**IEEE P802.15**

**Wireless Personal Area Networks**

|  |  |  |
| --- | --- | --- |
| Project | IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs) | |
| Title | 802.15 SG ULI Minutes for January, 2016 meeting | |
| Date Submitted | [22 January, 2016] | |
| Source | [Charlie Perkins] [Futurewei] | Voice: [+1-408-330-4586] Fax: [ ] E-mail: [charliep@computer.org] |
| Re: | [SG ULI meeting minutes.] | |
| Abstract | SG ULI minutes from the Atlanta Mtg. | |
| Purpose | [SG ULI meeting minutes.] | |
| Notice | This document has been prepared to assist the IEEE P802.15. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein. | |
| Release | The contributor acknowledges and accepts that this contribution becomes the property of IEEE and may be made publicly available by P802.15. | |

**Minutes for IEEE 802.15 SG ULI Atlanta Meeting**

**18-21 January, 2015**

**Chair – Pat Kinney**

**Vice Chair - Charlie Perkins**

**Tuesday AM1 (January 19) (Room Hanover C)**

Chair called the meeting to order at 8:10am. Attendance: 22

|  |  |  |  |
| --- | --- | --- | --- |
| Fumihide Kojima | NICT | Kiyoshi Fukui | OKI |
| Ruben Salazar | Landis+Gyr | Robert Moskowitz | HTT consulting |
| Tero Kivinen | Inside Security | Gary Stuebing | Cisco |
| Ben Rolfe | BCA | Noriyuki Sato | OKI |
| Pat Kinney | Kinney Consulting | Charles Perkins | Futurewei |
| Shinsuke Hara | OCV | Hidetaka Yokota | Landis+Gyr |
| Mike McInnis |  | Soo-Young Chang |  |
| Paul Gorday |  | Henk de Ruijter |  |
| Amarjeet Kumar | Procubed | Kunal Shah | SSN |
| Phil Beecher | WiSun | Phil Beecher | Wi-Sun |

**Patent Policy and call for Essential Patents**

Chair called the group’s attention to the IEEE patent policy and made a call for notification of essential patents. There were no responses.

**Opening / Closing Report (DCN: 15-16-0074-00-0llc)**

Recap the Study Group discussion held in Dallas for the second meeting of the Study Group.

**Meeting Objectives/Agenda**

|  |  |
| --- | --- |
| |  | | --- | | * Tuesday, 19 Jan, AM1   + Review of latest proposal (15-15-0761-02)   + Review of PAR (15-15-760-03) and CSD (15-15-768-02)   + Discussion on topics for tonight’s joint meeting with 802.1   + Ethertype, et al * Wednesday 20 Jan, AM1:   + Outcome of joint meeting with 802.1 discussion   + PAR and CSD changes discussion * Thursday 21 Jan, PM1   + Final cut at PAR and CSD   + Study group approval of PAR and CSD   + Study group motion to send PAR and CSD to WG for approval | |

**Approve agenda (DCN: 15-15-0979-00-0llc)**

No objection; motion passes

**Approve minutes (DCN: 15-15-0944-00-0llc)**

No objection; motion passes

**Review of latest proposal (15-15-0761-02)**

**ULI review and discussion about proposed PAR (DCN: 15-15-0760-03-0llc)**

* Incorporates wordsmithing suggestions from Bob Heile
* PAR request in September / unapproved
* No issues with title
* Review of scope; no issues raised
* Discussion about ambiguity in the terms datagram versus packet
* Additional notes review
* Discussion about coordination with IETF 6TiSCH, esp. regarding 6top
* Discussion about various kinds of fragmentation (e.g., KMP versus 6lowpan)
* Discussion about KMP versus PANA (attempt to keep both options)
* Observation about using 6lowpan and other modules (e.g., KMP versus PANA); how to consider whether the alternatives are considered equivalent
* The task group should invite presentations from 802.11 to get ideas about how to provide sensible ULI functions such as CCA, etc.
* We should have defaults for many features (e.g., power levels) that can be overridden using a management interface
* At the joint meeting in November there were questions about the PIBs, but calling them PIBs does not eliminate the need for management interface. With large networks, the need for management is surfacing again. 802.1 would expect any management interface to be conformant. Should discuss whether to use MIBs or Yang models.
* Question about timeline: will 802.15.12 be able to satisfy the needs of 6TiSCH in a timely fashion?
* Anima, CoAP, and so on would stay in the IETF
* Some language changes for L2R and KMP: from recommended practice to standard

**ULI review and discussion about proposed CSD (DCN: 15-15-768-02-0llc)**

* 802.15.12 does not anticipate creation of new managed objects, but if required by (for instance) Yang, we will do it. This is something that has to be decided by the task group.
* New CA documents are not needed, will use existing rationales for coexistence
* Discussion about reducing installation costs

**ULI - preparation for joint meeting with 802.1**

* Meeting is at 6:30pm in Hanover AB; most people attending AM1 meeting will be at joint meeting
* Ethertypes – what types of Ethertypes?
  + At previous meeting, compressing Ethertype is OK as long as any Ethertype can be expressed
  + Have to get this right so that we can be assured of support from 802.1 at March meeting
* Managed objects
* From here on out, 802.15 will be having joint meetings with 802.1
* 802.1 drops packets after one second if can’t complete bridging
* Omniran guy is going to again propose a method of bridging
* Hard stop tonight at 7:30pm

**Recess:** The Study Group went into recess (at 9:43am) until the Wednesday AM1 session

**Tuesday PM3 Joint meeting with 802.1 (Jan. 19) (Room Hanover AB)**

Chair Pat Kinney called the Joint 802.1/802.15 Layer-2 Topics meeting to order at 6:30pm.

**Patent Policy and call for Essential Patents**

Chair called the group’s attention to the IEEE patent policy and made a call for notification of essential patents. There were no responses.

**Agenda:**

* Review of 802.15.12 PAR, CSD
* Discussion on Ethertype header and compression used by 6LoWPAN
* update on 802.15.9, Key Management Protocol
* update on 15.10 Layer 2 Routing (L2R)
* 15.3d, the 100g data center project
* update on 15.3m 15.3 REVa
* Review of 802.1 efforts that should be considered by 802.15
* Presentation: new-64bitto48bitMACAdapting-sarikaya-0116-v00-xtn

**Review and discussion about proposed ULI PAR (DCN: 15-15-0760-03-0llc)** **(P Kinney)**

* Glenn Parson encourages mentioning Ethertype. 15.4 sits below this so other low-level mechanisms such as dispatch byte does not obstruct. “protocol differentiation” leaves the work for the task group.
* Add mention of data frame, control, as well as management in the scope
* What EPD and LPD?
* What about Ethertype versus EtherType?

**Review and discussion about proposed ULI CSD (DCN: 15-15-0768-02-0llc) (P Kinney)**

* From last time: managed objects – not anticipated but allowable if required
* Should we do MIB or Yang? Not SNMP MIB, which are deprecated by IETF. Good to have a language – right now it’s UML. Need to have remote management. There are 160 separate Yang developments in IETF right now. Managed objects are most useful for remote management over a medium, which may not be appropriate over a low data rate medium.
* Make explicit the points about 64 bit addresses
* Note: no other standard provides multi-protocol discrimination for 802.15
* Any LLC will add overhead, so should note that this cost is more than compensated by the benefits.

**Discussion on Ethertype header and compression used by 6LoWPAN (P Kinney)**

* Usually when we in 802.1 write the PAR, we have a good idea what will come out
* But that is not usually the case for 802.15

**Update on 802.15.9, Key Management Protocol (R Moskowitz)**

* Sponsor ballot #1 came out with only 9 comments. Only two comments required changes to text.
* Goal is to enter next recirculation this Thursday ending January 31, expecting to have 100% YES after that.
* Can send to Revcom; will submit on Friday while the recirculation is still going.

**Update on 15.10 Layer 2 Routing (L2R) (C Powell)**

* Looking to go for EC approval and go to sponsor ballot at March
* Need to get to Michelle for her review

**Update on 15.3d, the 100g data center project (T Kürner)**

* Call for proposal for channel model
* 802.1 should start seeing activities

**Update on 15.3m 15.3 REVa (T Kürner)**

* Should be starting the recirculation soon
* When could go to sponsor ballot? (asked by J Messenger, editor of 802.1AC); letter ballot in a year

**Review of 802.1 efforts that should be considered by 802.15 (J Messenger)**

* 801q is framed in terms of 48 bits
* Will be willing to help with joint meetings as well as interim meetings

**Presentation: new-64bitto48bitMACAdapting-sarikaya-0116-v00-xtn (B Sarikaya)**

* 64-bit MACs versus 48-bit MACs
* Monitor SOHO traffic
* 11ah to 15.4 (industrial automation system with 802.15.4 sensors and 802.11ah sensors)
* RF Barrier
* MAC address adaptation; 802.1 TG
* Adaptor/Bridge has to avoid transmitting during inactive period
* Asks how many people are interested in this work (1 person, or perhaps a few)
* Why bridging versus routing? Performance implications of going to layer 3.
* Viewpoint: this is a kind of application gateway, and does not belong in 802.1 at all. Have to consider multicast differences, bitrate differences, sleeping differences, etc. Should be solved somewhere above layer 2

**Adjourned**

* The joint meeting adjourned at 7:35pm.

**Wednesday AM1 (January 20) (Room Hanover C)**

Chair called the meeting to order at 8:09am. Attendance: 14

|  |  |  |  |
| --- | --- | --- | --- |
| Fumihide Kojima | NICT | Kiyoshi Fukui | OKI |
| Seong-Soon Soo | ETRI | Robert Moskowitz | HTT consulting |
| Tero Kivinen | Inside Security | Billy Verso | Decawave |
| Verotiana Rabarijaona | NICT | Al Petrick | Iron |
| Myung Lee | Cuny | Noriyuki Sato | OKI |
| Pat Kinney | Kinney Consulting | Charles Perkins | Futurewei |

**Discuss issues since joint meeting with 802.1**

**Joint meeting follow-up work on ULI PAR (DCN: 15-15-0760-03-0llc)**

* Discussion about clarifying that ULI offers interfaces for data, control, and management.
* Making possible use of Ethertype more explicit
* The concept of integration is important for ULI even for optional functionality

**Joint meeting follow-up work on ULI CSD (DCN: 15-15-768-02-0llc)**

* Managed objects discussion; added mention of coordination with IEEE 802
* Discussion about unavoidable incompatibilities arising from 802.15.4 using 64 bit addresses
* Discussion about the unique functionality offered by ULI

**Straw poll for approval of PAR and CSD**

* No concerns for calling for approval of the PAR and CSD:
* No objections against approval of PAR and CSD
* The approval will be mentioned at the mid-week plenary
* The WG needs to approve the PAR and CSD, will happen at the closing
* Will solicit issues at the mid-week for resolution at Thursday PM1 meeting

**Recess:** The Study Group went into recess (at 8:47am) until the Thursday PM1 session

**Thursday PM1 (January 21) (Room Hanover C)**

Chair called the meeting to order at 1:35pm. Attendance: 15

|  |  |  |  |
| --- | --- | --- | --- |
| Jay Holcomb | Itron | Ed Eckert | Itron |
| Tero Kivinen | Inside Security | Gary Stuebing | Cisco |
| Ben Rolfe | BCA | Don Sturek | Silver Spring |
| Pat Kinney | Kinney Consulting | Charles Perkins | Futurewei |
| Amarjeet Kumar | Procubed | Hidetaka Yokota | Landis+Gyr |
| Phil Beecher | Wi-Sun | Henk de Ruijter |  |
| Kunal Shah | SSN |  |  |

**Review of latest proposal for PAR (DCN: 15-15-0760-05-0llc)**

* Incorporates some changes thanks to James Gilb
  + Discussion of capitalization, etc.
  + Discussion about regulatory wording versus jurisdictions, etc.
* Discussion about regulatory wording versus jurisdictions, etc.
* “Low Rate” is definitely part of the title
* Changes PAR to be uploaded as DCN 15-15-0760-06

**Review of latest proposal for CSD (DCN: 15-15-0768-05-0llc)**

* Discussion about “IoT” versus “the IoT”
* Discussion about “higher layer” versus “higher level”; could define as “layer 4 and above”
* Much useful language taken from successful language in PARs for 802.15.4t and 802.15.4u
* Unique role of ULI effort

**Recess:** The Study Group went into a short recess (at 2:09pm) to allow the updated PAR and CSD documents to be uploaded.

**Motion for Study Group approval of PAR (DCN: 15-15-0760-06-0llc)**

* Ben Rolfe moved for acceptance of PAR, Tero Kivinen seconded the motion
* Motion passes without discussion or objection

**Motion for Study Group approval of CSD (DCN: 15-15-0768-05-0llc)**

* Tero Kivinen moved for acceptance of CSD, Amarjee Kumar seconded the motion
* Motion passes without discussion or objection

**Adjournment:** The Study Group adjourned at 2:16pm until the next meeting in March.