RFC 3484bis (Address Selection)

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Feedback on rfc3484-revise

- Specify replacement rather than deltas
- Avoid gratuitous changes to values in table
- Don’t use “mask” in IPv6, and prefix length issue can also occurs in source addr sel
- IPv4-translatable address handling obsoleted by SIIT update
- Need examples for new rules
- (Others covered in subsequent slides)

RFC1918 Address Scope (1/2)

- RFC 3484: site-local scope
- Problem:
  - D = { global IPv4, global IPv6 }
  - S = { RFC 1918 IPv4, 6to4 }
  - IPv6 dest preferred (Rule 2: matching scope)
- -revise, rfc3484bis: global scope
- Allows configurability as a result, since goes down to at least rule 5 (matching label)

RFC1918 Address Scope (2/2)

- Apps that don't work through NATs want 6to4
- Apps that work through NATs want IPv4
- This might argue for an API switch, like for public/temp addrs & home/care-of-addresses
- Without calling such an API, applications wanting the non-default behavior will have to walk the list and wait for one to fail and then try the other.
- If IPv4 connectivity fails because of a NAT, it'll tend to fail right away, whereas 6to4 may be flaky
- Since it's best to fail-fast, this argues for the default to be IPv4 (which as noted before requires global scope)

ULA Scope (sec. 10.6)

- Problems:
  - Low probability of symmetric reachability unless in same /48, or know better
  - RFC 3484 resulted in longest match sometimes preferring ULA dests, sometimes global dests
- Solution:
  - Prefer ULAs in same /48(s) over global dests
  - Prefer global dests over ULAs not in same /48
- ULAs still have global scope (as in RFC 3484)

Automatic rows

- MAY automatically add /48 rows based on own ULA and 6to4 addresses
- MUST NOT override a row for same prefix configured via other means (e.g. DHCPv6 or manual)
- SHOULD allow admin to disable automatic row additions

Concern with automatic rows

- "Making it be optional complicates configuration"
- Already have to deal with heterogenous hosts
  - (a) no RFC 3484,
  - (b) RFC 3484,
  - (c) RFC 3484bis
- "MUST NOT override" means config should be same for all RFC 3484bis hosts
- Claim this is no worse as a result

6to4 Addresses

- 6to4 addresses can be used for native connectivity within a site
- Problems:
  - Symmetric reachability more problematic than native IPv6 unless in same /48, or know better
- Allow automatic rows, as with ULAs (sec. 10.7)
  - Assumes native IPv6 connectivity within same /48
  - Everything outside is depreferenced

Handling Brokenness

- Ray Hunter: "whatever you assume about RFC1918 addresses has a good chance of being incorrect *unless you can truly detect/confirm presence of global IPv4 connectivity*"
- IPv6 brokenness basically is same issue (with opposite address families)
- RFC 3484 showed how to configure policy to prefer IPv4 vs IPv6
- Rfc3484bis adds (sec 10.3.1):
  - MAY prefer IPv4 if no IPv6 Internet connectivity

Open Issue: Privacy default

- RFC 3484 says SHOULD prefer public (not temporary) addresses by default
  - Tim suggested reversing this
  - Privacy is a popular topic now
  - Windows has always done the reverse whenever temporary addresses are enabled

Anycast Addresses

- rfc3484-revise allowed anycast addresses as source addresses
- François-Xavier Le Bail raised issue of subnet-router anycast address being excepted
- rfc3484bis
  - removes RFC 3484 “MUST NOT” include anycast addresses as candidate source addresses
  - but does add any MUST about inclusion
    - up to implementation to include whatever it believe it has a way to make work