P802c/D0: Overview of Editor's Draft

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Re: P802c/D0

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Purpose:
To introduce and explain P802c/D0, an Editor's Draft for the P802c project.

Notice:
This document represents the views of the author and is offered as a basis for discussion.

P802c/D0:
Overview of Editor's Draft

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Abstract

This contribution introduces and explains P802c/D0, an initial draft under the P802c project. The document is an Editor's Draft aimed at creating a starting point for discussion.

Outline

- Project status and PAR highlights
- Draft structure

P802c Project Status

- Draft Amendment to IEEE Std 802-2014
- PAR Approval Date: 2015-06-11
- No substantive discussion in July or September
- 5.2.b. Scope of the project: *The amendment will provide an optional local MAC address space structure to allow multiple administrations to coexist. This structure will designate a range of local MAC addresses for protocols using a Company Identifier (CID) assigned by the IEEE Registration Authority. Another range of local MAC addresses will be designated for assignment by local administrators. The amendment will recommend a range of local MAC addresses for use by IEEE 802 protocols.*

Draft structure

- *<<Editor's note: Sorry I neglected to spell check.>>*
- Frontmatter: pp. i-xiv
- Scope and Purpose
  - unchanged vs 802-2014; Editor's notes spell out PAR elements, as an aid to the reader
- 3. Definitions, acronyms and abbreviations
- 8.2.2 Assignment of universal addresses
- 8.4 Local MAC addresses (primary content)
- 9. Protocol identifiers (Editor's note)
- Bibliography: reference to RAC tutorial
- Annex E (informative) History: Editor's note

8.2.2 Assignment of universal addresses

- Removed references to local MAC addresses and CID
  - added pointer to the new 8.4, which covers these in detail

8.4 Local MAC addresses

- Proposes replacement of existing subclause (four sentences and a note) with an entirely new subclause including:
  - 8.4.1 concept and overview
  - 8.4.2 assignment protocols
  - 8.4.3 Extended Local Identifier [ELI]
  - 8.4.4 Standard Assigned Identifier [SAI]
  - 8.4.5 Administratively Assigned Identifier [AAI]
  - 8.4.6 Summary
  - 8.4.7 Assignment Requirements

8.4.1 Concept and overview

- Introduction and address uniqueness
  - adds reference to Annex F.1.2 (“Duplicate MAC Addresses”) of 802.1Q, in regard to possibility of non-unique address assignments in distinct VLANs, when bridges support Independent VLAN Learning

8.4.2 Assignment Protocols

- Presents notion of separate protocols being specified in separate subspaces so that they can be deployed on the same LAN.

Proposes three types of Local Identifier

- Extended Local Identifier [ELI]
  - per PAR Scope: *range of local MAC addresses for protocols using a Company Identifier (CID) assigned by the IEEE Registration Authority*
- Standard Assigned Identifier [SAI]
  - per PAR Scope: *range of local MAC addresses for use by IEEE 802 protocols.*
- Administratively Assigned Identifier [AAI]
  - per PAR Scope: *Another range of local MAC addresses will be designated for assignment by local administrators.*

8.4.3 Extended Local Identifier [ELI]

- per PAR Scope: *designate a range of local MAC addresses for protocols using a Company Identifier (CID) assigned by the IEEE Registration Authority*
- ELI-48 and ELI-64: similar to EUI-48 and EUI-64
  - use CID instead of OUI
  - restricted to the only quadrant of CID space that has already been allocated by IEEE RA
    - defines new Y bit and Z bit
    - specifies the quadrant as:
      - Y bit = 0
      - Z bit = 1

8.4.4 Standard Assigned Identifier [SAI]

- per PAR Scope: *recommend a range of local MAC addresses for use by IEEE 802 protocols*
- SAI-48 and SAI-64
    - Y bit = 1
    - Z bit = 1
        - additional differentiating bits will be specified in future IEEE 802 assignment protocols

8.4.5 Administratively Assigned Identifier [AAI]

- per PAR Scope: *Another range of local MAC addresses will be designated for assignment by local administrators.*
- AAI-48 and AAI-64
  - Y bit = 0
  - Z bit = 0

8.4.6 Summary

local MAC address type	M bit	X bit	Y-bit	Z bit	Number of IEEE assigned bits (including I/G and U/L)
ELI-48	I/G	1	0	1	24 (CID)
ELI-64	I/G	1	0	1	24 (CID)
SAI-48	I/G	1	1	1	4
SAI-64	I/G	1	1	1	4
AAI-48	I/G	1	0	0	4
AAI-64	I/G	1	0	0	4

8.4.7 Assignment Requirements

- Local MAC addresses assigned by a local administrator for use in a LAN should ensure that assignments are unique.
- For LANs in which local MAC addresses are assigned by multiple address assignment protocols, some things are required for compliance, including:
  - protocols shall avoid duplicate assignments
  - protocols shall assign only ELIs, SAIs, or AAIs
  - The first three octets of an ELI are a CID
    - non-CID extension is assigned as specified by the assignee of that CID or a protocol specified by the assignee

Other

- 9. Protocol identifiers
  - Editor's Note points out that RAC allows the use of CID in local protocol identifiers, but 802-2014 does not.
    - Material could be added, but might be out of scope.
- Bibliography: reference to RAC tutorial on EUI & CID
- Annex E (informative) History: Editor's note points out that it may be useful to add a section on local MAC addresses; could be helpful in backward compatibility