

IPv6 Renumbering, scenarios & requirements

Christian Huitema

draft-huitema-ipv6-renumber-
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Renumbering and IPv6

- Requirements = Scenarios
 - Define the desired usage, frequencies
- Work = tools
 - Host, Routers, DNS, Firewalls, Access control lists ?
 - The tools shall enable the scenarios
 - We should prove that this is “doable.”

Scenario 1, first connection

- A site is currently isolated, using "site local" addresses.
- The site joins the IPv6 Internet.
- Use "Router Renumbering for IPv6" [RFC2894]
- The hosts receive a router advertisement and automatically create a global address as specified in [RFC2462].

Scenario 2, disconnection

- A site is currently connected to the Internet. The site managers plan to disconnect.
- Phase 1: deprecate the old prefix,
- Phase 2: remove it.
- Use "Router Renumbering for IPv6" [RFC2894] and "IPv6 Stateless Address Autoconfiguration" [RFC2462].

Scenario 3, multi-homing

- A site is connected to the Internet through a single provider.
- The site managers set a contract with another provider, and obtain a new prefix.
- The site managers use "Router Renumbering for IPv6" [RFC2894] to automatically inform the internal routers that they should start advertising the new prefix.
- The hosts receive a router advertisement and automatically create a second global address as specified in "IPv6 Stateless Address Autoconfiguration" [RFC2462].

Scenario 4, removing a provider

- A site is connected to the Internet through two providers.
- The site managers want to terminate the contract with one of these providers.
- Phase 1: deprecate the old prefix,
- Phase 2: remove it.
- Both phases are implemented using "Router Renumbering for IPv6" [RFC2894] and "IPv6 Stateless Address Autoconfiguration" [RFC2462].

Scenario 5, time-of-day preference

- A site is connected to the Internet through two providers. These providers use different tariffs.
- The site managers desire that one of the providers be preferred during working hours, say from 9:00 am to 5:00 pm, and another be preferred during the rest of the day.
- They use "Router Renumbering for IPv6" [RFC2894] at critical times (9:00 am, 5:00 pm) to deprecate one of the global prefixes and promote the other.
- The hosts receive router advertisements and heed them as specified in "IPv6 Stateless Address Autoconfiguration" [RFC2462].

Proposal

- Endorse the five scenarios as “mainline.”
- Analyze each scenario in details:
 - What about DNS, directories, etc.
 - What about firewalls, third parties.
 - Mobile IPv6?
- Develop missing tools, or BCP, if needed.
- Demonstrate, e.g. interop demo.

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