

(IETF75)  
Large Scale NAT(LSN)

2009.8

T.Nishitani, I.Yamagata, S.Miyakawa  
Communications

NTT

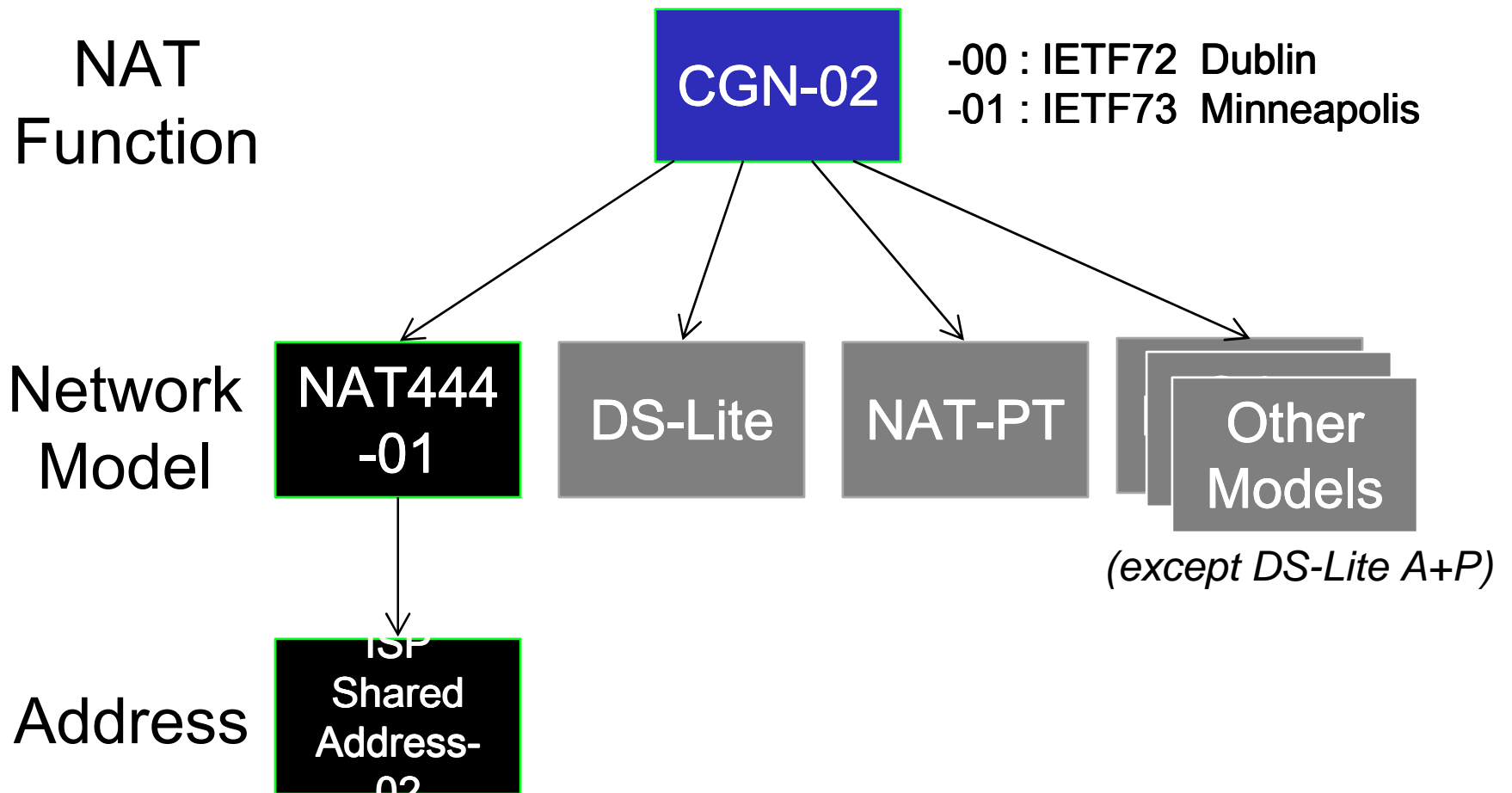
A.Nakagawa

KDDI

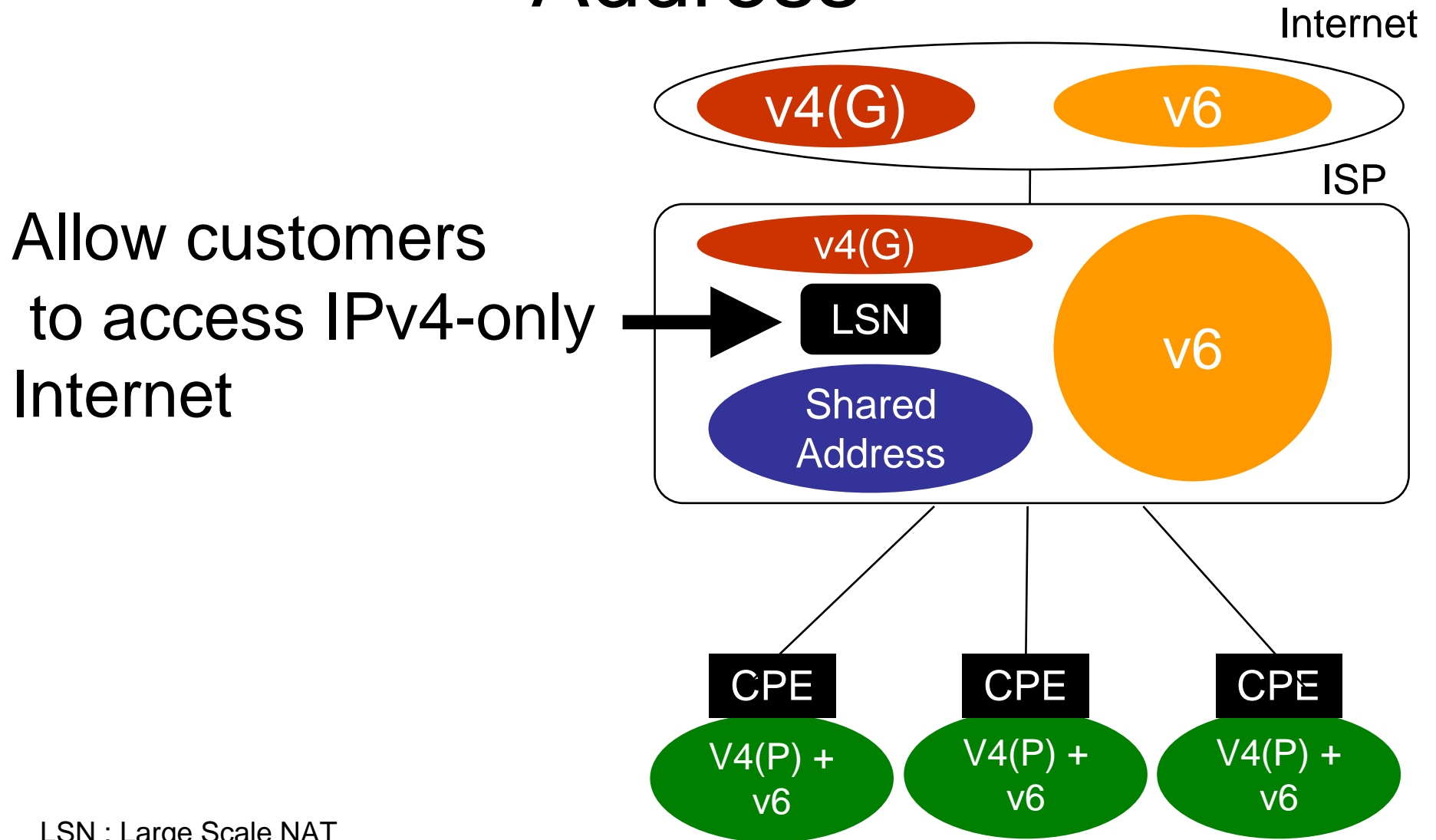
H.Ashida

iTSCOM

# The Structure of related Internet Drafts

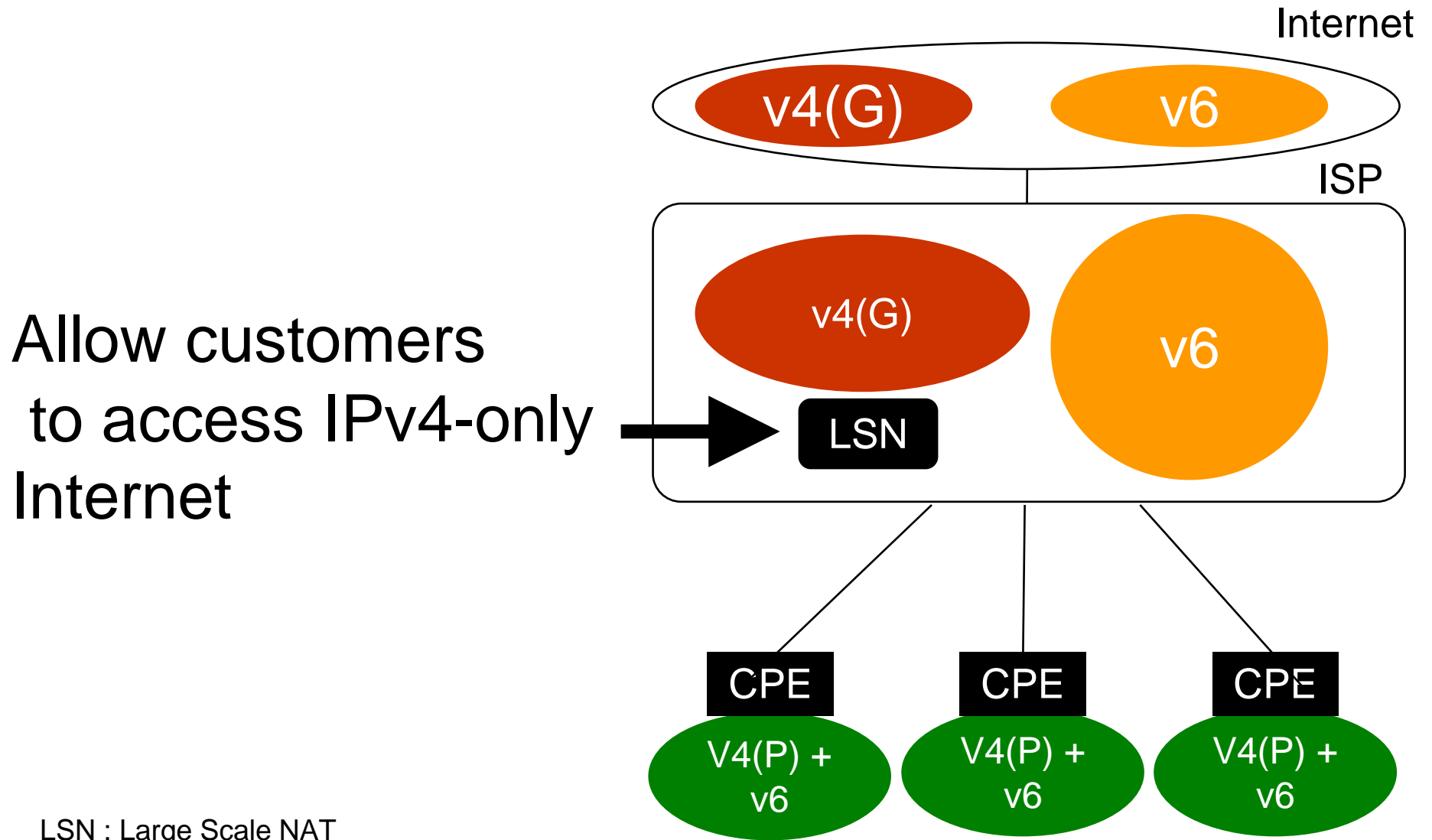


# NAT444 Model + Shared ISP Address



LSN : Large Scale NAT

# DS-Lite Model



LSN : Large Scale NAT

# Requirement (1/3)

- Basic Scheme
  - LSN MUST share Global IP Address for CPEs.
- High transparency and high connectivity
  - LSN SHOULD comply with RFCs of NAT behavior.
    - RFC4787(UDP),  
RFC5382(TCP),RFC5508(ICMP)

# Requirement (2/3)

- Fairness
  - LSN SHOULD limit the number of LSN's ports.
    - UDP and TCP, TCP sessions and ICMP.
  - LSN MAY offer some ways for always-available services (SMTP, DNS, etc) .
    - Reserving some ports
    - LSN path-through (say after)

# Requirement (3/3)

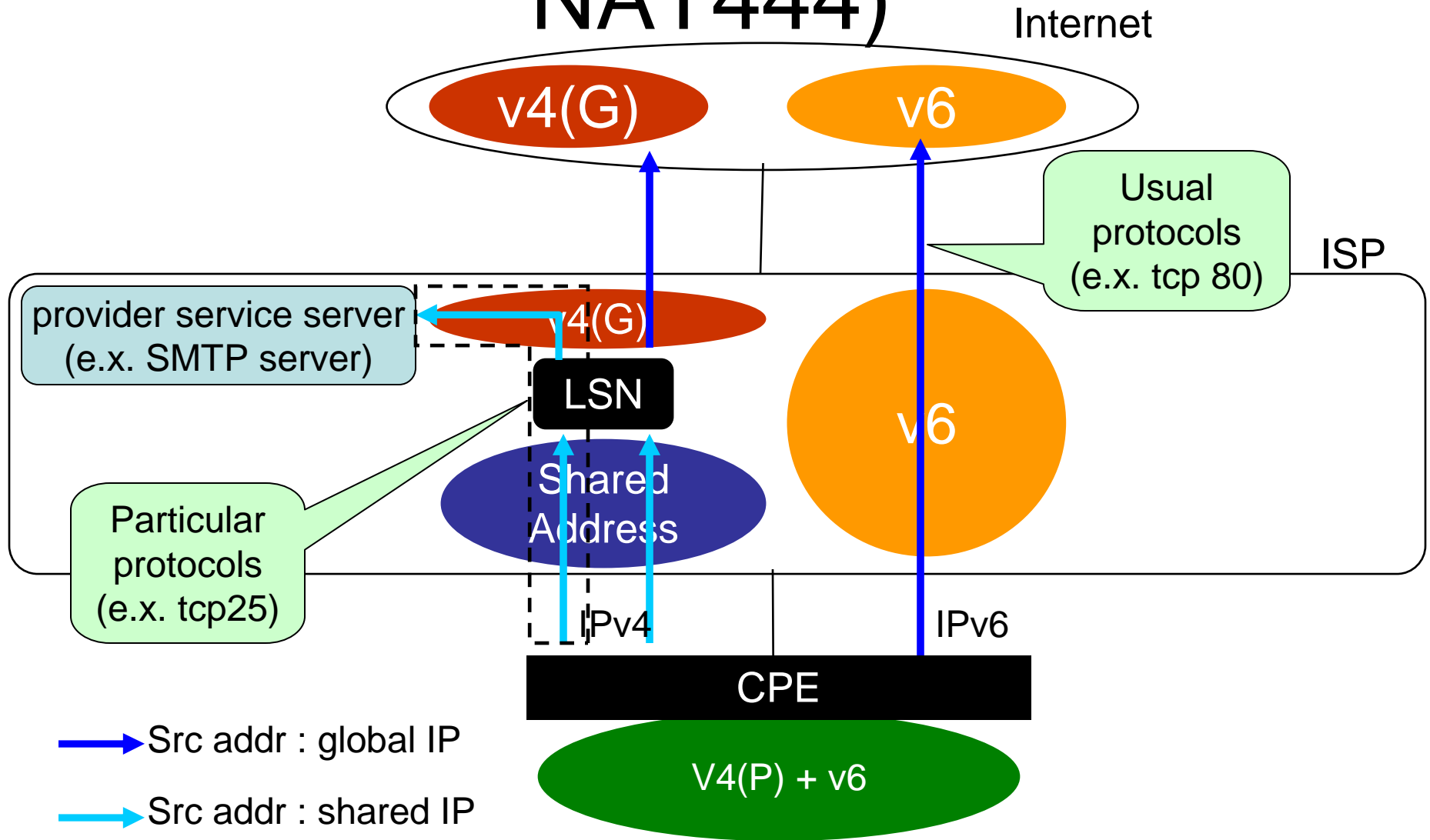
- Translation Log
  - Address
    - destination - translated source – untranslated source
  - Port
    - destination - translated source – untranslated source
  - Timestamp

# LSN path-through

- Feature
  - Forwarding packets of particular protocols without NAT
    - LSN does not translate the source addresses of these packets.
- Target
  - To remove particular protocol packets from limiting the number of LSN's ports.
- Additional advantage
  - To save some applications not running under NAT
    - e.x. POP before SMTP, IP Address Authentication (IPAA)
- Constraint condition
  - Not forwarding these packets to the Internet



# LSN path-through (e.x. NAT444)



# Future work

- redundancy
  - If some troubles are happened, LSN should keep user's sessions.
    - active/active or hot-standby model
  - Draft-xu-behave-stateful-nat-standby is written about LSN redundancy.
    - We may merge or add this draft in our draft's requirements.