A SAVI Solution for WLAN

draft-bi-intarea-wlan-03

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July 2024

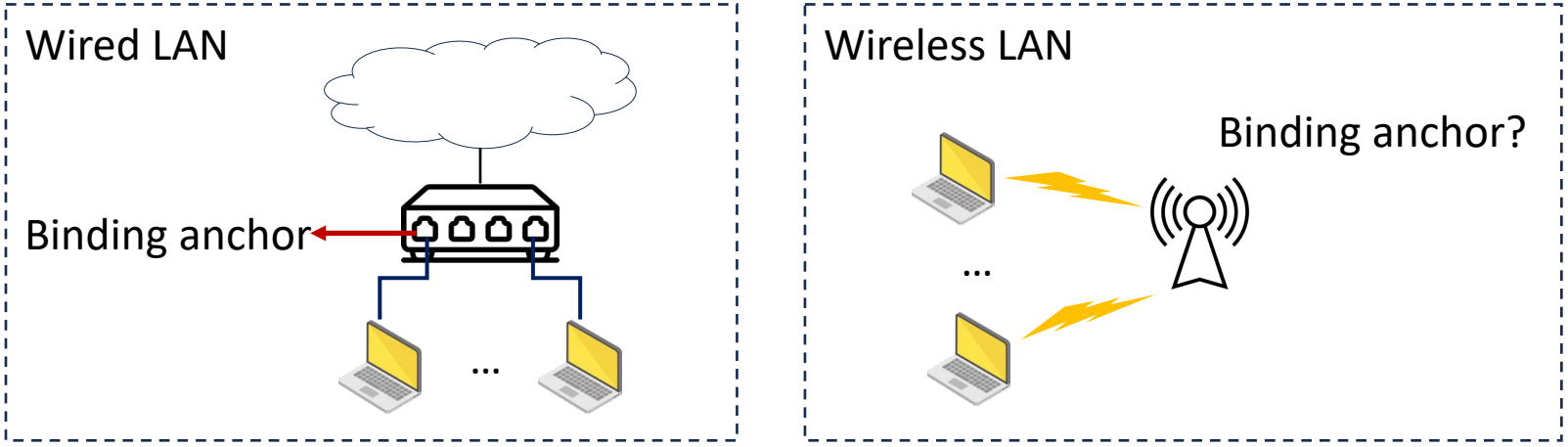
Recap

SAVI-WLAN is a source address validation solution for WLANs:

- Utilize MAC addresses secured by 802.11i or other security mechanisms as binding anchors
- Perform ND snooping or DHCP snooping to bind an assigned IP address to a verified MAC address
- Specify how to migrate bindings in mobility scenarios
- Support deployment scenarios:
  - Centralized WLAN (AP filtering or AC filtering)
  - Autonomous WLAN (AP filtering)

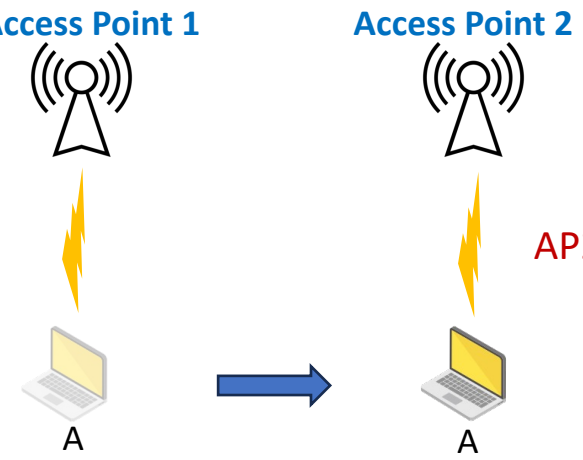
Problem Statement

1. Lack of naturally available binding anchors in wireless LANs



2. User roaming in wireless LANs

AP1's Binding table	
Binding anchor	A



AP2's Binding table	

AP2 cannot enforce binding without A's entry!

Existing solutions

- FCFS SAVI (RFC6620) considers the user roaming case and uses the Neighbor Discovery protocol to verify that the host is still reachable through the previous binding anchor.
  - If not, FCFS SAVI assumes that the new location is valid and creates a new binding using the new binding anchor.
  - If still reachable, the packets coming from the new binding anchor are dropped.

Existing solutions

- FCFS SAVI (RFC6620) considers the user roaming case and uses the Neighbor Discovery protocol to verify that the host is still reachable through the previous binding anchor.
- Limitations
  - ND probing against a previous AP increases the waste of air interface resources because the host can no longer receive packets from the previous AP.
  - The use of ND to confirm whether a host is still reachable under a previous AP prolongs service outages during host roaming and negatively impacts the user roaming experience.

A new method is needed for fast migration of SAVI bindings under wireless LANs.

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- Consideration has been given to the validation of IPv6 prefixes obtained by hosts through DHCPv6 allocation.

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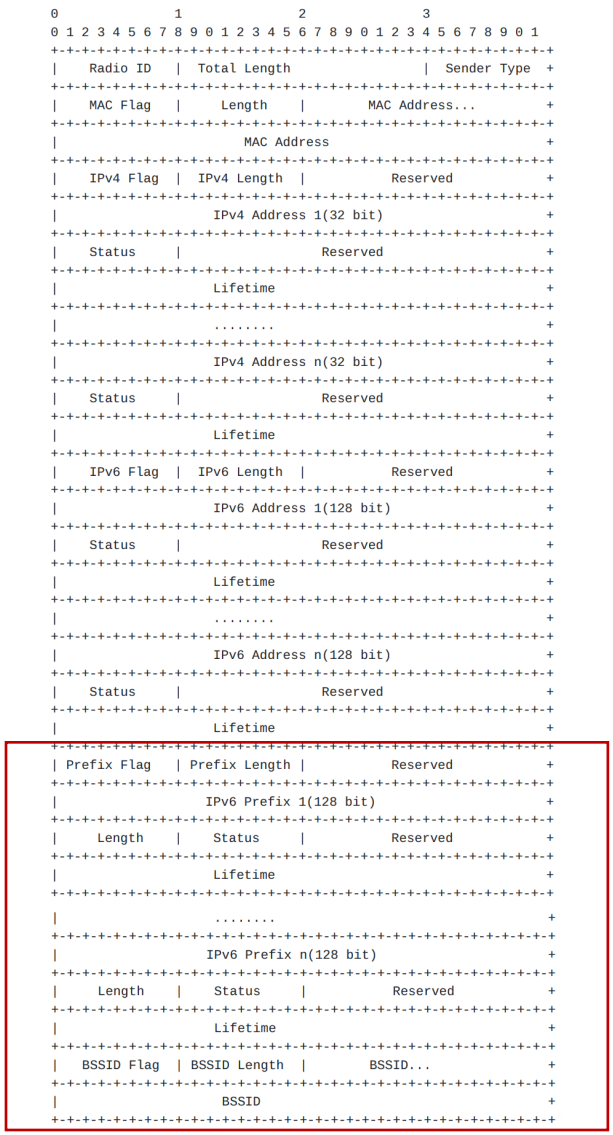

- Simplify fields in the message
  - ~~Sender ID, and its length and description~~
- Support for migration of prefix-related SAVI bindings

Update since IETF 119

- Consideration has been given to the validation of IPv6 prefixes obtained by hosts through DHCPv6 allocation.
- Modifications to the CAPWAP message format
  - Simplify fields in the message
  - Support for migration of prefix-related SAVI bindings
- Add consideration of the impact of different random MAC address generation methods on SAVI-WLAN.

Relationship with existing SAVI solutions

- In SAVI-WLAN, for different address assignment scenarios, the method of establishing binding entries still follows the respective scenario-specific procedures, e.g., RFC 6620, RFC 7513.

Comments?

Thank You!

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