Cl **3** *SC* **3.1** *P* **1** *L* **53** # 58

Seaman, Mick Mick Seaman

Comment Type **ER** *Comment Status* **D**

See pg 1, line 25 "Four editing instructions are used ..". Merge is not one of them. "Insert" would be just fine here. Stick to the four instructions, deviation is likely to draw sponsor ballot comment you don't need.

SuggestedRemedy

Replace all editing instruction use of "Merge" with "Insert" (and appropriate additional instruction as needed). Similarly replace "Remove" by "Delete" etc.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Use "Insert" instead of "Merge" (Page1 Line53 and Page2 Line3).

User "Delete" instead of "Remove" (Page2 Line23 and Page2 Line25)

Cl **8** *SC* **8,4** *P* **2** *L* **36** # 68

Thompson, Geoff

Comment Type **T** *Comment Status* **D**

Roger-

My apologies for not finishing my review nor reducing it and hammering it into the correct comment submission format. I prepared it some time ago and never got to finishing my review. None the less, I feel that its embedded concepts should be considered and (as always) early input is better. What is below is two cuts at the problem without the final reduction to hammer it into a single coherent piece. I hope it will be useful and constructive and you get positive value from getting this input in unpolished form now rather than waiting for a subsequent ballot. I'm sorry that the consideration of this will be at a meeting that I cannot attend. I'll be happy to discuss via e-mail, phone or at the July meeting.

Best regards,

Geoff Thompson

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Comments on P802c/D0.3

8.4 should not be replaced. After all, nothing is being done to negate the statement in 8.4 and it remains valid as an overview. That is, there should be an 8.4 Concept and Overview and it should be an expansion of the current text. I suggest the following:

(I wish to insert an aside here. I have NEVER before encountered a PDF of a standards draft that is as difficult to copy text from as 802c/D0.3. I don't know how you achieved it, but please stop. It makes it very difficult to copy and edit text from the draft for concise commenting. Now back to our regular program.)

8.4 Local MAC addresses Overview

Local MAC addresses are 48-bit or 64 bit MAC addressees for which there is no guarantee that each MAC address is unique in all IEEE 802 networks.

A MAC address that has the U/L bit set to indicate a local MAC addresses (i.e. a local MAC address) may be assigned any value without regard to global addresses as assigned by the IEEE Registration Authority. There still remains a requirement for MAC Address uniqueness within the local address domain. A local address domain is a network or system of networks (e.g. a bridged network) such that the MAC addresses operating on that/those network(s) are contained. A network or networks fully enclosed from the internet or outside networks by Layer 3 routers would be an example of such a network. Devices operating with such an address shall not be connected in a different address domain using the address assigned locally.

Generation of locally assigned MAC Addresses in such a network is the responsibility of one or more devices local to that network. One mechanism to enable multiple non-interfering dispensers of addresses is specified below.

Local MAC addresses may be assigned any value that has the U/L bit set to indicate a local MAC addresses and an I/G bit value that indicates whether the MAC address is individual or group. Local MAC addresses need to be unique on a LAN or bridged LAN unless the bridges support VLANs with independent learning.

==========

8.4 Local MAC addresses(from published std.)
Local MAC addresses are 48-bit or 64 bit MAC addressees for which there is no guarantee that the MAC address is unique in all IEEE 802 networks. Local MAC addresses may be assigned any value that has the U/L bit set to indicate a local MAC addresses and an I/G bit value that indicates whether the MAC address is individual or group. Local MAC addresses need to be unique on a LAN or bridged LAN unless the bridges support VLANs with independent learning.

The I/G bit is set as described in 8.2.2.

NOTE—MA-L, MA-M, and MA-S assignments do not apply to local MAC addresses. Refer to the IEEE RA web site for recommendations for management of the local MAC address space.

[Replace 8.4 in its entirety with the following:]

8.4.1 Concept and overview
The U/L bit of a local MAC address is set to 1, indicating that the remaining bits (i.e., all bits except the U/L bit and the I/G bit, which is set as described in 8.2.2) are locally administered. Local MAC addresses are not presumed universally unique across all IEEE 802 networks. The locally administered bits of local MAC addresses are arbitrarily assignable under the condition that local MAC addresses are unique within a LAN (which may be a bridged LAN or virtual bridged LAN) unless they are assigned to distinct VLANs in which bridges support Independent VLAN Learning, per Annex F.1.2 (“Duplicate MAC Addresses”) of IEEE Std 802.1Q. Any failure of such uniqueness invalidates the fundamental premises of IEEE 802 network operation and may lead to disruption.

While a local administrator may assign addresses throughout the local range, the optional Structured Local Address Plan (SLAP) specifies differentiated assignment approaches in four regions of local address space.

8.4.2 Local MAC address assignment protocols
An address assignment protocol assigning local MAC addresses to devices on a LAN should ensure uniqueness of the local MAC addresses it assigns within the LAN.

SuggestedRemedy

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This comment is difficult to address due to the lack of a concrete proposal. In response to some specific points:

(1) The PDF was generated by FrameMaker. In general, the text can be copied. In some cases, particularly is text marked by change bars, some copied PDF lines are rendered out of display order. The editor will attempt to find a solution for future drafts.

(2) It is not clear why the comment is concerned whether the current 8.4, which is a brief paragraph, is edited by changes or by replacement. The effect is the same.

Cl **3** *SC* **3.2** *P* **2** *L* **15** # 51

Don Pannell ( )

Comment Type **E** *Comment Status* **D**

SLAP - really? This is not a good acronym for this topic.

SuggestedRemedy

How about SLAU for Structured Local Address Usage? Or SLAB for Structured Local Address Blocks?

Proposed Response *Response Status* **W**

PROPOSED REJECT.

No identified problem with the name or abbreviation. No apparent conflict. The word "Plan" is an accurate description.

Cl **8** *SC* **8.2** *P* **2** *L* **23** # 59

Seaman, Mick Mick Seaman

Comment Type **E** *Comment Status* **D**

It would be much more obvious to reviewers what was being done if the first two instructions were shown as changes to the initial paragraphs of 8.2.2 and the Table.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Insert Table 1, along with notes, from IEEE Std 802-2014, showing strikeouts to indicate the deletions indicated on Page 2 Lines 22-26.

Cl **E** *SC* **E.3** *P* **8** *L* **44** # 56

Mark Hantel ( )

Comment Type **E** *Comment Status* **D**

Informative history would be useful here.

SuggestedRemedy

I'm not sure how the history of the company id is significant, but 802c information would be useful for context.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Document the history into draft priot to WG Letter Ballot.

Cl **8** *SC* **8.4.1** *P* **2** *L* **40** # 46

Cummings, Rodney National Instruments

Comment Type **TR** *Comment Status* **D**

There are many standard protocols in operation today that use a MAC address as a field within an identifier, and that identifier does not apply to the header of a frame. Some of those standard protocols exist in IEEE 802 (e.g. LLDP, SRP), but many are outside (e.g. IEEE 1588 clockIdentity). I would argue that most of these protocols have the following two requirements (some would say assumptions) for the 802 MAC address:
- Unique: This concept is discussed in IEEE 802 subclause 8.2.1, and this new text in 8.4.1.
- Persistence: This concept is not discussed in IEEE 802, but is equally important.
In the context of standard protocols, I would define persistence as "The relationship between the MAC address and a physical port cannot change while the standard protocol is using the MAC address for identification." In other words, the standard protocol assumes that the MAC address is indefinitely bound to a physical entity. The persistence requirement is technically unrelated to uniqueness: If the MAC address changes without my protocol's knowledge, that breaks my protocol even if the MAC address is unique. Today's standard protocols easily meet both requirements by using an EUI-48. Advocates for local addressing schemes are proposing changes to these standards as "Just say MAC address... do not say EUI-48". If and until IEEE 802 can clearly meet the persistence requirement as well as uniqueness, those comments mjust be rejected. If IEEE 802 really wants these protocols to change EUI-48 to a new term, IEEE 802 must define a new term that meets the persistence requirement, and that cannot be "MAC address" alone.

SuggestedRemedy

Add the persistence concept to IEEE 802 MAC address introduction (presumably 8.2.1 and 8.4.1). Define a new term that refers to a MAC address that is persistent (Persistent MAC Address, PMA?). Standard protocols can use this term when referencing IEEE 802. Address-allocation protocols can use this term to indicate whether the persistence requirement is met (i.e. "I promise not to change your MAC address after I allocate one to you").

Proposed Response *Response Status* **W**

PROPOSED REJECT.
The specific proposal is difficult to discern or presume. IEEE 802 standards do not presume a persistent link between a MAC address and a physical port; even in the case of unique global hardware addresses, the device may roam to a different phyical port. Also, physical ports are not a subject of IEEE Std 802. Therefore, any issue of persistence should be taken up in a different standards project.

Cl **8** *SC* **8.4** *P* **2** *L* **40** # 60

Seaman, Mick Mick Seaman

Comment Type **E** *Comment Status* **D**

Don't see why the "8.4.1 Concept and overview" heading is needed, it is well over-blown as a heading for what follows. "Concept" of what?

SuggestedRemedy

Show the material following 8.4.1 as a Change to 8.4 and then use Insert to insert 8.4.2 (now as 8.4.1).

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This language is consistent with the base standard. In particular, it is parallel to 8.2.1, which is also entitled "Concept and Overview" and which is at a comparably high level.

Cl **8** *SC* **8.4** *P* **2** *L* **53** # 62

Seaman, Mick Mick Seaman

Comment Type **E** *Comment Status* **D**

What does "differentiated" mean here?

SuggestedRemedy

Do you mean "different", or "alternative"?

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Change as follows: "different<delete>iated</delete> assignment approaches in four <insert>specified</insert> regions of local address space."

Cl **8** *SC* **8.4** *P* **2** *L* **58** # 61

Seaman, Mick Mick Seaman

Comment Type **TR** *Comment Status* **D**

"should" is conformance terminology but its use here is very weak. The uniqueness requirement has a similar correctness impact to failure of a CRC Recalling all the discussions about functional requirements and hamming distance the contrast between how seriously that was taken and how loosely this is presented is striking, are we getting nosebleeds above the encoding layer ;-)

SuggestedRemedy

Either express as a need in terms of consequences if not met (undiagnosable network failure for one or more stations, perhaps) or develop a set of quantitative measures about how good assignment needs to be.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See Comment #52.
The implications of non-uniqueness are not limited to local addressing; addresses in the global space can also be non-unique. Therefore, this topic might be better addressed elsewhere. In order to clarify, modify the draft to repeat the reference to 802.1Q, as in 8.4.1, changing the sentence at Page 2 Line 58 to:

An address assignment protocol assigning local MAC addresses to devices on a LAN should ensure uniqueness of those addresses, per the description of Annex F.1.2 (“Duplicate MAC Addresses”) of IEEE Std 802.1Q. That annex also identifies risks of non-uniqueness. Any failure of such uniqueness invalidates the fundamental premises of IEEE 802 network operation and may lead to disruption.

Cl **8** *SC* **8.4.2** *P* **2** *L* **58** # 52

Don Pannell ( )

Comment Type **TR** *Comment Status* **D**

"should ensure" does not follow the statement in line 49 on the same page - Any failure invalidates 802 nework operation…

SuggestedRemedy

How about "must ensure" or "cannot allow the co-existence of non-unique MAC addresses"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

See Comment #61.

Cl **8** *SC* **8.4.2** *P* **3** *L* **5** # 53

Don Pannell ( )

Comment Type **TR** *Comment Status* **D**

"should" word again

SuggestedRemedy

change to "must"

Proposed Response *Response Status* **W**

PROPOSED REJECT.

Per the 2014 IEEE Standards Style Manual, "the use of the word must is deprecated and shall not be used when stating mandatory requirements; must is used only to describe unavoidable situations."

The intention, per prior Task Group discussions, is to make a recommendation, not to mandate administrative behavior.

Cl **8** *SC* **8.4** *P* **3** *L* **19** # 63

Seaman, Mick Mick Seaman

Comment Type **T** *Comment Status* **D**

"first and second least significant bits" is open to misinterpretation as "first bit and second least significant bit".

SuggestedRemedy

Use "least and second least"

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **8** *SC* **8.4** *P* **3** *L* **27** # 64

Seaman, Mick Mick Seaman

Comment Type **TR** *Comment Status* **D**

Table (if a table is to be used) needs msb and lsb marking, otherwise it is really unclear what it is saying.

SuggestedRemedy

Add header row, marking msb and lsb (at least) or better use a figure following an already agreed presentation style in Std 802. A variant of Figure 11a (already in the document) would be clearest. Perhaps best use the Figure 11a format for an example of each of the quadrants .

Proposed Response *Response Status* **W**

PROPOSED ACCEPT IN PRINCIPLE.

Replace with a figure based on format of Figure 11a.

Cl **8** *SC* **8.4.3** *P* **3** *L* **29** # 54

Don Pannell ( )

Comment Type **TR** *Comment Status* **D**

I spent more time searching for the new meaning for your 'new' X & M bits - when they weren't and can't be new.

SuggestedRemedy

The M bit is the I/G bit - so call it that. The X bit is the G/L so call it that. Remove X bit & M bit from Figure 11a too.

Proposed Response *Response Status* **W**

PROPOSED REJECT.

This terminology is already used in the base standard IEEE Std 802-2014; see for example Page 23 ["A CID assignment has the X bit (the U/L address bit in a MAC address) set to one"] and Page 32 ["All OUI and OUI-36 identifiers assigned by the IEEE have the M bit set to zero."] The usage is also explained in the paragraph before the table: "The first and second least significant bits of the initial octet of a MAC address are designated the M bit and X bit, respectively, using the terminology specified in [B8].'

However, the usage can be clarified. See Comment #64.

Cl **8** *SC* **8.4** *P* **4** *L* **33** # 65

Seaman, Mick Mick Seaman

Comment Type **TR** *Comment Status* **D**

Since there is no provision for a detailed claim of conformance the use of "shall" is inappropriate. What is more it is unnecessary. What is needed is a simple statement of fact. Each CID has the X bit set to 1. A bit pattern with an X bit of 0 is simply not an ELI (it can't be, according to pg 4, line 7). [Similarly there is not point in saying "a cat shall not be a dog" or a "0 shall not be a 1". A cat is not a dog, a 0 is not a 1, a bit pattern with an X bit of 0 is not an ELI.]

SuggestedRemedy

Just say what an ELI is and leave the inappropriate conformance language out.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
This usage is consistent with that of the base standard, which says, for example:

An OUI or OUI-36 identifier assigned by the IEEE with the X bit set to one shall only be used as an OUI or OUI-36 protocol identifier, respectively.

And:

All identifiers derived from OUIs assigned by the IEEE shall have the M bit set to zero.

Cl **8** *SC* **8.4** *P* **4** *L* **45** # 66

Seaman, Mick — Mick Seaman

Comment Type **TR** *Comment Status* **D**

Against all the available evidence this draft persists in the fiction that there is a unique local administrator. Much of the need for SLAP is due to the fact that there are several administrators, or rather several administrative regimes allocating addresses in one net. The best that can be done with this paragraph is to intuit that CID usage has to be under the control of a single administrator (administrative regime) and that this document calls that person/regime "the local administrator" even though other persons/regimes may allocate or set policy for allocation of addresses. That's hardly what is intended.

SuggestedRemedy

Grasp the nettle at the beginning of the SLAP introduction. What is being dome is providing a framework for multiple administrators/administrations to coexist. Then decide whether all CIDs have to be under control of one administrator/administration or whether they provide scope for future sub-division of responsibility (or not).

Proposed Response *Response Status* **W**

PROPOSED REJECT.

The draft does presume an administrator. If the administrator simply ensures that all assignments follow the SLAP, then the the adminstrative work should be minimal. If two entities are responsible for address assignment, then those two need to be coordinated to avoid conflicting addresses. If the two entities cooperate to ensure such coordination, then the two-entity combination team serves as the administrator.

Cl **8** *SC* **8.4** *P* **5** *L* **23** # 67

Seaman, Mick — Mick Seaman

Comment Type **E** *Comment Status* **D**

Remove the bit-reversed representation from the figure. The NOTE in 8.1 of the base standard explains why, and the base standard already explains it more than adequately.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED ACCEPT.

Cl **8** *SC* **8.4** *P* **i** *L* **1** # 57

Seaman, Mick — Mick Seaman

Comment Type **ER** *Comment Status* **D**

Show what is being amended (at top right) in this case I believe the appropriate text would be "(Amendment to IEEE Std 802-2014)" but life may not always be that simple and it is always possible that another amendment may occur first, so it might be "(Amendment to IEEE Std 802-2014 as amended by IEEE Std 802d-2016)" for example. See cover page of 802.1QCa-2015 for a final standard version of text. Repeat this information on page 1 "(This amendment is based on IEEE Std 802-2014)" for example (again see .1Qca published text for best practice). This information is useful for the reviewer so that there is no need to hunt up 802a and 802b and check they should not be applied to 802-2014.

SuggestedRemedy

As per comment.

Proposed Response *Response Status* **W**

PROPOSED REJECT.
While this would be useful, the 2014 IEEE Standards Style Manual does not indicate such a format on a draft amendment, even though the published standard will be marked as such. The editor will consult with IEEE-SA editorial staff to determine whether additional marking, as recommended, is acceptable. Note that the Introduction of the draft states that this is an amendment to IEEE Std 802-2014.