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RSVP-TE Extension for Additional Signal Types in G.709 Optical Transport Networks (OTNs)

Abstract

RFCs 4328 and 7139 provide signaling extensions in Resource ReserVation Protocol - Traffic Engineering (RSVP-TE) to control the full set of Optical Transport Network (OTN) features. However, these specifications do not cover the additional Optical channel Data Unit (ODU) containers defined in G.Sup43 (ODU1e, ODU3e1, and ODU3e2). This document defines new Signal Types for these additional containers.

Status of This Memo

This document is not an Internet Standards Track specification; it is published for informational purposes.

This document is a product of the Internet Engineering Task Force (IETF). It represents the consensus of the IETF community. It has received public review and has been approved for publication by the Internet Engineering Steering Group (IESG). Not all documents approved by the IESG are a candidate for any level of Internet Standard; see Section 2 of RFC 7841.

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1. Introduction

[RFC7139] updates the portions of text related to the Optical channel Data Unit (ODU) described in [RFC4328] to provide extensions to Resource ReserVation Protocol - Traffic Engineering (RSVP-TE) to support control for [G.709-v3] in the OTN-TDM SENDER_TSPEC and OTN-TDM FLOWSPEC objects. However, it does not specify Signal Types for the ODU1e, ODU3e1, and ODU3e2 containers defined in [G.Sup43]. This document provides RSVP-TE signaling extensions to support these additional Signal Types.

These containers are non-standard data-plane frame formats (not defined in ITU-T Recommendations). They are among some of the intra-domain approaches used in networks to transport 10GBASE-R signals in optical transport networks. As a supplement, [G.Sup43] does not guarantee interoperability in the data plane for these containers.

2. RSVP-TE Extension for Additional Signal Types

[RFC7139] defines the format of Traffic Parameters in OTN-TDM SENDER_TSPEC and OTN-TDM FLOWSPEC objects. These traffic parameters have a Signal Type field. This document defines the Signal Types for ODU1e, ODU3e1, and ODU3e2, as defined in the IANA Considerations section. They are allocated via the Specification Required policy added to the subregistry by [RFC7892].

3. Security Considerations

This document does not introduce any additional security issues beyond those identified in [RFC7139].

4. IANA Considerations

IANA maintains the "Generalized Multi-Protocol Label Switching (GMPLS) Signaling Parameters" registry that contains the "OTN Signal Type" subregistry. IANA has added the following three allocations for ODU1e, ODU3e1, and ODU3e2 in the subregistry via the Specification Required policy [RFC5226]:

Value	Type
23	ODU1e (10Gbps Ethernet [G.Sup43])
26	ODU3e1 (40Gbps Ethernet [G.Sup43])
27	ODU3e2 (40Gbps Ethernet [G.Sup43])

These Signal Types are carried in the Traffic Parameters in OTN-TDM SENDER_TSPEC and OTN-TDM FLOWSPEC objects [RFC7139].

5. References

5.1. Normative References

[RFC4328] Papadimitriou, D., Ed., "Generalized Multi-Protocol Label Switching (GMPLS) Signaling Extensions for G.709 Optical Transport Networks Control", RFC 4328, DOI 10.17487/RFC4328, January 2006, <http://www.rfc-editor.org/info/rfc4328>.

[RFC7139] Zhang, F., Ed., Zhang, G., Belotti, S., Ceccarelli, D., and K. Pithewan, "GMPLS Signaling Extensions for Control of Evolving G.709 Optical Transport Networks", RFC 7139, DOI 10.17487/RFC7139, March 2014, <http://www.rfc-editor.org/info/rfc7139>.

[RFC7892] Ali, Z., Bonfanti, A., Hartley, M., and F. Zhang, "IANA Allocation Procedures for the GMPLS OTN Signal Type Registry", RFC 7892, DOI 10.17487/RFC7892, May 2016, <http://www.rfc-editor.org/info/rfc7892>.

5.2. Informative References

[G.709-v3] ITU-T, "Interfaces for the optical transport network", Recommendation G.709/Y.1331, June 2016.

[G.Sup43] ITU-T, "Transport of IEEE 10GBASE-R in optical transport networks (OTN)", Recommendation G.Sup43, February 2011.

[RFC5226] Narten, T. and H. Alvestrand, "Guidelines for Writing an IANA Considerations Section in RFCs", BCP 26, RFC 5226, DOI 10.17487/RFC5226, May 2008, <http://www.rfc-editor.org/info/rfc5226>.

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