802c PAR Comments

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802.3

- Mention in PAR the amendment will primarily be making recommendations (e.g., informative annex)
- •We see value in allowing multiple local address administrators in a local domain (which does require something like a CID as the basis)

802.11 comments

- In General, we believe that discussion on this topic has identified multiple stakeholders that have not been sufficiently consulted or involved in the development of the PAR/CSD.

- An EC Study Group should be created to allow multiple Stakeholders, across all 802 WGs, to participate in the development of a PAR/CSD. Timing conflicts need to be addressed to allow for an inclusive opportunity of the stakeholders.

802.11 on 1.2 Type of document

- Standard

- Comments:

1. Recommended practice vs a standard. Either a set of informative changes (Informative Annex) to the existing 802 Architecture document or a stand-alone recommended practice document should be developed to meet the PAR objectives.

802.11 on 5.2a Scope of Complete Standard

- No specific changes identified, however changes likely to be required if a recommended practice is developed

802.11on 5.2b Scope of Project

1. Punctuation error – 2 periods at the end of the first sentence
2. In the first sentence, delete "and rules". The scope (5.2.b) refers to "recommendations" Change to recommended practice. 1.2.2 of the CSD describes "*providing a guideline for use of the existing Local Address space*".
3. The entire local address space is available for local administration today. There is a coexistence and backwards compatibility issue with changing this: "Another portion…by local administrators."
4. The second 2 sentences are providing a solution. There may be other solutions or alternatives that are identified. Delete the second and third sentences.

802.11 5.2b continued

1. The RAC does not allocate local addresses and should not begin doing so.
   "A CID has the X bit (U/L bit) equal to one and consequently that places any address with the CID as its first three octets in the local address space (U/L = 1). Local addresses are not globally unique, but a network administrator is responsible for assuring that any local addresses assigned are unique within the span of use." from IEEE RAC document "Guidelines for Use Organizationally Unique Identifier (OUI) and Company ID (CID)"
   The scope statement should not imply a change to the current RAC policy.

802.11 on 5.5 need

1. The sentences "This project will enable protocols that automatically configure addresses from a portion of the local address space. Such protocols will allow virtual machines and IoT devices to obtain a local address without local administration." do not state a need. Delete the 2 cited sentences or reword to describe a need.

2. "*Organizations will be able to use a CID address block as a default address space for their protocol without conflicting with other protocols following the guideline.*"

   - Organizations are already able to use the local address space. A local administrator can allocate local addresses without a CID. A local administrator can use a CID to allocate addresses from the local address space as an alternative.

802.11 CSD coexistance

1. Section 1.1.2 – Coexistence. While the proposed document is not a wireless document, we believe that the coexistence issue must be addressed to describe how the new mechanisms or recommendations will coexist with deployed devices and uses of the local MAC address space, in particular, existing 802 wireless standards.

802.11 on Broad Market Potential

- 1.2.1 includes the example of *"Fibre Channel over Ethernet (FCoE) has standardized a protocol for distributing FCoE virtual port MAC addresses from blocks in the Local MAC address space."* This example is in conflict with the statement in the PAR (5.2.b) "This will allocate a portion of the address space for protocols using an IEEE Registration Authority assigned Company ID."
as protocols can assign addresses today. This strengthens the case for either a recommended practice or development of a protocol.

- The last paragraph in 1.2.1 asserts that "*A first step in enabling protocols for claiming or assignment of Local MAC addresses is to organize the MAC address space so that entities can be assigned a block of the Local Address space through the Company ID (CID) as a default. Another part of the space will be defined for local administration.*" This is an assertion that is not substantiated and is disproven by the Fibre Channel example in 1.2.1.

802.11 on Technical Feasibility

- Section 1.2.4 asserts *"Organizations will be able to use a CID address block as a default address space for their protocol without conflicting with other protocols following the guideline."* Organizations are already able to use the local address space. The local administrator can use the CID to allocate addresses from the local address space is not necessary. Definition of a protocol to assign a local address is sufficient. The RAC does not allocate local addresses and should not begin doing so.

- Section 1.2.4 asserts *"Another part of the space will be defined as the preferred area for local address administration."* This creates a backwards compatibility issue, as the entire space is used today for local address assignment.

802.11 on Economic Feasibility

- Section 1.2.5 asserts that *"CIDs are available from the RAC for a known cost."* If there is a requirement for using CIDs from the RAC, then additional cost are incurred.

802.15 Scope comments

- 802.15: The project scope is vague and confusing, leaving it unclear what is expected as the outcome of this project. Suggested changes: Include specifically in the scope that the project will develop guidelines, techniques and strategies which may be applied to management of local address spaces, and rules to apply when the specific guidelines, techniques and strategies recommended are adopted.

- 802.15 Also, the opening premise in the "need for the project" appears based on the assumption virtual machines and IoT devices use EUI-48 addresses and ignores the far deeper EUI-64 address space used by many (now approaching one billion and growing rapidly) 15.4 based IoT devices.   From explanations given in the ad-hoc discussion, it appears the intent of the project is to address ONLY locally administered EUI-48 address space. If this is the intent it should be clearly stated in the project scope.

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802.15 Need comments

- The sentence "Such protocols will allow virtual machines and IoT devices to obtain a local address without local administration." is self contradictory and technically invalid: "This project will enable protocols that automatically configure addresses from a portion of the local address space" would be a method of local administration. Suggest deleting this sentence.

802.16 on 5.2b Scope of project

- PAR 5.2.b. "Scope of the project" should include allocation of some address space for use by 802 protocols, not only for use by other parties. IEEE 802 protocols should not be limited to operation under a single CID.

- 5.2.b: This will allocate a portion of the address space for protocols using an IEEE Registration Authority assigned Company ID. Another portion of the local address space will be allocated for assignment by local administrators. **A portion will be allocated for use by IEEE 802 protocols using a partitioned local address.**

802.16 on Need

- PAR 5.5 "Need for the Project" mentions configuring addresses but nothing about how addresses can be used
- 5.5: This project will enable protocols that automatically configure **and use** addresses from a portion of the local address space..

802.16 on 6.1b Registration activity

- If yes please explain: This will allocate a portion of the address space for protocols using an IEEE Registration Authority assigned Company ID <u>and one or more blocks of CID space to be agreed with the Registration Authority</u>.

Geoff Thompson on Need

- I have a problem with the following text which is currently in the draft PAR:
- **5.5 Need for the Project:** Currently, global addresses are assigned to most IEEE 802 end stations and bridge ports. Increasing use of virtual machines and Internet of Things (IoT) devices could exhaust the global address space if global addresses are assigned. This project will enable protocols that automatically configure addresses from a portion of the local address space. Such protocols will allow virtual machines and IoT devices to obtain a local address without local administration.

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Geoff Thompson on Need (cont)

- I believe that following would be more accurate depiction of appropriate goals for the project:

- **5.5 Need for the Project:** Currently, globally unique addresses are assigned to most IEEE 802 end stations and bridge ports. Increasing use of virtual machines (wherein a networked (virtual) machine is instantiated as a software file or record) and Internet of Things (IoT) devices could exhaust the global address space if global addresses are assigned. This project will provide conventions and provide for protocols that will allow multiple stations or servers to automatically configure addresses from a portion of the local address space. Such protocols will allow virtual machines and IoT devices to obtain a local address without centralized local address administration.

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- (I admit that this text is more directed at the virtual machine problem that the IoT problem. I am not convinced that the IoT problem is nearly as serious and I further believe that many IoT devices (e.g those in automobiles) may well end up with fixed addresses because it is obvious that there will be only a single instance of one device per routed network. A well know MAC address for a conventional automotive alternator would be an example. It is a one per car device (yes, there COULD be exceptions but they are not relevant.))

Geoff Thompson on coexistence

- **1.1.2 Coexistence**

- The response "A CA document is not applicable because this is not a wireless project" is, I believe incorrect. First, the 802 O&A applies equally to wired and wireless projects so the response is misleading or incorrect. Second, I do not believe that the coexistence criteria should be limited to wireless projects when coexistence is an issue with the project. Please reconsider your response.

Privacy and 802c PAR

- Long lived identifiers associated with a user, such as MAC addresses, have been identified as privacy risks in 802 protocols

- The potential 802c recommendations and rules for the use of the local address space would have direct implications on privacy issues and possible solutions being considered in the group

IEEE 802c PAR/CSD Comments

- EC SG Privacy considerations
  - Some over-the-air transmissions subject to Privacy issues take place before there is full L2 connectivity (e.g. 802.11 Probe-REQ). This makes it impossible for a network administrator entity to coordinate MAC address assignment.
    - *The 802c recommendations should allow (i.e. should not prevent) random assignment of MAC addresses for first time communications over-the-air, without the need to implement either a claiming or an assignment protocol*

IEEE 802c PAR/CSD Comments

- EC SG Privacy considerations
  - There are many stakeholders in the 802c PAR that need to understand the problem before voting on the PAR. These stakeholders need an opportunity to discuss further.

    - *The Privacy EC SG recommends that 802.1 WG consider postponing submitting the PAR*