                          discreet VLAN-X AF
                   draft-umair-trill-discreet-vlanx-af-00

Abstract

   According to RFC 7176, DRB on a link uses the Appointed Forwarders
   sub-TLV to inform other ISs on the link that they are the designated
   VLAN-x forwarder for one or more ranges of VLAN IDs. Appointed
   Forwarders sub-tlv has Appointed Information field which carries
   information about Appointee Nickname, Start.VLAN and End.VLAN. Both
   Start.VLAN and VLAN.end to the same value indicates a range of one
   VLAN ID, if they are different then the Appointed RBridge is AF for
   that range of VLAN ID's. If end-station's VLAN's are configured in
   discontiguous/discreet [1,3,5,7 etc] way then DRB has to send
   Appointed Information equal to number of Discreet VLAN's Appointed
   for a particular RBridge. The problem will worsen if huge number of
   endstation VLAN's are discreet. This paper is an attempt to handle
   such scenarios.

Status of this Memo

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1 Introduction

TRILL supports multi-access LAN (Local Area Network) links that can
have multiple end stations and RBridges attached. Where multiple
RBridges are attached to a link, native traffic to and from end
stations on that link is handled by a subset of those RBridges called
"Appointed Forwarders", with the intent that native traffic in each
VLAN be handled by at most one RBridge. An RBridge can be Appointed
Forwarder for many VLANs.

The purpose of this document is to improve the operation of Appointed
Forwarder mechanism, when the end-station VALN's are discreet.

1.1 Terminology

IIH - IS-IS Hello

IS - Intermediate System (for this document, all relevant
intermediate systems are RBridges)

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].

2. Appointed Forwarders Sub-TLV

The DRB on a link uses the Appointed Forwarders sub-TLV to inform
other ISs on the link that they are the designated VLAN-x forwarder
for one or more ranges of VLAN IDs as specified in Section 4.2.4 of
[RFC6325]. It has the following format:


```
       +-+-+-+-+-+-+-+-+
       |    Type       |                   (1 byte)
       +-+-+-+-+-+-+-+-+
       |   Length      |                   (1 byte)
       +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
       |   Appointment Information (1)      | (6 bytes)
       +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
       |   ................                 |
       +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
       |   Appointment Information (N)      | (6 bytes)
       +-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

where each appointment is of the form:

```
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|        Appointee Nickname           |  (2 bytes)
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|DAF|   DAI    |       Start.VLAN     |  (2 bytes)
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
| RESV         |       End.VLAN       |  (2 bytes)
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

o Type: sub-TLV type, set to MT-PORT-CAP AppointedFwrdrs sub-TLV 3.

o Length: 6*n bytes, where there are n appointments.

o Appointee Nickname: The nickname of the IS being appointed a forwarder.

o Start.VLAN, End.VLAN: These fields are the VLAN IDs of the appointment range, inclusive. To specify a single VLAN, the   VLAN's ID appears as both the start and end VLAN. As specified in   Section 4.4 of [RFC6325], appointing an IS forwarder on a port for   a VLAN not enabled on that port has no effect.

o DAF: This flag bits have the following meanings when set to one

```
        Bit      Meaning if bit is one
      ----------------------------------------------------------

       DAF      Is one bit feild, if its set to one means
                Discreet VLAN-X AF distribution is supported.
```

DAI: Discreet Appointed Information is a 3 bit field.Value Zero indicates VLAN's in range are continuous. Value other the Zero indicates, VLAN's in range are discreet. The Difference between the VLAN's in range is equal to the value of the field.

Example: If endstation VLAN's are 1,3,5,7,9,11,13,15,17,19. and two edge RBridges have to share AF's between them. DRB can take VLAN share of 1,3,5,7 and 9. and can assign VLAN's 11,13,15,17 and 19 as AF to the other edge RBridge by setting DAI to 1, start VLAN to 11 and end VLAN to 19.

similarly if endstation VLAN's are 1,4,7,10,13,16,19,22,25,28. DRB

can take VLAN share of 1,4,7,10 and 13. and can assign VLAN's
16,19,22,25 and 28 as AF to the other edge RBridge by setting DAI to
2, start VLAN to 16 and end VLAN to 28.

o RESV: 4 bits that MUST be sent as zero and ignored on receipt.

An IS's nickname may occur as appointed forwarder for multiple
VLAN   ranges by occurrences of this sub-TLV within the same or
different MT   Port Capability TLVs within an IIH PDU.

3. Backward compatibility

The above changes should be backward compatible.

4. Security Considerations

This Memo does not change the security considerations of TRILL base protocol.

5. IANA Considerations

No such consideration.

6. References

Normative and Informative References are given below.

6.1. Normative References

[RFC6325] Perlman, R., Eastlake 3rd, D., Dutt, D., Gai, S., and A. Ghanwani, "Routing Bridges (RBridges): Base Protocol Specification", RFC 6325, July 2011.

[RFC 7176] - D. Eastlake 3rd, T.Senevirathne, A. Ghanwani, D. Dutt and A. Banerjee "Transparent Interconnection of Lots of Links (TRILL) Use of IS-IS", RFC 7176, May 2014

6.2. Informative References

No references

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