International Telecommunication Union

ITU-T G.8265.1/Y.1365.1

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Amendment 2
(10/2012)

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

Packet over Transport aspects – Quality and availability targets

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

Internet protocol aspects – Transport

Precision time protocol telecom profile for frequency synchronization

Amendment 2

Recommendation ITU-T G.8265.1/Y.1365.1 (2010) – Amendment 2

ITU-T G-SERIES RECOMMENDATIONS

TRANSMISSION SYSTEMS AND MEDIA, DIGITAL SYSTEMS AND NETWORKS

INTERNATIONAL TELEPHONE CONNECTIONS AND CIRCUITS	G.100–G.199
GENERAL CHARACTERISTICS COMMON TO ALL ANALOGUE CARRIER-TRANSMISSION SYSTEMS	G.200–G.299
INDIVIDUAL CHARACTERISTICS OF INTERNATIONAL CARRIER TELEPHONE SYSTEMS ON METALLIC LINES	G.300–G.399
GENERAL CHARACTERISTICS OF INTERNATIONAL CARRIER TELEPHONE SYSTEMS ON RADIO-RELAY OR SATELLITE LINKS AND INTERCONNECTION WITH METALLIC LINES	G.400–G.449
COORDINATION OF RADIOTELEPHONY AND LINE TELEPHONY	G.450–G.499
TRANSMISSION MEDIA AND OPTICAL SYSTEMS CHARACTERISTICS	G.600–G.699
DIGITAL TERMINAL EQUIPMENTS	G.700–G.799
DIGITAL NETWORKS	G.800–G.899
DIGITAL SECTIONS AND DIGITAL LINE SYSTEM	G.900–G.999
MULTIMEDIA QUALITY OF SERVICE AND PERFORMANCE – GENERIC AND USER-RELATED ASPECTS	G.1000–G.1999
TRANSMISSION MEDIA CHARACTERISTICS	G.6000–G.6999
DATA OVER TRANSPORT – GENERIC ASPECTS	G.7000–G.7999
PACKET OVER TRANSPORT ASPECTS	G.8000–G.8999
Ethernet over Transport aspects	G.8000–G.8099
MPLS over Transport aspects	G.8100–G.8199
Quality and availability targets	**G.8200–G.8299**
Service Management	G.8600–G.8699
ACCESS NETWORKS	G.9000–G.9999

For further details, please refer to the list of ITU-T Recommendations.

Recommendation ITU-T G.8265.1/Y.1365.1

Precision time protocol telecom profile for frequency synchronization

Amendment 2

Summary

Amendment 2 to Recommendation ITU-T G.8265.1/Y.1365.1 (2010) adds support for IPv6 mapping, clarifies certain precision time protocol (PTP) data set parameters and clarifies message rate support requirements for both master and slave clocks.

History

Edition	Recommendation	Approval	Study Group
1.0	ITU-T G.8265.1/Y.1365.1	2010-10-07	15
1.1	ITU-T G.8265.1/Y.1365.1 (2010) Amd. 1	2011-04-13	15
1.2	ITU-T G.8265.1/Y.1365.1 (2010) Amd. 2	2012-10-29	15

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 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.8265.1/Y.1365.1

Precision time protocol telecom profile for frequency synchronization

Amendment 2

1) Scope

This amendment adds support for IPv6 mapping, clarifies certain precision time protocol (PTP) data set parameters and clarifies message rate support requirements for both master and slave clocks.

2) Additional material to be added to Recommendation ITU-T G.8265.1/Y.1365.1

2.1) Changes to clause 6.4, PTP mapping

Update the text of clause 6.4 as follows:

This PTP telecom profile is based on the PTP mapping defined in [IEEE 1588] Annex D, *Transport of PTP over User Datagram Protocol over Internet Protocol Version 4* and [IEEE 1588] Annex E, *Transport of PTP over User Datagram Protocol over Internet Protocol Version 6*.

Therefore, a master or a slave compliant with the profile described in this Recommendation must be compliant with [IEEE 1588] Annex D and may be compliant with [IEEE 1588] Annex E.

~~The use of the PTP mapping defined in [IEEE 1588] Annex E, *Transport of PTP over User Datagram Protocol over Internet Protocol Version 6*, is for further study within the scope of this PTP telecom profile.~~

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2.2) Changes to clause 6.5, Message rates

Update the text of clause 6.5 as follows:

The message rate values are only defined for protocol interoperability purposes. It is not expected that any slave clock shall meet the relevant target performance requirements at all packet rates within the given range, specifically at the lower packet rate. The appropriate value depends on the clock characteristics and on the target performance requirements. Different packet rate needs may also apply during the stabilization period.

NOTE – A specific slave implementation, in order to meet its target performance requirements, may support a subset of the message rates within the ranges noted below. A master, on the other hand, is required to support the full range of message transmission rates. Unless an implementation specifies otherwise, the default value listed below is assumed to be used.

Within the scope of the profile, the following messages can be used and the corresponding indicated range of rates must be respected for unicast messages:

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2.3) Changes to Annex A

2.3.1) Changes to clause A.1, Profile identification

Update the text of clause A.1 as follows:

profileName: ITU-T PTP profile for frequency distribution without timing support from the network (unicast mode)

profileVersion: 1.1~~0~~

profileIdentifier: 00-19-A7-00-01-01~~0~~.

• • •

2.3.2) Additional text to add to Note 1 of Table A.1, defaultDS data set member specifications

Update the text of Note 1 in Table A.1 as follows:

NOTE 1 – As per PTP, not applicable for this profile. For the case where the PTP grandmaster is syntonized to a PRC for frequency, but not synchronized to a reference source of time, the grandmaster should set defaultDS.clockQuality.clockAccuracy to 0xFE, "UNKNOWN".

2.3.3) Additional note added to Table A.4, timePropertiesDS data set member specifications

Add the following to Table A.4:

NOTE 3 – For the case where the PTP grandmaster is syntonized to a PRC for frequency, but not synchronized to a reference source of time, the grandmaster should set timePropertiesDS.ptpTimescale = FALSE. This indicates the use of the ARB timescale.

In normal operation, a GM compliant to this Recommendation will not reset the epoch or introduce discontinuities in the overall timescale during operation.

The use of the ARB timescale, in the situation where each GM does not have access to phase input to align their time of day to a common reference, may result in different active GMs that have vastly different timestamp values inserted in their Sync or Follow_Up packets (T1) and/or Delay_Resp packets (T4). A single telecom slave may receive information from these different GMs with different timestamp values.

2.3.4) Changes to clause A.3.2, Transport mechanisms required, permitted, or prohibited

Update the text of clause A.3.2 as follows:

In this profile, the required transport mechanism is UDP/IPv4 as per Annex D in [IEEE 1588].

In this profile, a permitted transport mechanism is UDP/IPv6 as per Annex E in [IEEE 1588].

Bit 0 of the transportSpecific field must be set to "0".

2.3.5) Changes to clause A.3.4, REQUEST_UNICAST_TRANSMISSION TLV

Update the text of clause A.3.4 as follows:

The value of logInterMessagePeriod ~~shall be~~is the logarithm, to base 2, of the requested mean period, in seconds, between the requested unicast messages.

For requesting unicast *Announce* messages: The configurable range ~~shall be~~is one message per 16 seconds to eight messages per second. The default initialization value of logInterMessagePeriod ~~shall be~~is one message every two seconds.

For requesting unicast *Sync* messages: The configurable range ~~shall be~~is one message every 16 seconds to 128 messages per second. No default rate is specified.

For requesting unicast *Delay_Resp* messages: The configurable range ~~shall be~~is one message every 16 seconds to 128 messages per second. No default rate is specified.

The durationField value in each REQUEST_UNICAST_TRANSMISSION TLV ~~shall have~~has a default initialization value of 300 seconds. The configurable range is ~~shall be~~ 60 seconds to 1000 seconds.

NOTE 1 – A specific slave implementation, in order to meet its target performance requirements, as normal operation, may support a subset of the message rates within the ranges noted above. A master, on the other hand, is required to support the full range of message transmission rates. Unless an implementation specifies otherwise, the default value listed above is assumed to be used.

NOTE 2 – The slave must respect the full range of durationField values noted above.

The maintenance and configuration of these default and configuration range values is implementation specific.

ITU-T Y-SERIES RECOMMENDATIONS

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

GLOBAL INFORMATION INFRASTRUCTURE	
General	Y.100–Y.199
Services, applications and middleware	Y.200–Y.299
Network aspects	Y.300–Y.399
Interfaces and protocols	Y.400–Y.499
Numbering, addressing and naming	Y.500–Y.599
Operation, administration and maintenance	Y.600–Y.699
Security	Y.700–Y.799
Performances	Y.800–Y.899
INTERNET PROTOCOL ASPECTS	
General	Y.1000–Y.1099
Services and applications	Y.1100–Y.1199
Architecture, access, network capabilities and resource management	Y.1200–Y.1299
Transport	**Y.1300–Y.1399**
Interworking	Y.1400–Y.1499
Quality of service and network performance	Y.1500–Y.1599
Signalling	Y.1600–Y.1699
Operation, administration and maintenance	Y.1700–Y.1799
Charging	Y.1800–Y.1899
IPTV over NGN	Y.1900–Y.1999
NEXT GENERATION NETWORKS	
Frameworks and functional architecture models	Y.2000–Y.2099
Quality of Service and performance	Y.2100–Y.2199
Service aspects: Service capabilities and service architecture	Y.2200–Y.2249
Service aspects: Interoperability of services and networks in NGN	Y.2250–Y.2299
Numbering, naming and addressing	Y.2300–Y.2399
Network management	Y.2400–Y.2499
Network control architectures and protocols	Y.2500–Y.2599
Packet-based Networks	Y.2600–Y.2699
Security	Y.2700–Y.2799
Generalized mobility	Y.2800–Y.2899
Carrier grade open environment	Y.2900–Y.2999
FUTURE NETWORKS	Y.3000–Y.3499
CLOUD COMPUTING	Y.3500–Y.3999

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Series A	Organization of the work of ITU-T
Series D	General tariff principles
Series E	Overall network operation, telephone service, service operation and human factors
Series F	Non-telephone telecommunication services
Series G	**Transmission systems and media, digital systems and networks**
Series H	Audiovisual and multimedia systems
Series I	Integrated services digital network
Series J	Cable networks and transmission of television, sound programme and other multimedia signals
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Series N	Maintenance: international sound programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Terminals and subjective and objective assessment methods
Series Q	Switching and signalling
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
Series T	Terminals for telematic services
Series U	Telegraph switching
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