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SERIES G: TRANSMISSION SYSTEMS AND MEDIA,
DIGITAL SYSTEMS AND NETWORKS

Packet over Transport aspects – Mobile network transport
aspects

Architecture of the metro transport network

Recommendation ITU-T G.8310

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Recommendation ITU-T G.8310

Architecture of the metro transport network

Summary

Recommendation ITU-T G.8310 describes the functional architecture of the metro transport network (MTN) using the modelling methodology described in Recommendations ITU-T G.800 and ITU-T G.805. MTN is primarily intended to support transport of distributed radio access network (D-RAN) and cloud radio access network (C-RAN) traffic. The MTN functionality is described from a network level viewpoint, taking into account the client characteristic information, client/server layer associations, networking topology, and layer network functionality that provide multiplexing, routing and supervision of the digital clients.

MTN consists of two non-recursive layers, the MTN path layer, and the MTN section layer. The MTN path layer uses the MTN section layer as its server layer. The MTN path layer provides configurable connection-oriented connectivity. The server layer for the MTN section layer is provided by 50GBASE-R, 100GBASE-R, 200GBASE-R, and 400GBASE-R Ethernet interfaces.

History

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Recommendation ITU-T G.8310

Architecture of the metro transport network

1 Scope

This Recommendation describes the functional architecture of the metro transport network (MTN) using the modelling methodology described in [ITU-T G.800], [ITU-T G.805] for the digital layer networks and [ITU-T G.807] for the optical media network.

The MTN functionality is described from a network-level viewpoint. This takes into account the characteristic information (CI) of the client (Ethernet MAC frames), the client/server layer associations, network topology, the network structure, and the layer network functionalities that provide multiplexing, routing, supervision, performance assessment and network survivability for the client. The digital layers of the MTN use the frame formats defined in [ITU-T G.8312]. The media portion of the network is defined in [IEEE 802.3] and is described, in this Recommendation, in terms of media constructs described in [ITU-T G.807].

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- [ITU-T G.800] Recommendation ITU-T G.800 (2016), *Unified functional architecture of transport networks*.
- [ITU-T G.805] Recommendation ITU-T G.805 (2000), *Generic functional architecture of transport networks*.
- [ITU-T G.807] Recommendation ITU-T G.807 (2020), *Generic functional architecture of the optical media network*.
- [ITU-T G.808.1] Recommendation ITU-T G.808.1 (2014), *Generic protection switching - Linear trail and subnetwork protection*.
- [ITU-T G.959.1] Recommendation ITU-T G.959.1 (2018), *Optical transport network physical layer interfaces*.
- [ITU-T G.7712] Recommendation ITU-T G.7712/Y.1703 (2019), *Architecture and specification of data communication network*.
- [ITU-T G.8312] Recommendation ITU-T G.8312 (2021), *Interfaces for the metro transport network*.
- [IEEE 802.3] IEEE Std 802.3 (2018), *IEEE Standard for Ethernet*.
- [OIF FLEXE IA] Optical Internetworking Forum (OIF), *Flex Ethernet Implementation Agreement 2.1* (2019).

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

- 3.1.1 **access point (AP):** See [ITU-T G.805]
- 3.1.2 **adaptation:** See [ITU-T G.805]
- 3.1.3 **adapted information (AI):** See [ITU-T G.805]
- 3.1.4 **characteristic information (CI):** See [ITU-T G.805]
- 3.1.5 **connection supervision:** See [ITU-T G.805]
- 3.1.6 **connection:** See [ITU-T G.805]
- 3.1.7 **connection point:** See [ITU-T G.805]
- 3.1.8 **forwarding point:** See [ITU-T G.800]
- 3.1.9 **forwarding end point:** See [ITU-T G.800]
- 3.1.10 **layer network:** See [ITU-T G.805]
- 3.1.11 **link:** See [ITU-T G.805]
- 3.1.12 **optical tributary signal (OTSi):** See [ITU-T G.959.1]
- 3.1.13 **optical tributary signal group (OTSiG):** See [ITU-T G.807]
- 3.1.14 **subnetwork:** See [ITU-T G.805]
- 3.1.15 **topological component:** See [ITU-T G.805]
- 3.1.16 **transport entity:** See [ITU-T G.800]
- 3.1.17 **transport processing function:** See [ITU-T G.805]

3.2 Terms defined in this Recommendation

None.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

AI	Adapted Information
AIS	Alarm Indication Signal
AP	Access Point
CI	Characteristic Information
CP	Connection Point
C-RAN	Cloud Radio Access Network
D-RAN	Distributed Radio Access Network
ETH	Ethernet MAC layer
FEC	Forward Error Correction
FlexE	Flex Ethernet
FP	Forwarding Point