464XLAT

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

IETF 84 - v6ops WG

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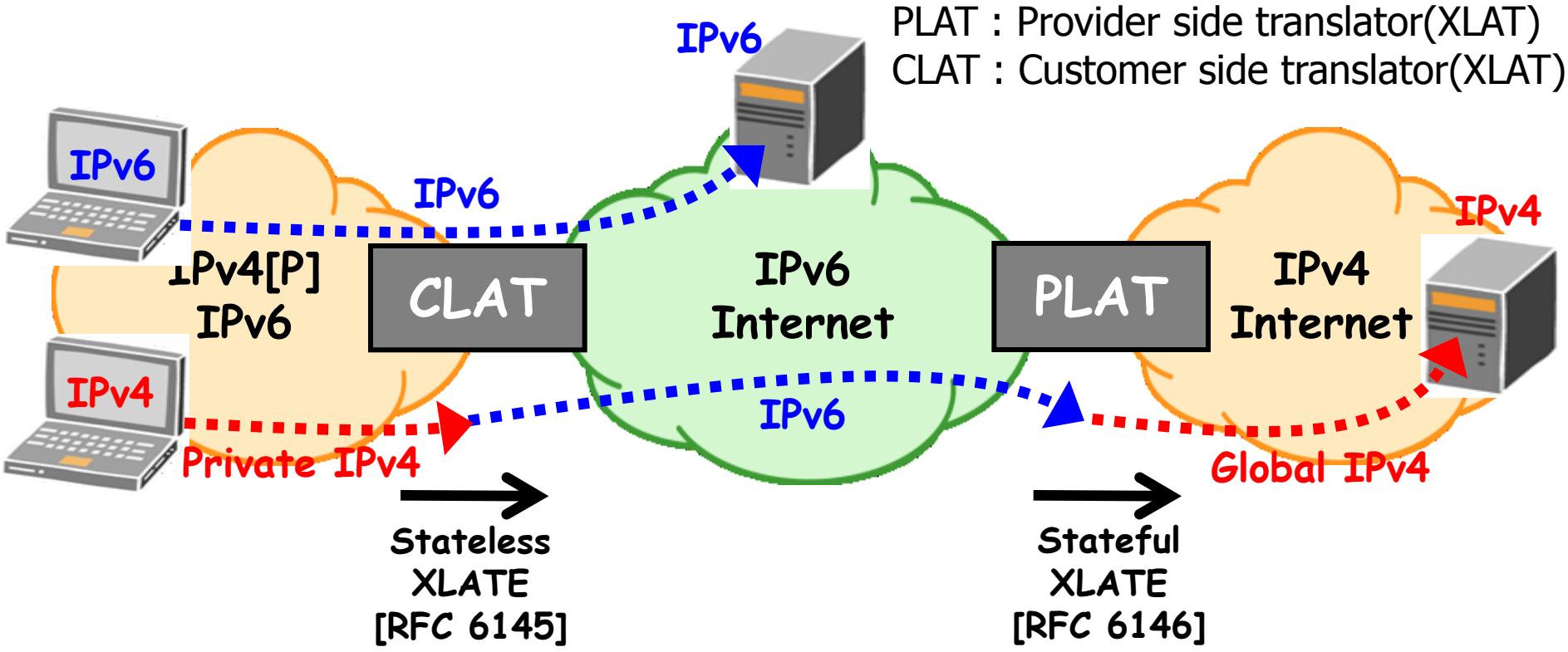
What is 464XLAT?



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.

Timeline of 464XLAT draft (It has matured.)

Timeline

2012/03/26 Discussed in v6ops WG IETF 83

2012/04/17 Published draft-ietf-v6ops-464xlat-02

2012/05/08 Published draft-ietf-v6ops-464xlat-03

2012/06/25 Published draft-ietf-v6ops-464xlat-04

2012/07/03 Published draft-ietf-v6ops-464xlat-05

2012/07/30 Discussed in sunset4 WG IETF 84

» We got feedbacks from the community that this draft should stay in v6ops.

2012/08/03 Presenting in v6ops WG IETF 84 (Just now!)

2012/08/xx WGLC in v6ops after this meeting

464XLAT document has matured by a good portion of useful comments in v6ops WG. Thank you!
Let's go to the next step.

BCP or Informational

- Authors believe BCP is the most effective status for 464XLAT. As noted by Lorenzo on-list:

"An informational document is not a standards document. Thus, it cannot prevent the development of multiple incompatible implementations.

Given that this document describes how to compose existing standards to run a service that requires both customer-side and provider-side components, I'd say interoperability is pretty important if this is to work at all."

http://www.ietf.org/mail-archive/web/v6ops/current/msg13424.html

- Another view from Remi that 464XLAT should be informational or experimental:

At least two points (both valuable IMHO) specify new behaviors:

- In section 3: << The CLAT does not comply with the sentence "Both IPv4-translatable IPv6 addresses and IPv4-converted IPv6 addresses SHOULD use the same prefix." that is described on Section 3.3 in [RFC6052] due to using different IPv6 prefixes for CLAT-side and PLAT-side IPv4 addresses. >>
- There is a request to IANA in section 10.

BCP is therefore inappropriate AFAIK.

http://www.ietf.org/mail-archive/web/v6ops/current/msg13427.html

Next Step

- WGLC?

Backup Slides

Context: The Economic Problem

Scarcity is the fundamental economic problem of having humans who have unlimited wants and needs in a world of limited resources.
(Wikipedia, http://en.wikipedia.org/wiki/Scarcity)

Scarcity is the fundamental Network Engineering Problem of having IPv4 nodes who have unlimited connectivity wants and needs in a world of limited addressing resources.

Scarcity is 4 Billion IPv4 addresses and 50 Billion networked nodes
http://www.ericsson.com/campaign/opportunitysupportsystems/newsfeed/posts/15-heading-towards-50-billion-connections/

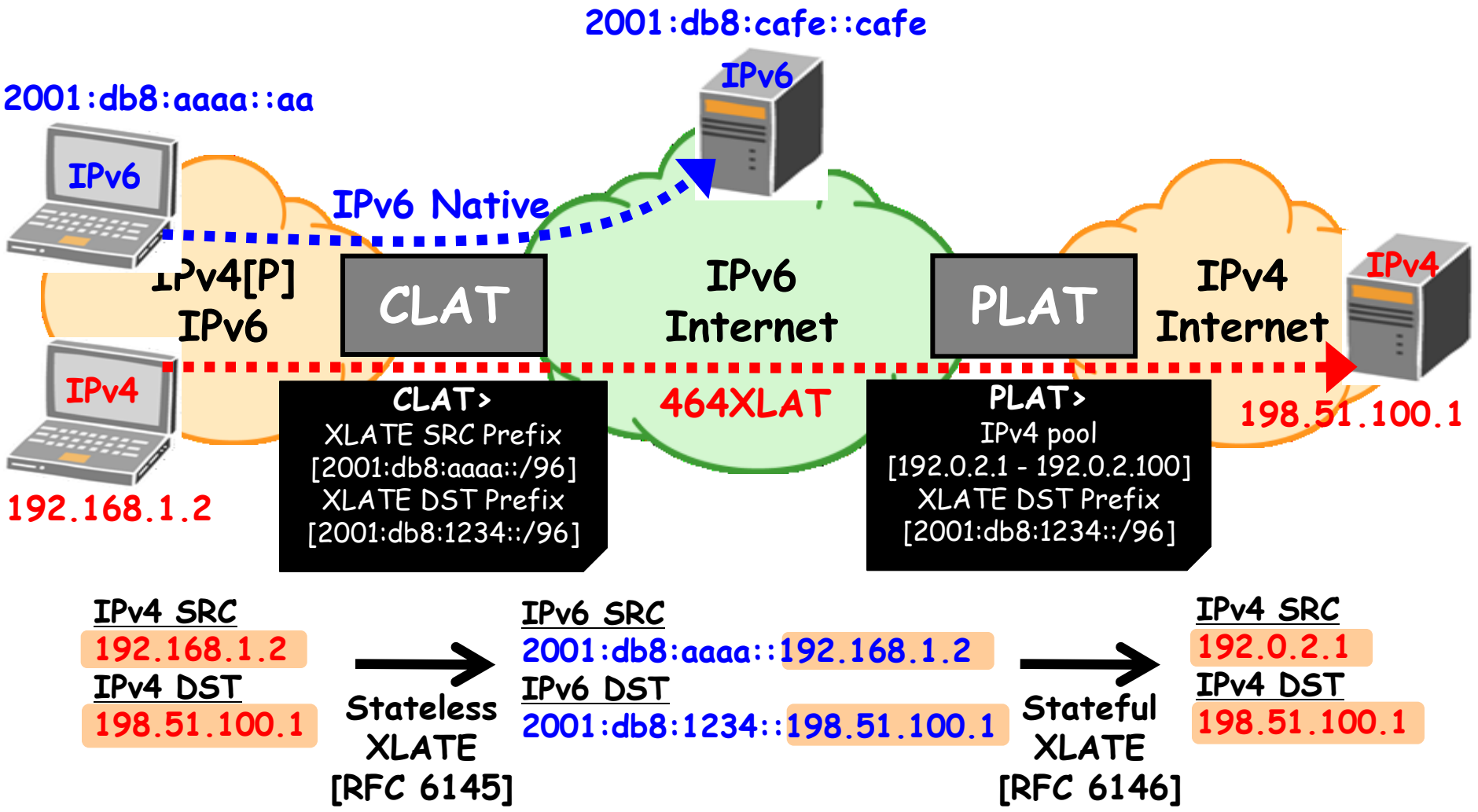
Scarcity is #3 and #4 wireless providers in the USA use IPv4 "squat space" for users, and #1 and #3 launched LTE without IPv6

Observation – IPv4 has run out, and IPv6 is not ready

Uniqueness From Softwires WG

- Does not rely on DHCPv6 which is not supported in UMTS / LTE
- Available host / router implementations
- Does not rely on fixed IP / port mappings, which are not feasible in very IPv4 constrained environments
- Does not require tunneling technologies which can breaking traffic engineering and charging policies

Network architecture



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

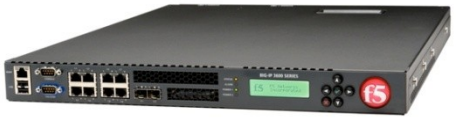
References

- Android-CLAT (CLAT code for Android)
  https://android-review.googlesource.com/34490
- 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.
  - Multi-vendor interoperability already proven.
    (Cisco, Juniper, A10, and F5 as a PLAT)

NEC AccessTechnica
CL-AT1000P

Cisco ASR 1000 Series

Juniper SRX Series



F5 BIG-IP Series

A10 AX Series