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[Informational] Proposal to create IPv4 shared use address space among LIRs

Shirou NIINOBE/NTT
Takeshi TOMOCHIKA/NTT Communications
Jiro YAMAGUCHI/IIJ
Dai NISHINO/JPIX
Hiroyuki ASHIDA/iTSCOM
Akira NAKAGAWA/JPOPM Policy-WG
Toshiyuki HOSAKA/JPNIC

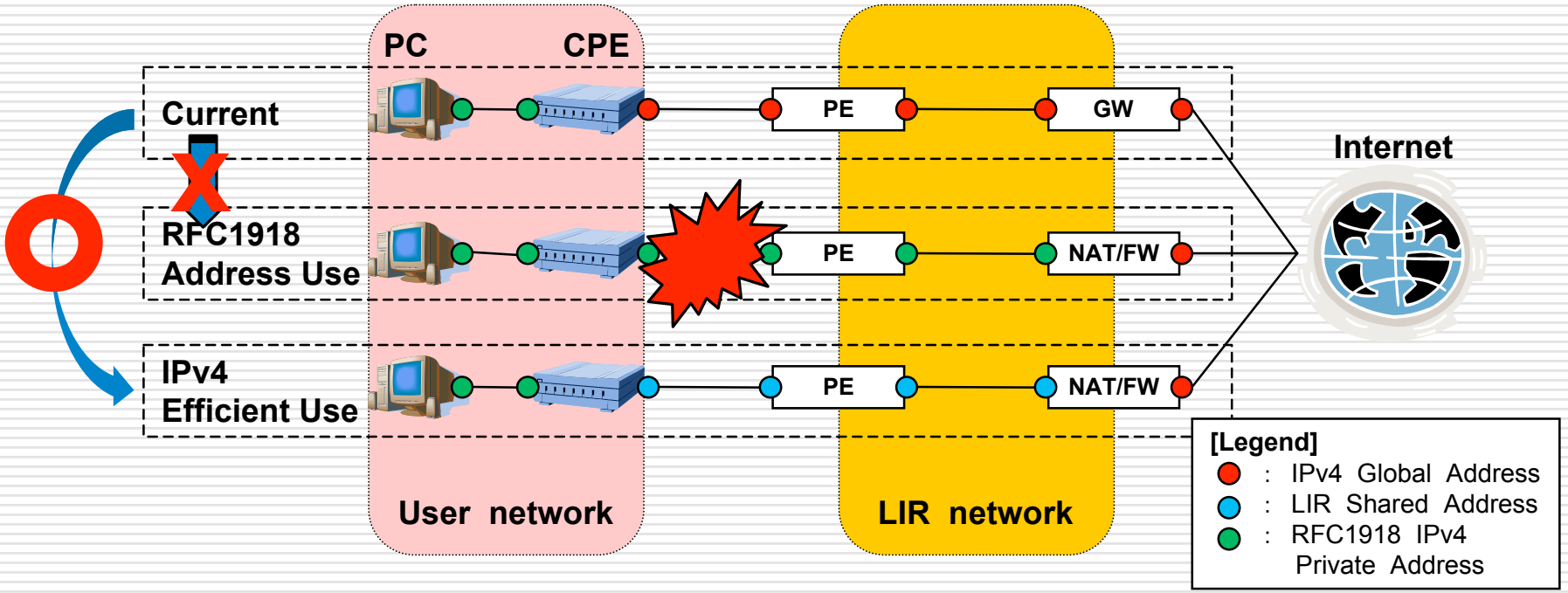
Proposal Overview

- To create IPv4 shared use address space among LIRs
  - Two (2) /8s out of "global" address space allocated to APNIC
  - APNIC members and NIR (under APNIC management) members can use those addresses
    - End-user should use RFC1918 addresses
  - There is NO global uniqueness. Uniqueness is guaranteed in a single LIR's network by the LIR.
  - No need for application, registration, or second opinion request (just like RFC1918 addresses)
  - LIR can assign this space to its customers

- This is "INFORMATIONAL". Your feedback welcome.

Motivation of the proposal

- There is a case that a LIR gave up providing firewall or IP connectivity service behind NAT using RFC1918 address space for the security and the efficient use of IPv4 addresses, because of the potential (possible) address space collision with the same RFC1918 addresses in an end-user's networks.
- Some LIRs apply (and receive) global IPv4 address allocation for the purpose of providing such a service. If we have this proposed shared address they do not have to apply global IPv4 addresses in such a case, and we can achieve efficient use of IPv4 address.



Advantages

- For APNIC:
  - Efficient use of global IPv4 addresses will be promoted, by sharing this proposed space among LIRs
  - "Unnecessary" IPv4 address allocation request will be diminished so the APNIC workload should be reduced
- For LIRs:
  - Easy provision of IP connectivity service behind firewall or NAT
  - No need for IPv4 allocation request, or registration
  - APNIC membership fee, calculated by the amount of allocated global address space, will be saved.
- For end-users:
  - No need for global IPv4 request procedure
  - End-user's choice for the security service will be added

Expectation (1)

- Business continuity after IPv4 address exhaustion:
  - Those shared addresses can survive IPv4 address exhaustion. LIR still can provide their IP connectivity service even after new IPv4 global address become unavailable.

- Promotion of IPv6 address use:
  - IPv6 use will be promoted if LIR supply IPv6 address in parallel with this proposed IPv4 address, to ensure peer-to-peer communication.

Expectation (2)

- Addressing the technical challenge after IPv4 address exhaustion
  - Currently we do not have high-throughput IPv6-IPv4 translator for commercial use, and even if it is not available until the IPv4 address exhaustion LIRs still can provide IPv4 connectivity by dual-stacking with this proposed address space.
  - For those who cannot replace their equipment to IPv6-ready, especially in the LDCs in Asia, can provide IP connectivity by using this proposed address space.

Disadvantage

- For RIR:
  - The amount of global unique IPv4 address which can be allocated to LIRs will be diminished in exchange for this shared address
    - Two (2) /8s
- For LIR:
  - LIRs needs to configure firewalls or NATs to use this proposed address space. Therefore global IPv4 addresses for these equipments are still needed for their external connectivity.

Address Management

- No need for allocation request from LIR to APNIC
- No need for Second Opinion Request from LIR to RIR
- No need for Database (WHOIS) registration
- Uniqueness in LIR's network should be ensured in LIR's network (LIR's responsibility)
- Only LIRs can use this address
  - End-user should receive this address assignment from its upstream LIR

Supplement

- Route advertisement:
  - Should not be allowed.
- Packet filtering:
  - It is recommended that an LIR filters those packets with this address as source and/or destination
- IX use:
  - Should not be allowed.
- Reverse DNS delegation
  - LIR should manage reverse DNS for this address, and should not leak it in the root-DNS tree.

Q&A

- Q1. Will those address be used?
  - A1. Yes, according to our interview to JP LIRs
- Q2. Is there any other target users?
  - A2. A user who uses global IPv4 addresses in closed network, to avoid a collision with its user's network with RFC1918 address being assigned, for instance.
- Q3. Can we prohibit general user to use this address?
  - A3. Practically we can't. But the user will be requested to renumber from its upstream LIR, if the LIR need to assign this address space.
- Q4. What if LIRs, both use this address, merge?
  - A4. At their own risk..
- Q5. If end-user uses NAT, there would be multiple NAT in the network. Won't be there a technical problem?
  - A5. Some applications do not work, while other application that has no information on address or port on payload do work.