SAVI for Delegated IPv6 Prefixes

draft-kaippallimalil-savi-dhcp-pd-01.txt

John Kaippallimalil
Frank Xia
Jun Bi

March 2010
Provider Network Architecture

SAVI solution to protect switch ports and provider network.
Problem Statement

• CPE-R obtains delegated prefix from Access Router using RFC 3633, provides individual prefixes to hosts.
  (CPE-R may also obtain other addresses using SLAAC, DHCP).

• How to validate IPv6 source address of upstream packets initiated by host, forwarded by CPE-R to Access Router (AR).

• Switch (in between CPE-R, AR) may ensure that IPv6 address and lower binding anchor are not spoofed.
Solution

• Binding state based on snooping RFC 3633.

7. Binding Specification ........................................ 6
   7.1. Process of DHCP-PD Snooping .............................. 6
       7.1.1. Initialization ........................................ 6
       7.1.2. From START to BOUND ................................ 7
       7.1.3. State transition from BOUND ......................... 8
   7.2. State Machine for DHCP-PD Snooping ...................... 9

• Filtering Upstream Traffic:

8. Filtering Specification ........................................ 9
   8.1. Data Packet Filtering ..................................... 9
   8.2. Control Packet Filtering ................................. 9
Solution Applicability

• Solution can satisfy BBF requirements to filter delegated prefixes:
  “..AN SHOULD inspect upstream and downstream DHCPv6 (RFC3315, RFC3633) and ND (RFC4861, 4862) per user port, discover the mapping of IPv6 prefix to MAC address and populate its IP Anti-spoofing table accordingly.” (WT-177)

• -01 revised to be compatible with SAVI working group documents:

  draft-ietf-savi-dhcp-01
  draft-ietf-savi-rationale-00
Solution Applicability

- Applies to access provider networks, and complies with SAVI scope:
  “…the WG is already chartered to work also on a solution for Ethernet-based broadband access networks that are used in DSL environments.”

[SAVI Charter]
Questions
Next Steps

- Adopt as WG draft?
Architecture Context ** BACKUP

RFC 3633 (DHCP-PD)

User → CPE

User → CPE

User → CPE

User

CPE

CPE

CPE

AN

Access Network

BRAS

Regional Broadband Network

Customer Premises Network