A SAVI Solution for WLAN
draft-bi-intarea-wlan-03

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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

<table>
<thead>
<tr>
<th>Wired LAN</th>
<th>Wireless LAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binding anchor</td>
<td>Binding anchor?</td>
</tr>
</tbody>
</table>

2. User roaming in wireless LANs

<table>
<thead>
<tr>
<th>AP1’s Binding table</th>
<th>Access Point 1</th>
<th>Access Point 2</th>
<th>AP2’s Binding table</th>
</tr>
</thead>
<tbody>
<tr>
<td>Binding anchor</td>
<td>A</td>
<td></td>
<td></td>
</tr>
</tbody>
</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.
Update since IETF 119

- Consideration has been given to the validation of IPv6 prefixes obtained by hosts through DHCPv6 allocation.
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• Modifications to the CAPWAP message format
Update since IETF 119

- Simplify fields in the message
  - Sender ID, and its length and description
- Support for migration of prefix-related SAVI bindings
Update since IETF 119

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• 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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