### **Separation of Access and Core Partitioning in the Local Space**

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Re: Proposed P802c PAR

Venue:

IEEE 802 EC Privacy Recommendation Study Group, San Antonio, TX, USA

### Purpose:

To summarize privacy issues related to contribution IEEE 802-ec-14-0071, which addresses the proposed P802c PAR and the partitioning of the local address space.

#### Notice:

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

<sup>\*&</sup>lt;http://standards.ieee.org/faqs/affiliationFAQ.html>

# Separation of Access and Core Partitioning in the Local Space

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### Reference

- This contribution is extracted from:
  - Zonal Address Partitioning in the Local Space
    - <u>IEEE 802-ec-14-0071</u>

### Scenario

- Half of IEEE 802 address space (with the 7th bit set on) is locally administered and not presumed globally unique.
- The IEEE-SA Registration Authority (RA) is assigning 24-bit CIDs with the 7th bit set on, suggesting their use in 802 addresses.
- Proposed P802c project would provide recommendations and rules for the 802 local address space, allocating a portion for protocols using the CID and another portion for local administration.
- Local space is being considered for temporary address assignments to alleviate privacy concerns related to static global addresses based on EUI.

## Divergence of Views

- Some P802c proponents suggest dividing the local space using the CID, perhaps as an identifier of an address assignment or resolution protocol.
- Some, considering privacy, wireless, and access issues, prefer a wide-open, unstructured space to maximize entropy and privacy while minimizing collision probability.
- Should be possible to reach a common understanding, considering:
  - people are addressing different problems
  - the local space is local and does not require a universal solution
- Can a resolution of the conflict offer lead to better use of the local space?

# Key Privacy Points of IEEE 802-ec-14-0071

- Partitioning the local space can add value in the core of the network.
  - zonal addressing is proposed as an example
- However, partitioning the local space in the core need not force a partitioning scheme in the access.
  - address aliasing can be used at the edge
- to reduce collisions, random addressing can be limited to temporary use
- privacy implications should be considered

# Address Aliasing

### Core Switch

Address is partitioned to incorporate a zone identifier.

Switch selects a port based on zone identifier in the zonal DA.

Switch learns zones, not addresses, based on zonal SA.

Core address

Access Point (AP) Local mapping table maps each internal (user-side) address to a corresponding external (core-side) alias address.

Access point replaces access address with core alias address in transmissions to core, and vice versa.

Access address

terminal selects among many (46?) random bits

or could use a global address

Core address	Access address
alias unique within the core	local (could be terminal- selected) or global
alias unique within the core	local (could be terminal- selected) or global

User

# Address Updating

Core Switch Address is partitioned to incorporate a zone identifier.

Switch selects a port based on zone identifier in the zonal DA.

Switch learns zones, not addresses, based on zonal SA.

Core address

Access Point (AP) Local mapping table maps each internal (user-side) address to a corresponding external (core-side) alias address.

Access point replaces access address with core alias address in transmissions to core, and vice versa.

Access address

Core address	Access address
alias unique within the core	local (could be terminal- selected) or global
alias unique within the core	Unique, once assigned by AP; could be Identical to Core address

User

terminal selects among many (46?) random bits

or could use a global address

later, AP assigns unique address (could be identical to Core address)

### Notes

- randomized address would be temporary, so chance of collision might be negligible
- AP-assigned address need not be random; could be selected by AP with assurance of uniqueness within the system
  - uniqueness could be achieved by, e.g., the proposal for zonal partitioning, in which case the AP owns a unique zone ID and manages the uniqueness of addresses incorporating that zone ID

## Privacy Questions

- Would such separation of the access and core address spaces resolve the conflict with P802c?
- Would a method like this allow privacy issues to be addressed?
- Are changes to the draft P802c PAR and CSD required to provide such flexibility?