464XLAT

Combination of Stateful and Stateless Translation
draft-ietf-v6ops-464xlat-01

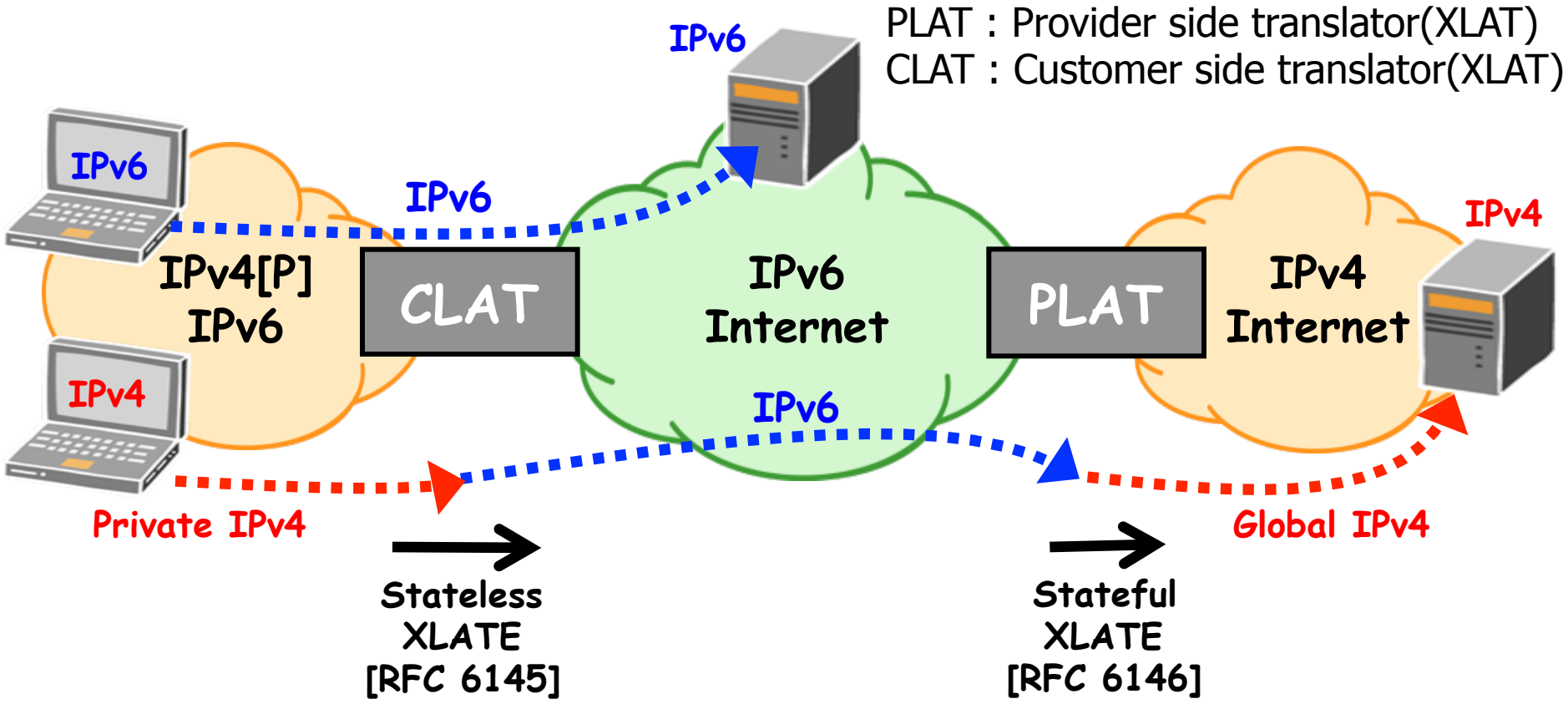
IETF 83　v6ops WG

M.Mawatari @ Japan Internet Exchange Co.,Ltd.

M.Kawashima @ NEC AccessTechnica, Ltd.

C.Byrne @ T-Mobile USA

What is 464XLAT?



464XLAT provides limited IPv4 connectivity across an IPv6-only network by combining existing and well-known stateful protocol translation RFC 6146 in the core and stateless protocol translation RFC 6145 at the edge.

What is 464XLAT? (cont.)

- **What it is**
  - Combined RFC 6145 and RFC 6146
  - Easy to deploy and available today, commercial and open source shipping product
  - Effective at providing basic IPv4 service to consumers over IPv6-only access networks
  - Efficient use of very scarce IPv4 resources
- **What it is NOT**
  - A perfect replacement for IPv4 or Dual-stack service
  - Category: Standards Track

Motivation and Uniqueness of 464XLAT

1. Minimal IPv4 resource requirements

- This is shown as strong point due to stateful translation in PLAT. Each 1 IPv4 can mask more than n*64,000 flows.
- ISPs can efficiently and effectively share limited IPv4 global address pool.
- If ISPs have little IPv4 address (e.g. ISPs in APAC already had exhausted IPv4), they can share it for end-users.

2. No new protocols required

- It is only necessary to use standard technologies based on RFC already published.
- Most of ISPs do not have a lot of time to make a new protocol.

Motivation and Uniqueness of 464XLAT (cont.)

3. Cost-effective transition to IPv6

- When combined with DNS64, ISP can provide sharing IPv4 address and IPv4/IPv6 translation at same time.
- ISPs can do traffic engineering without deep packet inspection devices.
- If the other ISPs operate PLAT as PLAT providers, ISPs for IPv6 consumers can independently do traffic engineering on common backbone routers.
- CPE can replace simply from NAT44 to NAT46.
  It means that saving the resource in CPE.
  Therefore, CPE can widely adapt from the wireline to the wireless.

Timeline of 464XLAT draft

Timeline

2011/10/16 Published draft-mawatari-softwire-464xlat-00

2011/10/24 Published draft-mawatari-softwire-464xlat-01

2011/11/15 Introduced version -02 in softwire WG IETF 82

2012/01/15 Published draft-mawatari-v6ops-464xlat-00

» Motivation and Uniqueness 464XLAT is added

» Some implementation considerations are added

2012/02/15 Published draft-ietf-v6ops-464xlat–00 as a WG draft

2012/03/12 Published draft-ietf-v6ops-464xlat–01

Version individual draft through v6ops WG draft

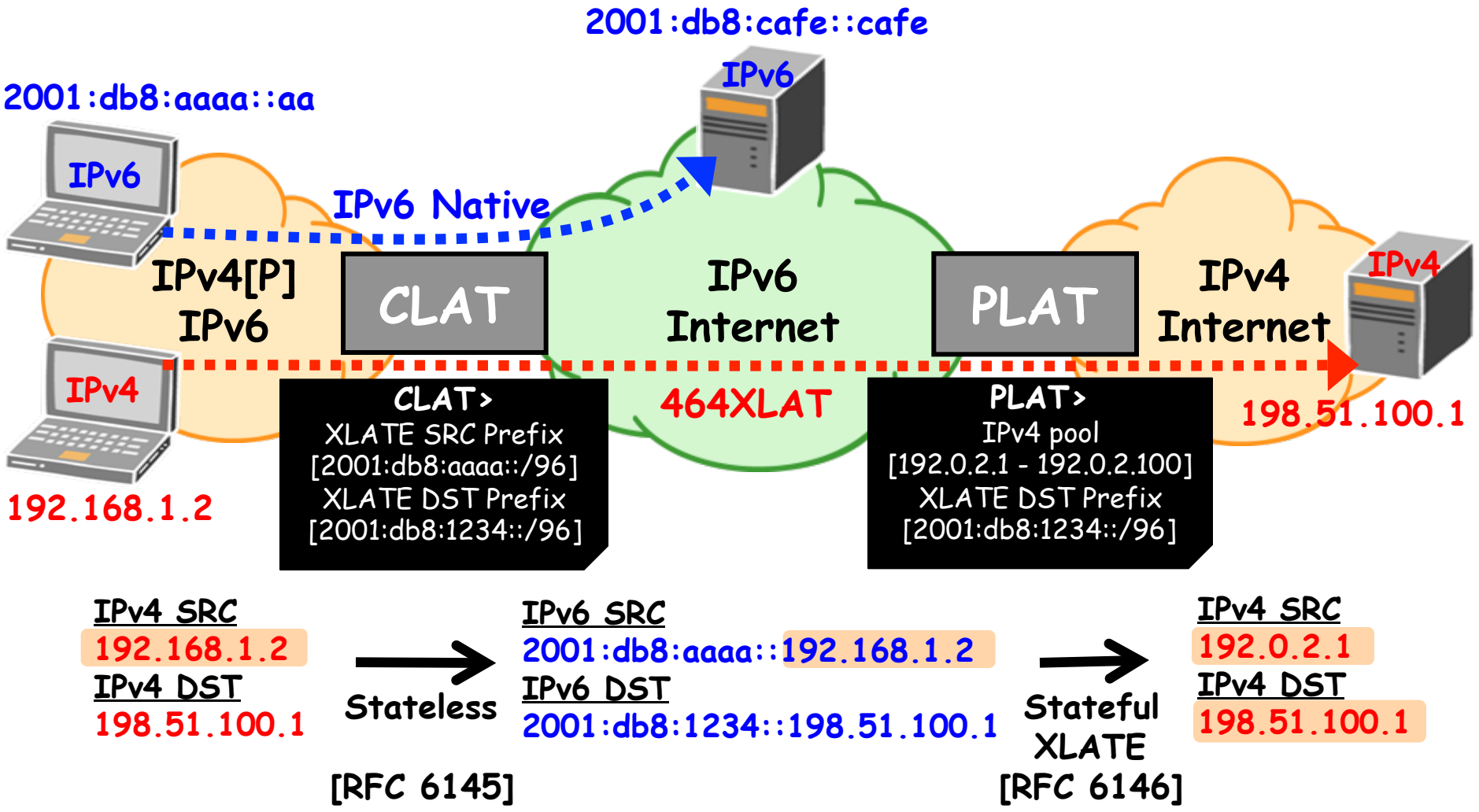
- Changes
  - Since this is an Informational Draft, a normative language has been removed.
  - Terminology
    - Clarifying the behavior and function of CLAT.
  - Implementation Consideration
    - Clarifying “DNS proxy” and “IPv6 prefix handling on CLAT”.
    - Adding the explanations of “CLAT function in gateway” and “hub and spoke architecture”.

Next steps

- Any issues to discuss from the audience.
- Trying to get the approval of v6ops WGLC.
- Getting more knowledge by running code.
  - experiences from wireline network and mobile network.

Backup Slides

Network architecture



- **This architecture consist of CLAT and PLAT have the applicability to landline network (e.g. FTTH) and mobile network (e.g. 3GPP).**

References

- Android-CLAT (CLAT code for Android)
  - http://code.google.com/p/android-clat/
- n900ipv6 (CLAT code for Nokia n900)
  - https://code.google.com/p/n900ipv6/wiki/Nat64D
- 464XLAT experiences in JPIX
  - http://www.apricot2012.net/program/ipv6-conference
- NEC AccessTechnica CLAT for wireline.
  - This CPE is used for JPIX trial service and WIDE Camp Spring 2012.

NEC AccessTechnica
CL-AT1000P