AIS_Hackathon – Day 2

RFCs & Code Equivalent
RFC4213


Participants:
Mohamed Aliouat (DragonFlyBSD) – In progress
Sami AIT ALI OULAHHCEN (FreeBSD) - Completed
Moubarak DADA (NetBSD) – In Progress
Changes in RFC 4213

- Removed automatic tunneling
- Removed use of IPv4-compatible IPv6 addresses
Why?

- IPv4-compatible IPv6 addresses are no longer in use

- Used during the transition from IPv4 to IPv6
IPv4 compatible IPv6 addr

- ::ffff:192.0.2.128 --> 192.0.2.128
IPv6 Packet -> IN6_IS_ADDR_V4COMPAT

- TRUE
  - ::ffff:192.0.2.128
    - ip6stat.ip6s_badscope++

- FALSE
  - Packet accepted
Change - /sys/netinet6/ip6_input.c

-#if 0
+

  /*
   * Reject packets with IPv4 compatible addresses (auto tunnel).
   *
   */

-  * The code forbids auto tunnel relay case in RFC1933 (the check is
-  * stronger than RFC1933). We may want to re-enable it if mech-xx
-  * is revised to forbid relaying case.
+
++  * The code forbids automatic tunneling as per RFC4213.
 */

 if (IN6_IS_ADDR_V4COMPAT(&ip6->ip6_src) ||
      IN6_IS_ADDR_V4COMPAT(&ip6->ip6_dst)) {
      ip6stat.ip6s_badscope++;
      goto bad;
    }
-#endif
Compile kernel

- Compilation Successful!

- RFC 4213 Compliant FreeBSD Kernel
Summary

- Packet arrives at network stack

--> Check is done in ip6_input.c

--> API: IN6_IS_ADDR_V4COMPAT
- Returns true if address is IPv4 compatible IPv6 address otherwise false

--> The check is done on both src and dst of packet structure

--> if true, packet dropped silently + increment stack counters
In Progress:
Working on RFC 8021