

RSVP-TE Extensions for Bit Error Rate (BER) Measurement

draft-zhang-ccamp-rsvpte-ber-measure-00

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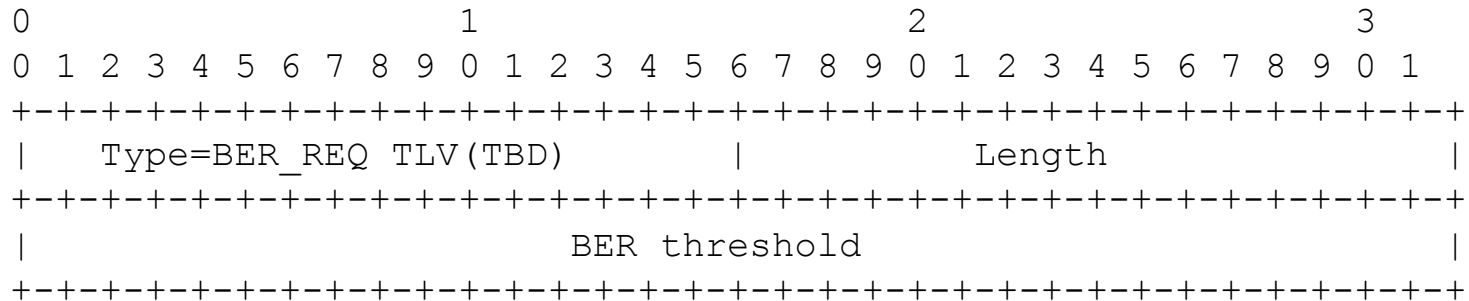
Introduction

- Bit Error Rate (BER) is a significant parameter for Mobile Backhaul Service
- In IP/MPLS Mobile Backhaul Network, MPLS TE LSP is used to carry the mobile service, which maybe encapsulated in PW or L3VPN end to end
- MPLS TE Hot-standby is always used for traffic protection. The protection switch is always triggered by the failure detection.
- BER measurement requirement should be advertised to all of the LSRs of the MPLS TE LSP, and the BER measurement result need to report to the ingress LSR. It can be used for protection switch.
- Here, we propose two extensions of RSVP-TE
 - to advertise the BER measure requirement of the specific LSP to its transit LSRs and egress LSR
 - and to report the BER measurement result from any transit or egress LSR towards the ingress LSR

RSVP-TE extension (1)

- BER_REQUEST TLV

LSP_ATTRIBUTES Class=197, C-Type=1
Type=TBD, BER_REQ TLV



- Procedure
 - RSVP-TE Path Message SHOULD be sent with BER_REQUEST TLV to advertise the BER measurement requirement to the transit LSRs and egress LSR
 - If a LSP dose not require BER measurement anymore, a Path Message without BRE_REQUEST TLV SHOULD be sent
 - The LSR receiving the Path Message with BER_REQUEST TLV will start BER measurement for this LSP with the threshold value set in the TLV

RSVP-TE extension (2)

- Error code of BER measurement report

| Error code | Error value | Description |
|------------------------------|-------------|-----------------------|
| TBD "BER measurement report" | 0 | bit error elimination |
| | 1 | bit error indication |

- Procedure
 - when the BER measurement value exceeds the threshold, a PathErr Message MUST be sent towards the ingress LSR of the LSP with the BER Error Code with Error Value 1 for bit error indication
 - When the BER measurement value is less than the threshold, the LSR MUST send a PathErr Message with BER Error Value 0 for bit error elimination

Procedures

- Send BER measurement requirement: RSVP-TE Path Message will be sent with BER_REQUEST TLV, which is a new attribute TLV of LSP_ATTRIBUTE object. BER_REQUEST TLV will indicate the BER threshold of the specific LSP
- Receive BER measurement requirement: when a LSR receives the Path Message with BER_REQUEST TLV, it will start BER measurement for this LSP.
- Report BER measurement result: for a LSR, if the BER measurement value exceeds the threshold of a specific LSP, a PathErr Message MUST be sent towards the ingress LSR with BER Error Code with value 1 for bit error indication ; if the BER measurement value becomes less than the threshold, a PathErr Message with BER Error code with value 0 for bit error elimination MUST be sent towards the ingress LSR

Next Steps

- Multi-point BRE measurement will be discussed later
- Solicit comments and feedback