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EVPN ELAN use of Control Words
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Abstract

This document describes a method for negotiating and using EVPN control words for ELAN service.

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 [RFC 2119](#) [[RFC2119](#)].

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[1.](#) Introduction

The usage of control words for Layer 2 services is described in [RFC 7432](#) [[RFC7432](#)] and in some drafts on traditional VPLS but these documents do not explain how to deploy and negotiate control words. According to these documents, control words can only be used if all devices have control words enabled. If one of the devices does not have the control word enabled, that device cannot communicate with the other devices.

[RFC 8214](#) [[RFC8214](#)] defines the EVPN VPWS service and describes the negotiation process for the use of control words. However, the negotiation process described is only applicable to a P2P service such as VPWS, and is not applicable to an MP2MP service such as VPLS.

This documents aims to define a control word negotiation and usage mechanism in an EVPN ELAN scenario.

[2.](#) Control word Next-Hop Dependent Capability

The Control Word Next-Hop Capability has type code TBD and a length of 0 or 3 octet.

The inclusion of the "Control word" Next-Hop Capability indicates that the BGP Next-Hop can be sent packets, for all routes indicated in the NRLI, with a control word added immediately after the label

stack advertised with the NLRI.

When the receiver receives a route that carries the capability, it can decide whether to add the control word to the packet according to its local capability.

[3.](#) The Control Plane Process

The egress router needs to use the control word indicator label to determine whether there is a control word in the packet.

There are two methods to specified the control word indicator label:

The first method is to apply for a reserved label to indicate whether the packet contains a control word;

The second method is to apply for a new label when the sending router advertises the control word capability, which is used to indicate whether the control word is included in the packet.

When the value of the control word capability length is 0, it means we should use a reserved label as the control word indication label, which needs be assigned by IANA.

If the value of the control word capability length is 3, the sending router must apply a new label to act as the control word indication label.

Either of the above two methods can be used, and the first method is recommended.

[4.](#) The Data Plane Process

The ingress router receives the routes with the control word capability attribute and, if the ingress router supports the control word capability and allows the control word capability to be carried when forwarding traffic to the egress router, a control word indicator label is added at the label stacks' bottom and then a 4-byte control word is added. If the ingress router does not support the control word capability or does not recognize the control word capability, the ingress router maintains the message consistent with the previous behavior when forwarding the packet to the egress

router.

When the egress router receives a packet from the MPLS network and finds a control word indication label in the packet, it means that the packet contains a control word, so the egress router does the control word process.

[5.](#) Other Considerations

For the VXLAN and SRv6 networks, the current hash rule does not have the problem of Layer 2 services in the MPLS network. Therefore, no

support is required. If the attribute is received, it can be ignored.

[6.](#) IANA Considerations

TBD

[7.](#) Security Considerations

TBD

[8.](#) Acknowledgements

TBD

[9.](#) Normative References

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