International Telecommunication Union

ITU-T G.8275/Y.1369

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Amendment 1

(01/2015)

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

Packet over Transport aspects – Synchronization, quality and availability targets

SERIES Y: GLOBAL INFORMATION INFRASTRUCTURE, INTERNET PROTOCOL ASPECTS AND NEXT-GENERATION NETWORKS

Internet protocol aspects – Transport

Architecture and requirements for packet-based time and phase distribution

Amendment 1

Recommendation ITU-T G.8275/Y.1369 (2013) – Amendment 1

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Recommendation ITU-T G.8275/Y.1369

Architecture and requirements for packet-based time and phase distribution

Amendment 1

Summary

Amendment 1 to Recommendation ITU-T G.8275/Y.1369 (2013) adds material on assisted partial timing support.

History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T G.8275/Y.1369	2013-11-22	15	11.1002/1000/12011
1.1	ITU-T G.8275/Y.1369 (2013) Amd. 1	2015-01-13	15	11.1002/1000/12396

* To access the Recommendation, type the URL http://handle.itu.int/ in the address field of your web browser, followed by the Recommendation's unique ID. For example, http://handle.itu.int/11.1002/1000/11830-en.

FOREWORD

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The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at http://www.itu.int/ITU-T/ipr/.

Recommendation ITU-T G.8275/Y.1369

Architecture and requirements for packet-based time and phase distribution

Amendment 4

1) Abbreviations and acronyms

Add the following abbreviations to clause 4:

APTS Assisted Partial Timing Support

APTSC Assisted Partial Timing Support Clock

PTS Partial Timing Support

2) Clause 7

2.1) Update to referencing text on assisted partial timing support

Replace the following text in clause 7.1:

The architecture described in this Recommendation describes the case where all of the nodes in the transmission path will provide timing support by participating in the timing protocol. This is termed "full timing support to the protocol level" (see [ITU-T G.8260]).

The current version of this Recommendation describes an architecture for this case (full timing support to the protocol level), where all the intermediate nodes are T-BCs with physical layer frequency support. Transparent clocks are being studied and may be included in future versions of this Recommendation.

Other architectures where not all of the nodes need to provide timing support by participating in the timing protocol are for further study and may be included in future versions of this Recommendation. This is termed "partial timing support to the protocol level" (see [ITU-T G.8260]). These are for further study. Some initial considerations for this topic are documented in Appendix I.

With:

The architecture described in this Recommendation describes two cases; the first case is where timing support is provided by all nodes in the network (e.g., T-BCs) with physical layer frequency support ("full timing support to the protocol level" (see [ITU-T G.8260]) and the second case is where intermediate nodes do not provide timing support, but timing support is provided by GNSS at the network edge, with PTP acting as a backup. This is termed assisted partial timing support (APTS). The node providing support at the edge of the network is called an assisted partial timing support clock (APTSC).

Other architectures where not all of the nodes need to provide timing support by participating in the timing protocol are termed "partial timing support to the protocol level" (PTS) (see [ITU-T G.8260]). Some additional considerations for this topic are documented in Appendix I.

The use of transparent clocks (TCs) are being studied and may be included in future versions of this Recommendation.

2.2) Additional cases to be added covering APTS

Renumber Figure 5 as Figure 5a and replace the following text in clause 7.2.1:

The use of T-GM to distribute phase/time between different cell sites is for further study.

With:

The use of T-GM to distribute phase/time between different cell sites is for further study.

Case E: APTSC at the cell sites with distributed PRTC+GM protection in aggregation sites

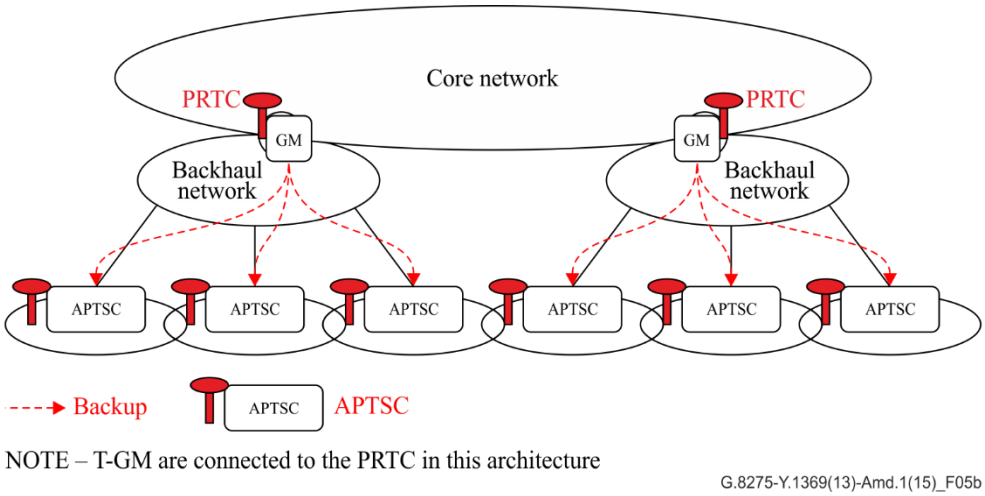

Figure 5b – APTS architecture with PRTC functions distributed in aggregation sites

In this architecture, the APTSC function is located directly at the cell site; in addition PRTC+GMs are located at the aggregation sites and distribute PTP streams to the APTSCs. These PTP streams are used by the APTSC in case of PRTC/GNSS outage. This architecture implies deployment of a higher number of GNSS receivers than in the "centralized PRTC" architectures. But the PTP unaware or partially aware networks can be kept as short as possible in order to decrease the asymmetry and PDV introduced by the network.

Case F: APTSC at the cell sites with distributed PRTC protection at cell sites

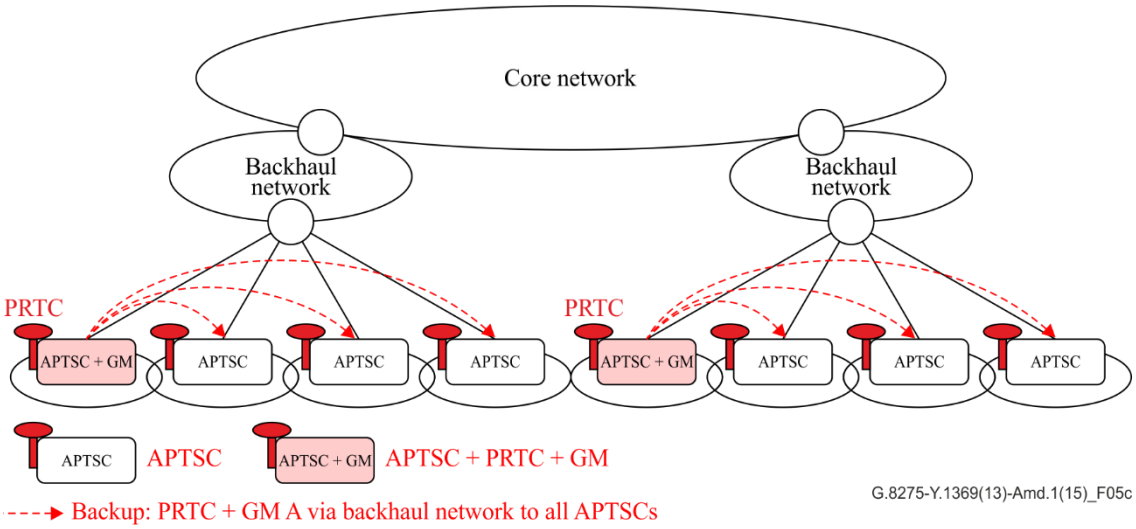

Figure 5c – APTS architecture with PRTC+GM functions distributed at cell sites

In this architecture, the APTSC function is located directly at the cell site; in addition GMs are located at selected cell sites and distribute PTP streams to the adjacent APTSCs. These PTP streams are used by the APTSC in case of a PRTC/GNSS outage. This architecture implies deployment of a higher number of GNSS receivers than in the "centralized PRTC" architectures, but the PTP unaware or partially aware networks can be kept as short as possible in order to decrease the asymmetry and PDV introduced by the network. In addition the GNSS signal available to the APTSC in the cell site is used by the collocated GM.

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