The AERO Address

Fred L. Templin (fltemplin@acm.org)
IETF99 6man Working Group
July 17, 2017
Draft History

• First posted on 6man list 6/5/2017 as Draft -00
• List discussion showed interest in the concept
• Questions about fe80::/10 vs. fe80::/64
• https://datatracker.ietf.org/doc/draft-templin-6man-aeroaddr/
The AERO Address

- Node ‘N’ receives a unique IPv6 Prefix Delegation ‘2001:db8:1:2::/64’ through whatever means (DHCPv6 PD, manual configuration, etc.)
- ‘N’ embeds ‘2001:db8:1:2’ in the suffix of the IPv6 link-local prefix:

  fe80::2001:db8:1:2/64 (The “AERO Address”)
AERO Address Advantages

• Stateless IPv6 Link-local address autoconfiguration
• DAD avoidance – IPv6 PD is unique, so AERO address is also unique
• Can be used as the source/destination address of IPv6 ND messages
• Links IPv6 Neighbor Discovery with IPv6 forwarding
Prefix Length Issues

• IPv6 link-local prefix is fe80::/10, but RFC4291 link-local address configuration assumes fe80::/64
• Therefore, embedded prefix length is restricted to /64
• But, what if we could use a shorter fe80:: prefix?
  • fe80::/10 with 2001:db8:1:2 -> fe88:0043:6e00:0400:0800::/10
    • Pros: No wasted bits - can embed prefixes up to /118
    • Cons: Not easy to read or parse
    • Pros: Reads well - can embed prefixes up to /112
    • Cons: wastes 6 bits of the leading 16 bits
Use Cases and Next Steps

• Enterprise mobile devices (e.g., cell phones, tablets, etc.)
• Aeronautical communications (e.g., airplanes, air traffic control, etc.)
• Unmanned Air System (UAS) networks (vehicle to vehicle)
• Home networks with multiple subnets [HOMENET]
• Next steps:
  • 6man WG item?