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Ethernet linear protection switching with dual node interconnection

ITU-T G-series Recommendations – Supplement 60

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Supplement 60 to ITU-T G-series Recommendations

Ethernet linear protection switching with dual node interconnection

Summary

Supplement 60 to ITU-T G-series Recommendations describes potential solutions to support dual node interconnection (DNI) based on the ITU-T G.8031 Ethernet linear protection switching to support resilient interconnection with an adjacent recovery domain. Other viable means of supporting dual node interconnection for Ethernet are known to exist. This Supplement is intended to give examples based on Recommendation ITU-T G.8031 only.

History

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Supplement 60 to ITU-T G-series Recommendations

Ethernet linear protection switching with dual node interconnection

1 Scope

Supplement 60 to ITU-T G-series Recommendations describes potential solutions to support dual node interconnection (DNI) based on the ITU-T G.8031 Ethernet linear protection switching, inside a recovery domain. The dual node interconnection is between this recovery domain, which can be protected by one of the Ethernet linear protection-based mechanisms described in this Supplement, and an adjacent recovery domain via two nodes. This Supplement describes only solutions where the traffic between these two recovery domains passes through the same node in both directions. Description of the survivability mechanism within the adjacent recovery domain is outside the scope of this Supplement.

2 References

- [ITU-T G.808] Recommendation ITU-T G.808 (2016), *Terminology for protection and restoration*.
- [ITU-T G.808.1] Recommendation ITU-T G.808.1 (2014), *Generic protection switching – Linear trail and subnetwork protection*.
- [ITU-T G.7701] Recommendation ITU-T G.7701 (2016), *Common control aspects*.
- [ITU-T G.8013] Recommendation ITU-T G.8013/Y.1731 (2015), *Operations, administration and maintenance (OAM) functions and mechanisms for Ethernet-based networks*.
- [ITU-T G.8031] Recommendation ITU-T G.8031/Y.1342 (2015), *Ethernet linear protection switching*.
- [ITU-T G.8081] Recommendation ITU-T G.8081/Y.1353 (2012), *Terms and definitions for automatically switched optical networks*.

3 Definitions

3.1 Terms defined elsewhere

This Supplement uses the following terms defined elsewhere:

- 3.1.1 transfer time, T_t :** [ITU-T G.808.1]
- 3.1.2 shared risk group (SRG):** [ITU-T G.8081]
- 3.1.3 recovery domain:** [ITU-T G.7701]

3.2 Terms defined in this Supplement

This Supplement defines the following terms:

- 3.2.1 dual node interconnection:** An architecture where two interconnected nodes provide node resiliency at the boundary between two recovery domains.
- 3.2.2 adjacent recovery domain:** A recovery domain adjacent to the Ethernet linear protection DNI domain.
- 3.2.3 Ethernet linear protection DNI domain:** A recovery domain where one of the solutions described in this Supplement is used to support reliable transfer of information.

4 Abbreviations and acronyms

This Supplement uses the following abbreviations and acronyms:

APS	Automatic Protection Switching
CCM	Continuity Check Message
DNI	Dual Node Interconnection
EDNI	Ethernet linear protection DNI
ETH	Ethernet layer network
FS	Forced Switch
LO	Lockout of protection
LOC	Loss of Continuity
MEP	Maintenance Entity Group End Point
NR	No Request
OAM	Operation, Administration and Maintenance
SNC	Subnetwork Connection
SNC/S	Subnetwork Connection with Sublayer monitoring
SRG	Shared Risk Group
SF-V	Signal Fail on the vertical path
SF-W	Signal Failure on the working path
TSF	Trial Signal Fail

5 Conventions

The terms bridge, permanent bridge, selector bridge, selector and selective selector, are used in this Supplement as defined in [ITU-T G.808] without qualifying the input and output signals as normal signal or working/protection transport entities.

6 Introduction

Ethernet linear protection switching with dual node interconnection involves using three distinct points: node N1 is an end point behaving as defined in [ITU-T G.8031], and nodes N2 and N3 are interconnection points that provide node resiliency at the boundary between the two recovery domains. This is illustrated in Figure 6-1. The protection mechanism used within the Ethernet linear protection dual node interconnection (DNI) domain is based on 1:1 SNC/S linear protection mechanism, as defined in [ITU-T G.8031], with a selector bridge being used in node N1. The traffic in both directions passes through the same interconnection point.