Project: IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)

Submission Title: [802 Architecture Ad Hoc Meeting]
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Re: [Original]

Abstract: [Report on 802 Architecture Ad Hoc meeting to address work items.]

Purpose: [WG report.]

802 Architecture Ad Hoc Meeting

Tom Siep

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802.15 Liaison to 802 Architecture Committee

Intent for 802.1 Arch Committee

- Improve alignment between WG projects and existing 802 architecture by:
  - Identifying current problems, omissions, conflicts, ramifications, and their potential resolution
  - Identifying potential refinements or changes to the architecture
  - Providing a regular forum in which such discussion can take place, in a lower pressure environment than is possible during the core Plenary cycle.

Proposals for resolution

- Due diligence issues – need to fix 802 procedures
  - TJ to propose to SEC that the rules for forwarding to SB & RevCom be strengthened
  - WGs should review projects against PAR/5C requirements during the development cycle
- Each WG:
  - Prioritize issues
  - Characterize the problem
  - Propose approach to resolve, or identify as intractable
  - Identify other groups (802 or external) that may be affected

Known issues – 802.15 (as presented at Sunday meeting)

- Are PANs different from WLANs?
  - We hope the answer is “No” (wrt the MAC service)
- Security
  - What functionality is needed
  - Who does what aspect
- Bridging compatibility – handling of multicasts, no clause 6 section for .1D
- LLC – acts as a block to passing additional (e.g., QoS) parameters
- Mesh (not the same as the .11 issue though)
- QoS
- Architectural consistency across three MACs
- (Signal) Power/channel management

Are PANs different from WLANs?

- Does not apply, interface to 802.1 is essentially the same

Security

- What functionality is needed?
  - Need secure access control to the resources of the medium to ensure QoS
  - Since it is intended to run without an infrastructure, cannot rely on centralized authority to ensure security
- “Who does what aspect?” does not apply (see above)

Bridging compatibility – handling of multicasts, no clause 6 section for .1D

- Compatibility with .1D
  - 15.1a – Bridging is handled in BNEP, which maps to Ethernet.
  - 15.3 – Annex A (normative) specifies compatibility
  - 15.4 – Annex A (normative) specifies compatibility
- Multicasts
  - 15.1a – does not do multicast
  - 15.3 – Had multicast, being revised in current work
  - 15.4 – Had broadcast, being revised to include multicast in current work

LLC – acts as a block to passing additional (e.g., QoS) parameters

- All 3 MAC need LLC support to requests to create/modify/terminate streams based on QoS parameters
- Data needs to be able to be associated with a stream at the MAC SAP
- QoS changes need to be communicated to the higher layers
- Need to be able to inquire QoS characteristics of remote nodes

Mesh (not the same as the .11 issue though)

- Work in progress in 15.5

QoS

- Block asynchronous data
  - Need block size to plan and allocate resources

Architectural consistency across three MACs

- Relatively consistent in approach, same interface to upper 802 layers

(Signal) Power/channel management

- Need a way to pass (up and down) information that is important to wireless, for example
  - Transmit power
  - Regulatory domain
  - Signal quality
  - Coexistence information
  - Other
- Must be extensible

Prioritized issues – 802.15

- Issues
  1. LLC – acts as a block to passing additional (e.g., QoS) parameters
  2. QoS
  3. (Signal) Power/channel management
  4. 64bit to 48 bit address mapping for bridging (new topic)
  5. Smaller than 100 octets allowed for minimum packet size
  6. Bridging compatibility – handling of multicasts, no clause 6 section for .1D
- Non-Issues
  - Are PANs different from WLANs?
  - Security
  - Mesh (work TBD)
  - Architectural consistency across three MACs

Other Groups Affected

- LLC – acts as a block → 802.1 and 802.2
- QoS → 802.1 and 802.2
- (Signal) Power/channel management → 802.1 and 802.2
- 64bit to 48 bit address mapping for bridging → 802.1 and 802.2
- Smaller than 100 octet packets → 802.1 and 802.2
- Bridging compatibility – internal problem being worked

Work to be done

- Form plans to solve issues
- Determine feasibility of plans