



Softwire

IETF 78

Note Well

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Agenda

- Chairs intro
- Document status
- Charter discussion
- Gateway Initiated Dual-Stack Lite Deployment (Frank Brockners)
- DHCPv6 Option for Dual-Stack Lite (Tomasz Mrugalski)
- RADIUS Extensions for Dual-Stack Lite (Roberta Maglione)
- RADIUS Attribute for 6rd (Sheng Jiang)
- Softwire Mesh Management Information Base (MIB) (Peng Wu)
- Deployment Considerations for Dual-Stack Lite (Yiu Lee)
- Public IPv4 over Access IPv6 Network (Peng Wu)
- IPv4-IPv6 Multicast: Problem Statement and Use Cases (Mohamed Boucadair)
- Mesh Multicast (Mingwei Xu)
- Multicast Support for Dual Stack Lite and 6RD (Behcet Sarikaya)
- Multicast Extensions to DS-Lite (Jacni Qin)
- A Generic Approach to Multicast Encapsulation In Support of IPv6 Transition (Tina Tsou)

Document Status

- DS-Lite DHCP option:
 - IESG approved, IANA code point allocated
- DS-Lite:
 - in IESG, IETF wide last call
- DS-Lite radius extension:
 - WG last call completed

IETF78: What is next for the wg?

- Most of milestones achieved: DS-Lite & 6rd
- Need to re-charter.
Items considered with ADs are:
 - Operational considerations: 6rd, DS-Lite
 - CPE bootstrap (IPv4, IPv6, Dual Stack, 6rd, DS-Lite)
 - DS-Lite extensions (eg GI-DS-Lite)
 - ??? Multicast: Mesh, 6rd, DS-lite
 - ??? MIB
- Multicast & MIBs have been in the charter for a long time, but little progress. Is there real energy to work on those or should they be dropped?

IETF80: New charter proposal

- The Softwires Working Group is specifying the standardization of discovery, control and encapsulation methods for connecting IPv4 networks across IPv6 networks and IPv6 networks across IPv4 networks in a way that will encourage multiple, inter-operable implementations. For various reasons, native IPv4 and/or IPv6 transport may not be available in all cases, and there is a need to tunnel IPv4 in IPv6 or IPv6 in IPv4 to cross a part of the network which is not IPv4 or IPv6 capable. The Softwire Problem Statement, RFC 4925, identifies two distinct topological scenarios that the WG will provide solutions for: "Hubs and Spokes" and "Mesh." In the former case, hosts or "stub" networks are attached via individual, point-to-point, IPv4 over IPv6 or IPv6 over IPv4 softwires to a centralized Softwire Concentrator. In the latter case (Mesh), network islands of one Address Family (IPv4 or IPv6) are connected over a network of another Address Family via point to multi-point softwires among Address family Border Routers (AFBRs). The WG will reuse existing technologies as much as possible and only when necessary, create additional protocol building blocks. For generality, all base Softwires encapsulation mechanisms should support all combinations of IP versions over one other (IPv4 over IPv6, IPv6 over IPv4, IPv4 over IPv4, IPv6 over IPv6). IPv4 to IPv6 translation mechanisms (NAT-PT), new addressing schemes, and block address assignments are out of scope. DHCP options developed in this working group will be reviewed jointly with the DHC WG. RADIUS attributes developed in this working group will be reviewed jointly with the RADEXT WG. The MIB Doctors directorate will be asked to review any MIB modules developed in the SOFTWARE working group. BGP and other routing and signaling protocols developed in this group will be reviewed jointly with the proper working groups and other workings that may take interest (e.g. IDR, L3VPN, PIM, LDP, SAAG, etc).

Work area

- Developments for Mesh softwires topology; the Mesh topology work will be reviewed in the l3vpn and idr WGs
 - Multicast
 - MIB module
- Developments for 6rd:
 - Multicast
 - Operational specification
 - RADIUS option for 6rd server
 - MIB module
- Developments for Dual-Stack Lite (DS-Lite):
 - Multicast
 - Operational specification
 - RADIUS option for AFTR
 - Proxy extensions: GI-DS-Lite; DS-Lite with no NAT or NAT on the B4 element
 - MIB module
- Finalize discovery and configuration mechanisms for a gateway to use DS-Lite or 6rd; these discovery and configuration mechanisms must take into account other operating environments such as dual-stack and tunneling mechanisms not defined by the softwire WG. Development of new mechanisms will involve the dhc and/or v6ops WGs as appropriate.

Goals & Milestones

lite

- Jul 2011 Submit 6rd DS BADIUS option for Proposed Standard
- Jul 2011 Adopt B4NAT as WG document for Proposed Standard
- Aug 2011 Adopt 6rd DS lite for Proposed Standard as WG document
- Aug 2011 Adopt Multicast extensions document as WG document
- Aug 2011 Adopt 6rd DS - operational document as WG document for Informational
- Sep 2011 Submit B4NAT for Informational
- **Nov 2011 Submit Multicast extensions document for Informational**
operational document for Informational
- Nov 2011 Adopt Multicast extensions document for Informational
- Nov 2011 Adopt 6rd MIB module as WG document
- Nov 2011 Adopt Mesh topology MIB as WG document
- Nov 2012 Submit 6rd MIB module for Proposed Standard
- Nov 2012 Submit DS-
- Nov 2012 Submit Mesh topology MIB for Proposed Standard
- Nov 2012 Submit DS-lite MIB module for Proposed Standard
- Nov 2012 Submit Mesh topology MIB module for Proposed Standard

- “additional” topics discussion:

Mesh

- 6a44: 6over4 with legacy CPE NAT
 - Stateless 4over6
 - VET and SEAL
 - ~~4a46t~~
-
- IPv6 over L2TPv3
 - Wording:
 - NAT-PT -> NAT64
 - No need to “support all combinations of IP versions over one another”

– DS Lite