European Telecommunications Standards Institute **AT-D AT#9(2004)D_25**

Technical Committee
Access and Terminals – Working Group Digital
Task – IPCablecom

ETSI HQ, Sophia Antipolis 19-23 April 2004

To : Richard Woundy, Chairman of IETF – IPCDN working group

Cc : Jean-Francois Mule (CableLabs)
Gordon Beacham (Motorola BCS)
Wim De Ketelaere (tComLabs)

From: ETSI AT working group Digital

Status : For distribution to the IETF ipcdn working group for information and response from IETF ipcdn working group chairman.

Dear Richard,

This liaison is to inform you about the results of this weeks ETSI AT working group Digital (AT#9) meeting held at ETSI HQ Sophia Antipolis, France, with regards to our work items covering IPCablecom (IPCC) MIB requirements. We also respectfully request information about your schedule for the approval of the ietf ipcdn packetcable mibs to published RFC status taking account of all ETSI comments as summarised in this liaison statement.

ETSI AT working group Digital has three work items covering, the IPCC MIB framework (TS101909-07), IPCC MTA MIB (TS101909-08) and IPCC Signaling MIB (TS101909-09).

The Rapporteur for these work items, Simon Kang from UPC, presented to the ETSI members document 09D10. This document presented the current draft 3 ietf MIBs, MTA provisioning, Management Event Messages and Signalling. The document also presents proposed changes to the NCS Signaling specification (TS101909-04-Annex B) covering the ETSI package (e-package) to align with the requirements given in the ietf signaling MIB.

This liaison statement presents a summary to the IETF ipcdn working group members the results of ETSI AT working group Digital following their review of the draft 3 ietf PacketCable/IPCablecom MIBs as given by document 09D10 (extract from this document copied here for your reference, see Appendix A).

Summary

ETSI AT working group Digital reviewed the following documents:-

- PacketCable/IPCablecom Management Event MIB (draft-ietf-ipcdn-pktc-eventmess-03.txt)
- PacketCable/IPCablecom MTA MIB (draft-ietf-ipcdn-pktc-mtamib-03.txt)
- PacketCable/IPCablecom NCS Signaling MIB (http://www.ietf.org/internet-drafts/draft-ietf-ipcdn-pktc-signaling-03.txt)

Please note that ETSI AT working group Digital were in agreement with the ietf draft version 3, Management Event MIB and MTA MIB considering these drafts as reasonably stable.

ETSI AT working group Digital wishes to propose the following **3 recommendations to create a draft 4 of the NCS Signaling MIB.** .

Recommendations :

- **(1) NCS service flow mechanism :**

Remove the *pktcSigServiceClassNameUS*, *pktcSigServiceClassNameDS*, *pktcSigServiceClassNameMask* and *pktcSigNcsServiceFlowState* objects from the current MIB definition until a workable form of its associated mechanisms is defined.
The removal of these objects from the MIB does not mean that there is no more mechanism to establish a separate NCS Service Flow, because such a Service Flow can still be defined in the Cable Modem config file (with the use of a Service Class Name if desired). This works, because in this case the Service Flow is set up during the CM Registration process, without the need for DSA messaging. This is also probably the way it is currently done, since the use of the above MIB objects is not possible with an IPCablecom/PacketCable compliant CMTS.
Leaving the MIB objects in place, while awaiting the definition of a workable mechanism is not an option either, because this new definition would most likely have different MIB requirements.

- **(2) Ringing cadences :**

Having two types of ring cadence definitions (the "North American" type using the *PktcRingCadence* textual-convention and the "international" type using an octet string) is unnecessary. The "international" type is more general, and can be used to represent every "North American" ring cadence as well. Therefore, we suggest changing the definition of the *PktcRingCadence* textual-convention and to use this definition for every ring cadence defined in the MIB.
As an aside, a slight clarification may be required regarding the scope of the length octets in the "international" type of ring cadence.
The following would then be the proposed new definition of the *PktcRingCadence* textual-convention:

```
PktcRingCadence   ::= TEXTUAL-CONVENTION
   STATUS       current
   DESCRIPTION
       " This object represents a ring cadence and repeatable
       characteristics in bit string format. The first two
         octets of the bit string represent the length in bits of
         the duration of the cadence, i.e. the number of bits that
         follow the third octet. The third octet is used to
       represent repeatable characteristics. 00000000 means
         repeatable, and 10000000 means non repeatable. Each bit
       after the third octet represents 50 ms and 1 represents
         ring and 0 represents silent. The first bit of the  fourth
          octet is the first bit of the ring cadence. A total of 264
         bits can be set to represent 13200 ms of total cadence
       cycle."
   SYNTAX       OCTET STRING (SIZE(4..36))
```

A second advantage of this approach, apart from simplifying things, is that there would no longer be a need for separate *pktcSigDevRgCadence*/*pktcSigDevStandardRingCadence* and *pktcSigDevRsCadence*/*pktcSigDevRingSplashCadence* objects. In case the above proposal would be accepted, then we also suggest removing the *pktcSigDevStandardRingCadence* and *pktcSigDevRingSplashCadence* objects, since they have no use anymore. This would then again simplify things, as the *rg*, *rs*, and *r0* to *r7* signals from the L package can now be mapped unambiguously to a specific MIB object. In addition, these MIB objects are now defined in a way that allows them to meet both international and North American requirements.

- **(3) Value Ranges:**

The current required power range for the *pktcSigDevToneDbLevel* object is not very realistic. To facilitate MTA development, and to reduce the hardware cost of the MTA, the range should be narrowed.
One proposal on the IPCDN mailing list was to limit the range from –25.0 dBm to –3.0 dBm, instead of –60.0 dBm to 4.0 dBm. We support this proposal.

Appendix A : Extract from Document 09D10 presented at ETSI AT#9 meeting

European **T**elecommunications **S**tandards **I**nstitute AT#9(2004)D_10
ETSI AT#9
April 2004
ETSI - Sophia-Antipolis

Source: UPC (Simon Kang)
Title: IPCC mibs and revision to TS101909-04 (ncs)
Date: 21-MAR-04
Status: For discussion, agreement and approval
Agenda item: 4.15; 4.16; 4.17 and 4.8

Introduction:

UPC, Motorola and tComLabs offer this summary to ETSI AT-D and also for it to be made available to the ietf ipcdn work group.

This contribution presents the lastest draft version 3 of the ietf IPCablecom mibs being developed by the ipcdn group. These are as follows:-

- PacketCable/IPCablecom Management Event MIB (draft-ietf-ipcdn-pktc-eventmess-03.txt)
- PacketCable/IPCablecom MTA MIB (draft-ietf-ipcdn-pktc-mtamib-03.txt)
- PacketCable/IPCablecom NCS Signaling MIB (http://www.ietf.org/internet-drafts/draft-ietf-ipcdn-pktc-signaling-03.txt)

I notified AT-D about the above drafts requesting that members provide their comments by 12h March to allow myself to prepare a summary and contrinbution for AT#9 (Sent: Friday, February 27, 2004 6:14 PM To: 'AT-D@list.etsi.org').

I have received comments to the draft ietf signalling mib, from tComLabs as given by Annex B.

I received no issues to date from ETSI AT-D working group members regarding the ietf draft mta mib and draft ietf em mib. Subject to confirmation at AT#9 I might therefore conclude that these two are considered by ETSI as stable.

Annex A also summarises the agreements reached by AT-D work group in proceeding with the ietf for the management of IPCablecom mibs and to withdraw its currently published document, TS101909-7/8/9 once these became RFCs.

Members of AT-D work group are requested to confirm their approval of the draft ietf mibs as given above with the provisional approval of the sig mib subject to the proposed changes given in Annex B that should be adopted in revision 4 of draft ietf sig mib, subject to agreement by members at AT#9 meeting, April 20h.

ETSI AT-D chairman may also consider informing the ietf ipcdn work group of the ETSI decisions resulting from AT#9 meeting in a formal liaison between AT-D and the ietf ipcdn work group.

Annex B

Comments on draft-ietf-ipcdn-pktc-signaling-03

Forward

These comments have already been discussed and reached an interim agreement within the ipcdn working group and will normally be included in the next draft of the signaling MIB. They are documented here to provide ETSI-members with all information regarding the status of the signaling MIB in the ipcdn working group.

NCS service flow mechanism

Background

The MIB defines several objects whose goal it is to eventually let the Embedded MTA (E-MTA) set up a separate (Euro-)DOCSIS 1.1 Dynamic Service Flow for NCS signaling.

To avoid having to specify all Service Flow (SF) parameters in the MTA config file, and to allow more flexibility, the mechanism of Service Class Names is used. With this mechanism, the SF parameters are replaced by a textual name, the Service Class Name (SCN). The actual SF parameters are then defined on the CMTS. When the SCN is used in a Dynamic Service Addition (DSA) message from the E-MTA, the CMTS maps the SCN to the appropriate parameters. It is a prerequisite for this mechanism that the CMTS supports the use of SCN's, which is left optional in (Euro-)DOCSIS.

The idea behind this mechanism is good, but unfortunately it does not work for setting up the NCS Service Flow in the way that it is currently defined. It requires the E-MTA to send a DSA message to the CMTS, in order to set up the Dynamic Service Flow. In IPCablecom/PacketCable, however, every DSA message MUST be authorized to prevent theft-of-service and denial-of-service scenarios. When setting up a Dynamic Service Flow for a voice call, this authorization is done using the mechanism of Gates on the CMTS (authorization envelopes set by the Call Management Server or by the V5.2 or GR303 Gateway) and its corresponding Gate Identifier that is communicated to the E-MTA, and that is subsequently used by the E-MTA in the Authorization Block of its DSA message. When the E-MTA sends out a DSA message as part of its provisioning, as would be done with the SCN mechanism, then this DSA would not contain an Authorization Block. An IPCablecom/PacketCable compliant CMTS MUST reject a DSA message without an Authorization Block. For this reason, the SCN mechanism to set up an NCS Dynamic Service Flow through MIB objects in the config file, does not work.

Recommendation

Remove the *pktcSigServiceClassNameUS*, *pktcSigServiceClassNameDS*, *pktcSigServiceClassNameMask* and *pktcSigNcsServiceFlowState* objects from the current MIB definition until a workable form of its associated mechanisms is defined.

The removal of these objects from the MIB does not mean that there is no more mechanism to establish a separate NCS Service Flow, because such a Service Flow can still be defined in the Cable Modem config file (with the use of a Service Class Name if desired). This works, because in this case the Service Flow is set up during the CM Registration process, without the need for DSA messaging. This is also probably the way it is currently done, since the use of the above MIB objects is not possible with an IPCablecom/PacketCable compliant CMTS.

Leaving the MIB objects in place, while awaiting the definition of a workable mechanism is not an option either, because this new definition would most likely have different MIB requirements.

Ringing cadences

Background

Currently, the MIB defines two types of ring cadences: one type of cadence defined by the *PktcRingCadence* textual-convention (representing an optionally repeatable cadence with a cycle of 6 seconds maximum and 100 ms granularity), and another type of cadence defined by an octet string (representing an optionally repeatable cadence with a cycle of 13,2 seconds maximum and 50 ms granularity). The first cadence type is used to define North American ring cadences, while the second type is used to define the international ring cadences. The

second type was introduced because the maximum cycle length of 6 seconds was insufficient to meet international needs.
The PacketCable NCS Line Package (L package) provides the standard ringing signal *rg*, the ring splash *rs*, and the ringing signals *r0*, *r1*, …, *r7* for distinctive ringing. The corresponding MIB objects, *pktcSigDevRgCadence*, *pktcSigDevRsCadence*, *pktcSigDevR0Cadence*, etc. are defined in the MIB using the *PktcRingCadence* textual-convention. Since this was insufficient to meet international needs, separate objects were defined (*pktcSigDevStandardRingCadence* and *pktcSigDevRingSplashCadence*) using the international type of cadence.
If the MTA supports the ETSI Line Package (E package), then the intention is that the *rg* and *rs* ringing signals map to these international objects instead. This means that the mapping between the *rg* and *rs* signals from the L package is not fixed, and depends on the support of the E package. This is confusing and complicates MTA design. It also means that an MTA that does not support the E package, and hence does not support the longer ring cadence cycles, would not be fit for some European markets.
Note also that there is no direct international variant for the *r0*, *r1*, …, *r7* signals. If distinctive ringing is required with cycles longer than 6 seconds, then with the current MIB definition the only way to achieve this is to use an MTA (and controlling Call Agent) that supports the E package, in which case the 128 different ring cadences from the *pktcSigDevRingCadenceTable* can be used for distinctive ringing.

Recommendation

Having two types of ring cadence definitions (the "North American" type using the *PktcRingCadence* textual-convention and the "international" type using an octet string) is unnecessary. The "international" type is more general, and can be used to represent every "North American" ring cadence as well. Therefore, we suggest changing the definition of the *PktcRingCadence* textual-convention and to use this definition for every ring cadence defined in the MIB.
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          octet is the first bit of the ring cadence. A total of 264
          bits can be set to represent 13200 ms of total cadence
          cycle."
    SYNTAX        OCTET STRING (SIZE(4..36))
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A second advantage of this approach, apart from simplifying things, is that there would no longer be a need for separate *pktcSigDevRgCadence*/*pktcSigDevStandardRingCadence* and *pktcSigDevRsCadence*/*pktcSigDevRingSplashCadence* objects. In case the above proposal would be accepted, then we also suggest removing the *pktcSigDevStandardRingCadence* and *pktcSigDevRingSplashCadence* objects, since they have no use anymore. This would then again simplify things, as the *rg*, *rs*, and *r0* to *r7* signals from the L package can now be mapped unambiguously to a specific MIB object. In addition, these MIB objects are now defined in a way that allows them to meet both international and North American requirements.

Value ranges

Background

The *pktcSigDevToneTable* contains the definition of a number of tones that can be triggered through NCS signaling, e.g. dial tone and busy tone. One of the objects within this table is the *pktcSigDevToneDbLevel* object, which specifies the decibel level at which a tone must be generated.
The current decibel range for these tones is –60.0 dBm to 4.0 dBm, and is measured at the analogue reference point (the A-B terminals). The default value is –4.0 dBm.
These ranges represent a significant burden for MTA implementation. At the lower bound there is an extremely low power level (–60.0 dBm corresponds to 1 nanowatt!), which falls even below the noise level. At the other end there is the 4.0 dBm level, which may be technically possible, but is strictly speaking not necessary.

One MTA vendor proposed the range –25.0 dBm to –3.0 dBm. See IPCDN Mail Archive, subject "RE: [ipcdn] RE: IETF IPCDN Signaling MIB – Draft 3 – Last Call for Comments (NEW ISSUE pktcSigDevToneDbLevel reference point)", currently at the following URL:
http://www1.ietf.org/mail-archive/working-groups/ipcdn/current/msg01114.html
With this range, it would perfectly be possible to generate tones that fall within the allowed power ranges for the different tones and frequencies defined in EN 300 001 V1.5.1 (1998-10), "Attachments to Public Switched Telephone Network (PSTN); General technical requirements for equipment connected to an analogue subscriber interface in the PSTN".
In any case, narrowing the range would no doubt allow the MTA to be implemented more easily, and more importantly, with less expensive hardware.

Recommendation

The current required power range for the *pktcSigDevToneDbLevel* object is not very realistic. To facilitate MTA development, and to reduce the hardware cost of the MTA, the range should be narrowed.
One proposal on the IPCDN mailing list was to limit the range from –25.0 dBm to –3.0 dBm, instead of –60.0 dBm to 4.0 dBm. We support this proposal.