

IPv6 Standards Update

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June 5, 2002

IPv6 (formerly IPng) Working Group

- minutes and presentations from last IETF meeting are at playground.sun.com/ipv6
- some bureaucratic highlights:
 - Margaret Wasserman (WindRiver) appointed as 3rd co-chair, along with Bob Hinden (Nokia) and myself
 - starting an effort to advance our many Proposed Standards to Draft Standard status (currently have 5 Draft Standards, 32 Proposed)

IPv6 Node Requirements Spec

- started an effort to compile an IPv6 Node Requirements spec
 - triggered by appearance of several device requirements drafts ("cellular hosts", "low-cost network appliances")
 - to identify applicability and requirements level (MUST/ SHOULD/ MAY) of the many IPv6 RFCs and parts of RFCs
 - not to fix bugs/omissions from specification RFCs

Progress on Some Old Issues

■ Flow Label field

- seem to finally have rough consensus use of the flow label:
 - for labeling "microflows", e.g., individual TCP connections and individual RTP streams, to enable more efficient classification by routers for, e.g., QoS handling or load-spreading
 - end-to-end immutable value; dropped "randomness" requirement
 - routers use (source addr, destination addr, flow label) as classifier

■ Scoped Address Architecture

- need to pin down syntax for text representation of zone IDs, then ready for working-group "last call" for publication as Proposed Standard RFC

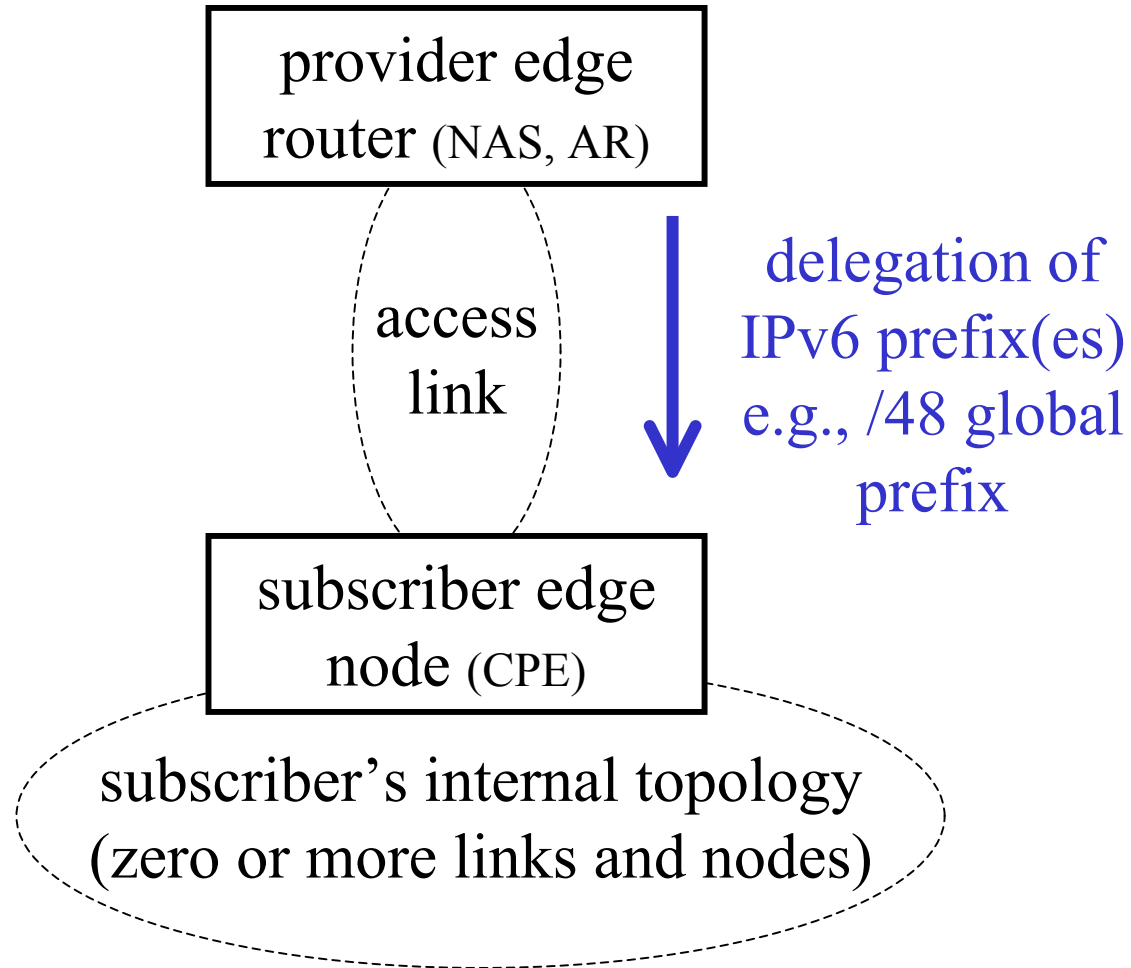
Progress Old Issues (cont.)

- Default Router Preferences & More-Specific Routes
 - inching towards publication as Proposed Standard RFC
- IPv6 3GPP Recommendations
 - submitted for publication as Informational RFC

Non-Progress on Other Issues

- IP-version-independent MIB work was stalled; has now been reactivated
- anycast semantics and mechanics still under debate
 - e.g., may an anycast address be used as a source address
 - proposal to form a new working group for anycast
- far from reaching consensus on DNS Discovery technique(s)
- far from reaching consensus on Prefix Delegation technique(s)

Automatic Prefix Delegation Problem



Results of Discussion and Poll at Redmond Interim Meeting (5/2001)

candidate solutions (votes):

- Router Renumbering (0)
- DHCPv6 (0)
- PPP extension (1)
- normal RAs on access link (many)
- ICMPv6 [Haberman/Martin APD proposal] (many)

Reconsideration of candidates in light of new/revised proposals

candidate solutions (votes):

- Router Renumbering ()
- DHCPv6 ()
- DHCPv6 subset ()
- PPP extension ()
- normal RAs on access link ()
- ICMPv6 [Haberman/Martin APD proposal] ()
- RA extension [Lutchansky proposal] ()

unable to reach agreement to even have a show-of-hands;
have to produce problem description/requirements first.

Prioritizing Future IPv6 WG Work (Rough Draft; Feedback Solicited)

finishing work-in-progress:

- default addr selection
- address architecture
- basic & advanced APIs
- ICMPv6 update
- router preferences
- cellular hosts requirements
- node information queries
- DAD fixes to privacy addrs, autoconf and/or addr arch
- other?

urgent for deployment

- DNS Discovery (but may move out of IPv6 WG)
- prefix delegation
- IPv6 MIBs
- other?

longer-term, but important

- flow label specification
- scoped addr architecture
- IPv6-over-3GPP-PDP-contexts spec
- IPv6 node requirements
- other?

Future IPv6 Work for Other WGs?

- secure, robust plug-and-play?
- multi-link subnet spec?
- anycast architecture?
- routing protocol updates to handle IPv6 scoping?
- other?

NGtrans Working Group

- Margaret Wasserman also appointed co-chair of this WG, replacing Bob Fink (LBL, retired); Tony Hain (Cisco) and Alain Durand (Sun) continuing
- major attempt to refocus group
 - WG has generated many specs and techniques (half a dozen tunneling schemes, multiple translation and dual-stack approaches)
 - is both too much and too little? (numerous redundant mechanisms, but possibly still some gaps)
 - all current drafts-in-progress are being frozen, and group asked to develop transition/interoperation scenarios first, and then show how specific techniques fit into those scenarios

Other Working Groups

■ Mobile IP(v6)

- agreed to use “return routability” as minimal mechanism to authenticate Binding Updates sent to correspondent nodes
- vulnerable to man-in-the-middle subversion, but so is most Internet communication, whether mobile or not
 - (but wireless networks allow more “men” in the “middle”)
- trying to leave door open for future, stronger methods

■ DHCP(v6)

- finally submitted to IESG for publication as Proposed Standard

IPv6 Address Allocation Policy

- revised, common allocation policy adopted by Regional Internet Registries (RIRs)
 - dropping TLA/NLA structure and jargon
 - more liberal policy for initial allocations to ISPs
 - need plan to serve at least 200 subscribers within 2 years
 - initial allocation is a /32
 - additional allocations based on HD-Ratio computation, using current subscriber count
 - takes into account the lower densities achievable for larger-scale, hierarchical allocation blocks