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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

Infrastructure of audiovisual services – Communication
procedures

Gateway control protocol: Enhanced analogue lines packages

Recommendation ITU-T H.248.26

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Gateway control protocol: Enhanced analogue lines packages

Summary

Recommendation ITU-T H.248.26 defines several packages that provide support for extended line supervision and metering analogue lines capabilities for Recommendation ITU-T H.248.1. This version adds a phased metering signal suitable for use with complex metering scenarios that are beyond the capability of the metering signals already present in the package. It also introduces a new package to perform metering pulse detection by media gateways, and updates all the packages in this Recommendation to conform to the new packages template.

This revision incorporates updates to the default behaviour of the "Pulse Repetition Interval", "Burst Pulse Count" and "Pulse Repetition Interval" parameters.

History

Edition	Recommendation	Approval	Study Group
1.0	ITU-T H.248.26	2003-07-14	16
1.1	ITU-T H.248.26 (2003) Cor. 1	2004-03-15	16
1.2	ITU-T H.248.26 (2003) Amd. 1	2005-01-08	16
2.0	ITU-T H.248.26	2005-01-08	16
3.0	ITU-T H.248.26	2013-03-16	16

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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.

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Recommendation ITU-T H.248.26

Gateway control protocol: Enhanced analogue lines packages

1 Scope

The Analogue Line Supervision package defined in Annex E of [ITU-T H.248.1] supports basic telephony services, using on-hook and off-hook events, and a ringing signal. Some telephony services delivered over analogue line terminations have additional supervisory signalling requirements that are not met by the Analogue Line Supervision package. The packages defined in this Recommendation are intended to meet the needs of the following supervisory signalling functions:

- *Line-side answer supervision*: This function provides a positive notification to a calling line that the called line has answered. This notification may be used by customer premises equipment, for example, to begin timing the call for local billing or charging purposes.
- *Network disconnect*: Many switching systems provide this signal following the termination of an active call if a party remains off-hook for some period of time following the other party going on-hook. The network disconnect notification may be used by customer premises equipment to release resources associated with the call.
- *Metering pulses*: Metering services provide subscribers with real-time information about charging of calls in progress. These services make use of customer premises equipment that shows a count of "units" consumed by chargeable calls, where each unit has a fixed monetary value. To increment the counter in the metering equipment, the switching system sends certain kinds of pulses over the line, either during the call or immediately following termination of the call. These pulses typically consist of short bursts of 12-kHz or 16-kHz tones, although other types of metering pulse such as brief periods of polarity reversal or 50-Hz tones are also seen.

To meet these needs, two supplemental packages are introduced:

- The Extended Analogue Line Supervision package is defined as an extension of the Basic Analogue Line Supervision package, and includes two new signals: Line-Side Answer Supervision and Network Disconnect. This package provides support for all the Loop-Start supervisory signalling requirements identified by [b-Telcordia GR-506-CORE].
- The Automatic Metering package provides a means to apply metering pulses on an analogue line termination. The package includes:
 - signals requesting the automatic application of pulses at fixed intervals as well as the application of pulse bursts;
 - statistics that may be used to track the actual number of pulses applied; and
 - an event that may be used to trigger periodic reporting of the count of pulses applied.

This Recommendation introduces a phased metering signal suitable for use with complex metering scenarios. It also introduces a new metering detection package that can be used to instruct the MG to detect and report metering pulses generated by a network peer.

The support of these packages is optional.

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 H.248.1] Recommendation ITU-T H.248.1 (2013), *Gateway Control Protocol: Version 3*.

3 Definitions

This Recommendation defines the following terms:

- 3.1 add-on charge:** An optional one-time charge incurred mid-call.
- 3.2 charge interval:** The frequency at which charges are incurred. Some metering models do not accommodate this parameter.
- 3.3 charge rate:** The rate at which currency charges are applied in a call in currency per second.
- 3.4 phase duration:** The length of a phase. Phase duration may be finite or infinite.
- 3.5 pulse count:** The count of the number of pulses which are to be applied.
- 3.6 pulse count per charge interval:** The pulse count for a specific charge interval, calculated as the product of Tariff Pulse Rate and Charge Interval ($PCCI = TPR \times CI$).
- 3.7 pulse repetition interval:** See definition in clause 6.3.1.1.2.
- 3.8 set-up charge:** An optional one-time charge for call set-up.
- 3.9 tariff pulse rate:** The rate (pulses per second) at which pulses are applied as derived from the tariff rate data and pulse conversion data specified by the service provider.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

CI	Charge Interval
MG	Media Gateway
MGC	Media Gateway Controller
PC	Pulse Count
PCCI	Pulse Count per Charge Interval
PD	Phase Duration
PRI	Pulse Repetition Interval
TPR	Tariff Pulse Rate

5 Extended Analogue Line Supervision package

Package Name: Extended Analogue Line Supervision package

Package ID: xal (0x0043)

Description: This package defines events and signals necessary to support analogue telephony services where line-side answer supervision and/or network disconnect capabilities are required.

Version: 1

Extends: al (0x0009) version 1

5.1 Properties

None.

5.2 Events

None.

5.3 Signals

5.3.1 Line-side Answer Supervision

Signal name: Line-side Answer Supervision

Signal ID: las (0x0003)

Description: Indicates that the called party has answered. The signal that is sent on the line is provisioned in the MG. Typically this signal involves a reversal of polarity of the current feed on the line.

Signal type: On/Off

Duration: Not applicable

5.3.1.1 Additional parameters

None.

5.3.2 Network Disconnect

Signal name: Network Disconnect

Signal ID: nd (0x0004)

Description: Indicates that the far-end party has disconnected. The signal that is sent on the line is provisioned in the MG. Typically this signal involves a brief removal of the dc voltage on the line.

Signal type: Brief

Duration: Provisioned

5.3.2.1 Additional parameters

None.

5.4 Statistics

None.

5.5 Procedures

The Network Disconnect signal is typically used when a called or calling party remains off-hook after the other party has hung up. In these circumstances, some telephony services provide dial tone to the off-hook phone after a period of several seconds has elapsed. The Network Disconnect signal would normally be applied just prior to the re-application of dial tone on the line.

6 Automatic Metering package

Package Name: Automatic Metering package

Package ID: amet (0x0044)

Description: This package supports the automated application of repetitive metering pulses to an analogue line termination. It provides a facility whereby the actual number of metering pulses applied to the termination can be periodically reported to the MGC for verification purposes.

Version: 2

Extends: None

6.1 Properties

None.

6.2 Events

6.2.1 Periodic Report

Event name: Periodic Report

Event ID: pr (0x0001)

Description: This event is used in conjunction with the "Enable Metering" and "Metering Pulse Burst" signals defined in this package. It is detected when the value of the "pulse count since last report" statistic reaches the value specified in the "report period" parameter.

This event does not have any parameters for the observed event descriptor since it will be reported only when "pulse count since last report" is equal to "report period", which is a value already known to the MGC.

This event is not detected when the application of signals is stopped due to a MG failure, a customer line state event (e.g., on-hook), or by an explicit command from the MGC. The MGC needs to read the value of the statistic "pulse count since last report" in those cases, using an AuditValue command.

6.2.1.1 EventsDescriptor parameters

6.2.1.1.1 Report Period

Parameter name: Report Period

Parameter ID: rp (0x0001)

Description: This parameter specifies the period of metering reports in terms of pulse counts. There is no default value for this parameter, and it must be specified with a non-zero value.