of L2VPN VPWS, which allows migrating VPWS to EVPN-VPWS under the same vpn instance but over different network.

## Requirements Language

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC2119].

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#### 1. Introduction

In a scenario where a legacy L2VPN VPWS migrate to an EVPN VPWS [RFC8214] Over SRv6, in figure1, the Compsite PE1 [I-D.brissette-bess-evpn-vpws-seamless] sends LDP-LM message[RFC4761]/VPWS AD routes [RFC4762] and EVPN Ethernet-AD per EVI route at the same time. When the Compsite PE2 receives the LDP-LM message/VPWS AD routes and EVPN Ethernet-AD EVI routes, PE2 use the EVPN Ethernet-AD per EVI route highly proirity.

In an EVPN VPWS over MPLS scenario, sevice provider could configure the next hop of the EVPN Ethernet-AD per EVI route to be the same as the source address of the LDP-LM message/VPWS AD route to identify the source. However, in the EVPN VPWS over SRv6 scenario, the next hop of the EVPN Ethernet-AD per EVI is an IPv6 address, which is different from the source address of the LDP-LM message/VPWS AD route. The [I-D.brissette-bess-evpn-vpws-seamless] does not describe the corresponding solution. Therefore, a solution needs to be provided to identify that LDP-LM message/VPWS AD route and EVPN Ethernet-AD per EVI routes come from the same device.

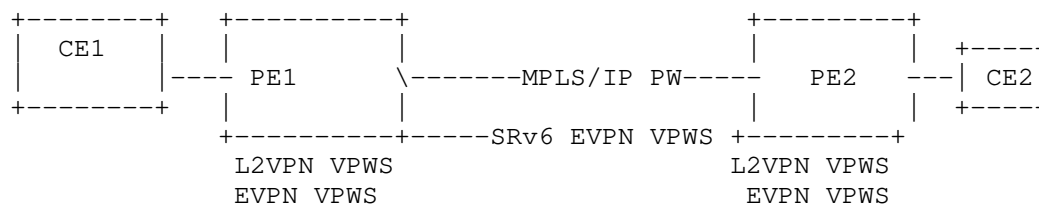


Figure 1

## 2. Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in BCP14 [RFC2119] [RFC8174] when, and only when, they appear in all capitals, as shown here.

"PE": Provider edge device. It is a unique access point for users to access the carrier network.

"AC": A physical or logical link. It is used to connect a user edge device and a PE device.

## 3. L2VPN VPWS Origin IP Extended Community

This documents defines a new extended community, to be included with per-EVI Ethernet A-D routes.

The L2VPN VPWS Origin IP extended community defined here is defined as follows:

```

  0 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7 0 1 2 3 4 5 6 7
+-----+-----+-----+-----+-----+-----+-----+-----+
| Type=0x06      | Sub-Type=0x0? | L2VPN VPWS Origin Ip      | ~
+-----+-----+-----+-----+-----+-----+-----+-----+
~               L2VPN VPWS Origin Ip      | reserved          |
+-----+-----+-----+-----+-----+-----+-----+-----+

```

Figure 1: L2VPN VPWS Origin IP Extended Community

When L2VPN VPWS and EVPN-VPWS SRv6 are in the same VPN instance, PE1 advertises the EVPN Ethernet-AD per EVI route and LDP-LM message/VPWS AD route. The source address of pseudowire which the L2VPN VPWS establishes can be obtained by EVPN VPWS instance. Thus the EVPN Ethernet-AD per EVI route carries the L2VPN VPWS Origin IP extended community attribute. After receiving the LDP-LM message/VPWS AD route and EVPN Ethernet-AD per EVI route, PE2 compares the L2VPN VPWS

Origin IP attribute in the EVPN Ethernet-AD per EVI route with the source IP address of the LDP-LM message/VPWS AD route. If the result is same, LDP-LM message/VPWS AD route and EVPN Ethernet-AD per EVI route are from the same device.

#### 4. Control plane processing

In Figure 1, PE1 and PE2 procedures are as follow:

1. In compsite PE1, L2VPN VPWS and EVPN VPWS SRv6 are in the same VPN instance, the EVPN VPWS instance obtains the source address of the L2VPN VPWS. And PE1 MUST send EVPN Ethernet-AD per EVI route with the L2VPN VPWS Origin IP extended community attribute.
2. The compsite PE2 receives the LDP-LM message/VPWS AD route from PE1, it set up a L2VPN VPWS PW to that PE.
3. The compsite PE2 receives the EVPN Ethernet-AD per EVI route with L2VPN VPWS Origin IP extended commuinty attribute, PE2 gets the value of the L2VPN VPWS Origin IP extended community attribute from EVPN Ethernet-AD per EVI route, PE2 check the value of the L2VPN VPWS Origin IP extended community whether is same with the source IP address from the received LDP-LM message/VPWS AD route or not. If the result is same, which means EVPN Ethernet-AD per EVI route from the same PE, PE2 may bring the L2VPN PW operationally down, and should select EVPN Ethernet-AD per EVI route high proirity, and set the pseudowire up which is established by EVPN VPWS.

#### 5. IANA considerations

TBD

#### 6. Security Considerations

TBD

#### 7. References

[I-D.brissette-bess-evpn-vpws-seamless]

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## Authors' Addresses

Zheng Fu  
Huawei Technologies  
No.101 Software Avenue, Yuhuatai District  
Nanjing  
210012  
China  
Email: fuzheng7@huawei.com

Tong Zhu  
Huawei Technologies  
No.101 Software Avenue, Yuhuatai District.  
Nanjing  
210012  
China  
Email: zhu.tong@huawei.com

HuaJun Ren  
Huawei Technologies  
No.101 Software Avenue, Yuhuatai District  
Nanjing  
210012  
China  
Email: renhuaajun@huawei.com