

464XLAT : Combination of Stateful and Stateless Translation
draft-mawatari-softwire-464xlat

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What is 464XLAT?

464XLAT is a simple technique to provide IPv4 access service while avoiding encapsulation just by using twice IPv4/ IPv6 translation standardized in [[RFC6145](#)] and [[RFC6146](#)].

Terminology

PLAT: Provider side translator(XLAT)

A **stateful translator** complies with [[RFC6146](#)] that performs 1:N translation. It translates global IPv6 address to global IPv4 address, and vice versa.

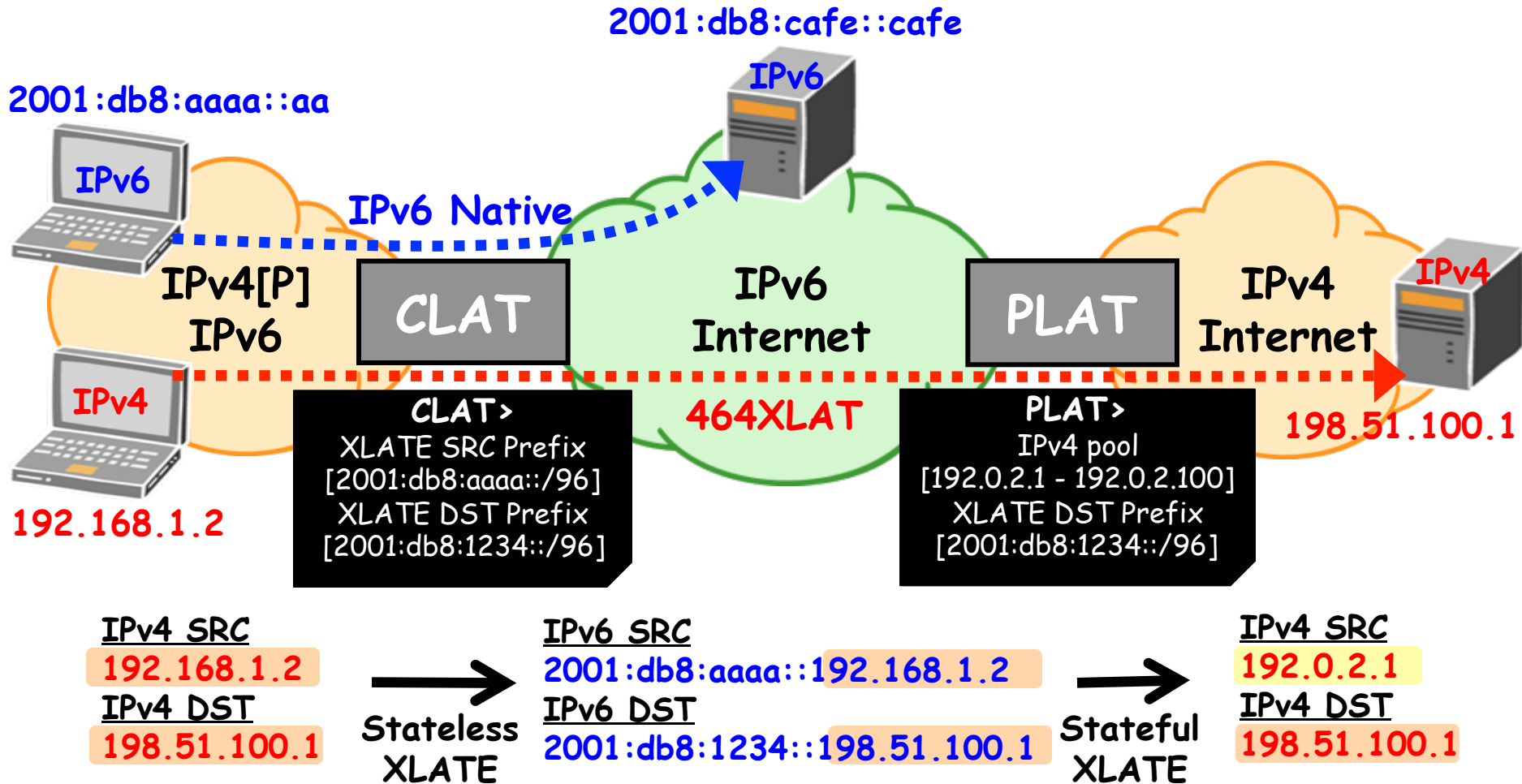
CLAT:Customer side translator(XLAT)

A **stateless translator** complies with [[RFC6145](#)] that performs 1:1 translation. It algorithmically translates private IPv4 address to global IPv6 address, and vice versa.

Other features are **IPv6 router, DHCPv6 Server/Client, Access Control, DNS Proxy, etc.**

The presence of DNS64 [[RFC6147](#)] and any port mapping algorithm are not required.

Network architecture



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

The features that differentiate 464XLAT from others

	464XLAT
Location of NAPT44 Function	Provider side(PLAT)
Mesh vs. Hub & Spokes	Hub & Spokes
Translation vs. Encapsulation	Double translation (Stateful XLATE & Stateless XLATE)
How does the CPE “learns” its IPv4 address & port range?	Any port mapping algorithm are not required
Address mapping rules	The format is defined in Section 2.2 of [RFC6052] Not use the WKP “64:ff9b::/96”
Supports IPv6-IPv4 Communication	Requires DNS64

Our experience

- Current Status
 - The codes already are running on the field.
 - Landline network
 - JPIX have started providing 464XLAT trial service since July/2010.
 - CLAT is implemented to existing CPE router.
 - Mobile network
 - We have running code. N900 Mobile (CLAT) and T-Mobile USA (PLAT).
- Application Availability
 - Web, Mail, Video Streaming.. OK.
 - Instant Message, Skype... OK.
 - We have no major issue.

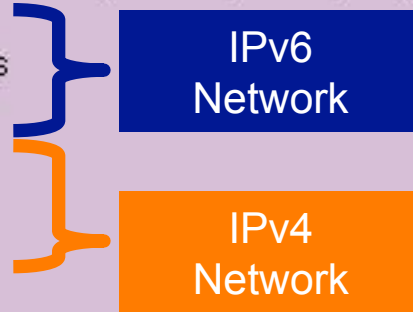


NEC AccessTechnica
CL-AT1000P

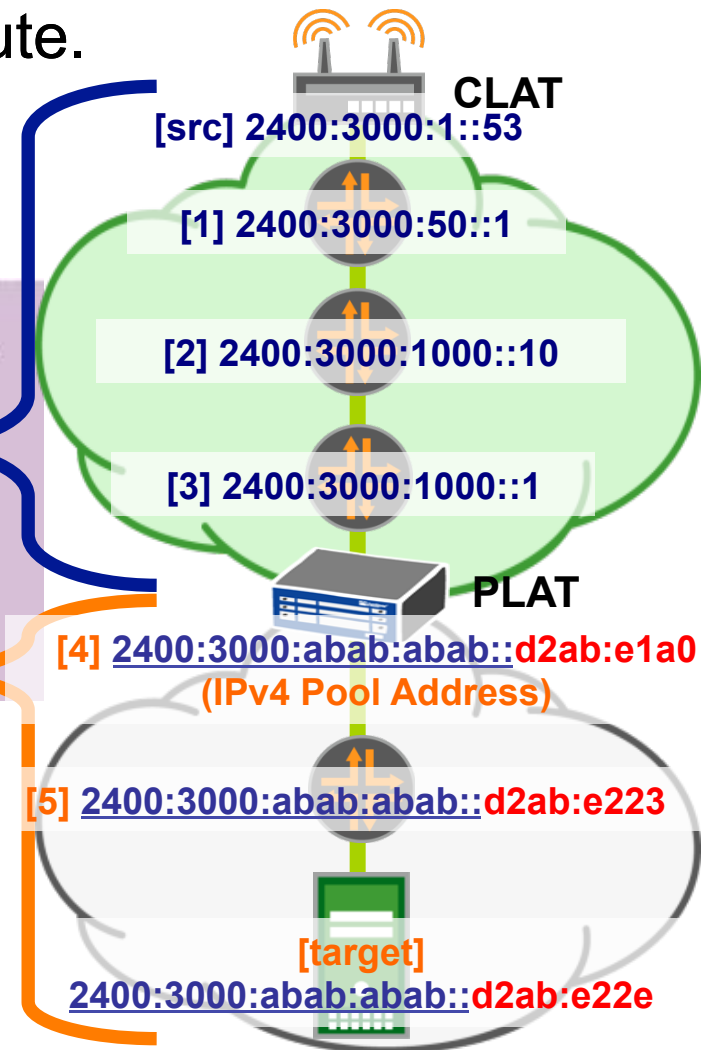
Our experience

- Traceroute from CLAT
 - CL-AT1000P Web-GUI have the special tool of IPv6 traceroute.

```
traceroute6 to 210.171.226.46
  from 2400:3000:1::53, 10 hops max, 12 byte packets
 1  2400:3000:50::1  4.045 ms
 2  2400:3000:1000::10  6.908 ms
 3  2400:3000:1000::1  3.294 ms
 4  210.171.225.160  17.353 ms
 5  210.171.226.35  46.869 ms
 6  210.171.226.46  35.771 ms
```



- Three IPv4 addresses (from 4Hop to 6Hop) embedded in the low-order 32 bits of the IPv6 address are shown in the traceroute result.
- XLAT PREFIX : **2400:3000:abab:abab::/96**



Next steps

network.

Additional references

- JPIX experiences

[Masataka Mawatari IPv6v4 Exchange Service for sharing IPv4 address.pdf](http://www.apnicot.net/apnicot2011/media/Masataka_Mawatari_IPv6v4_Exchange_Service_for_sharing_IPv4_address.pdf)

Thank you!