Challenge for IPv6 Deploying in Japan – a Case of Softbank BB

Softbank BB Corp.
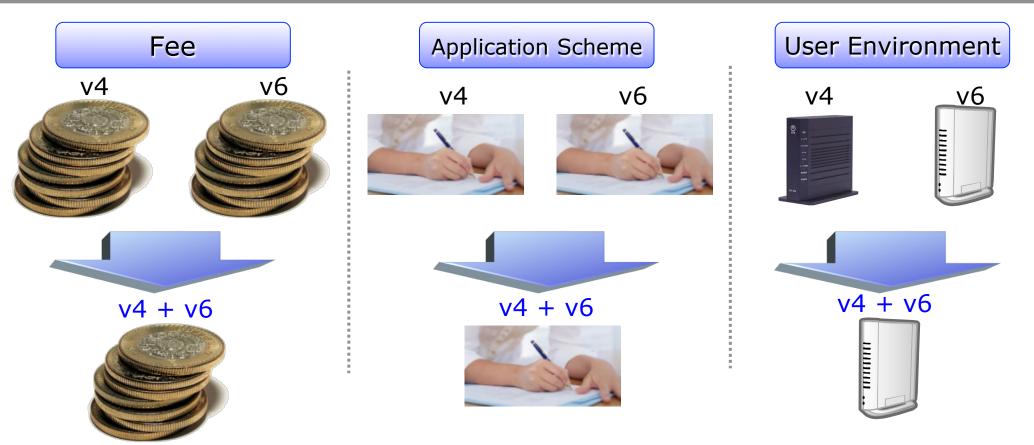
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IPv6 for Everybody!
- For any access line, for any user environment -

For Everybody!

IPv6 Internet

| ISP | ISP | ISP | ISP | ISP |

BB!IX
Internet Exchange

| 6rd | IPv4 over IPv6 |

| ADSL | CATV And other | NTT Flet's IPv4 network | NTT Flet's NGN IPv6 network |

ISP's Customer

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Key factor for IPv6 Deployment

Fee

v4   v6

v4 + v6

Application Scheme

v4   v6

v4 + v6

User Environment

v4   v6

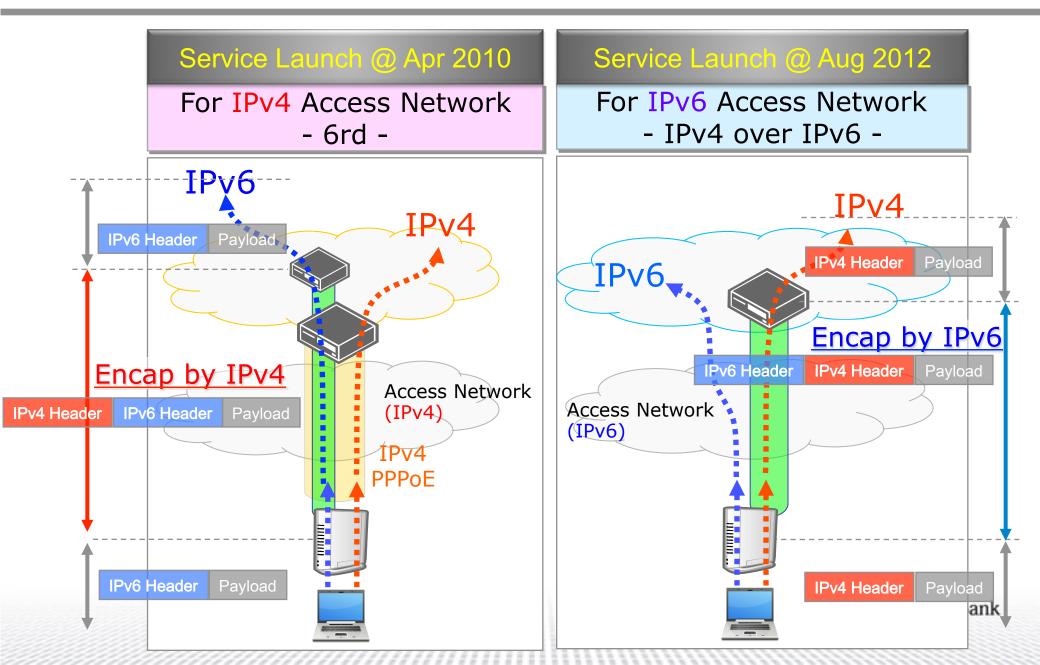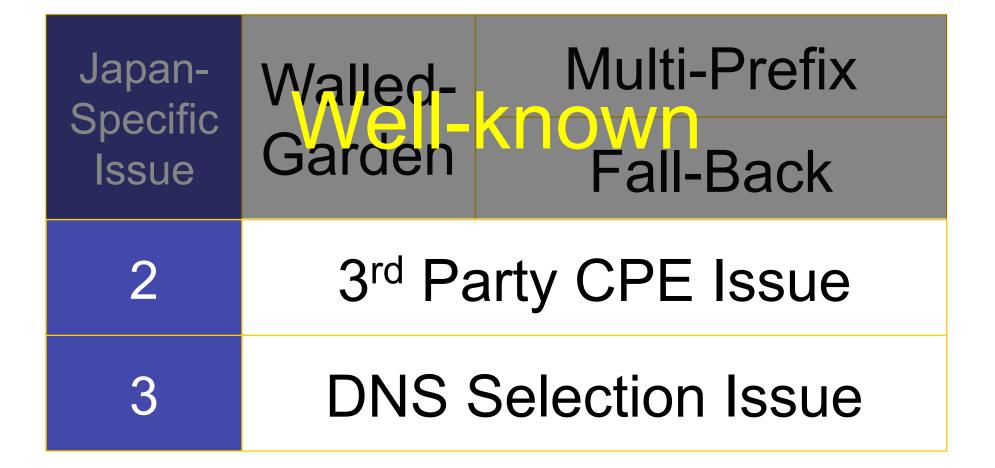v4 + v6

We must deploy IPv6 while customer NOT care their connection is IPv4 or IPv6

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IPv6 Deployment – Stateless Tunnel

Issue and Problem

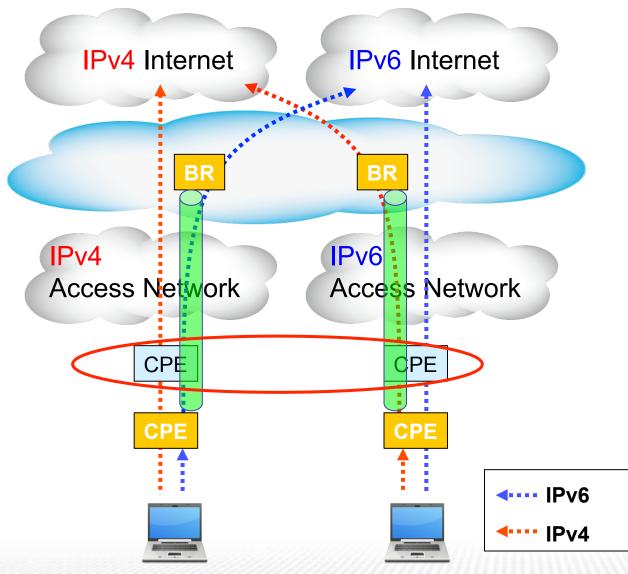| Japan-Specific Issue	Walled-Garden	Multi-Prefix Fall-Back
		Well-known
2	3rd Party CPE Issue	
3	DNS Selection Issue	

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3rd Party CPE Issue

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3rd Party CPE Issue

In this situation, some CPE may cause a trouble…

3rd Party CPE Issue – cont.

- **Performance degradation**
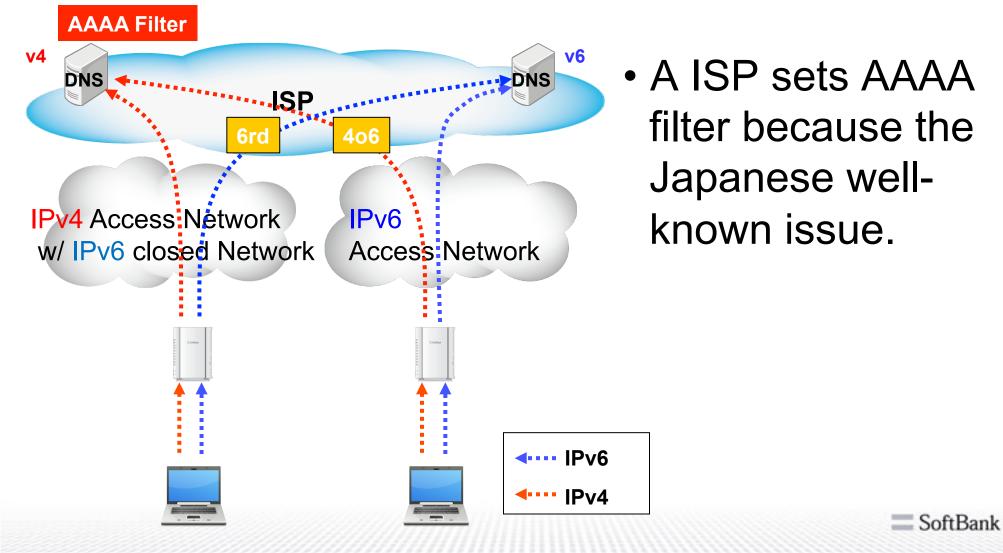 - Some CPE NOT support hardware forwarding for IPinIP packet

- **Lack of transparency**
  - Some CPE set to drop the inbound packet by default

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DNS Selection Issue

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DNS Selection Issue – Typical situation

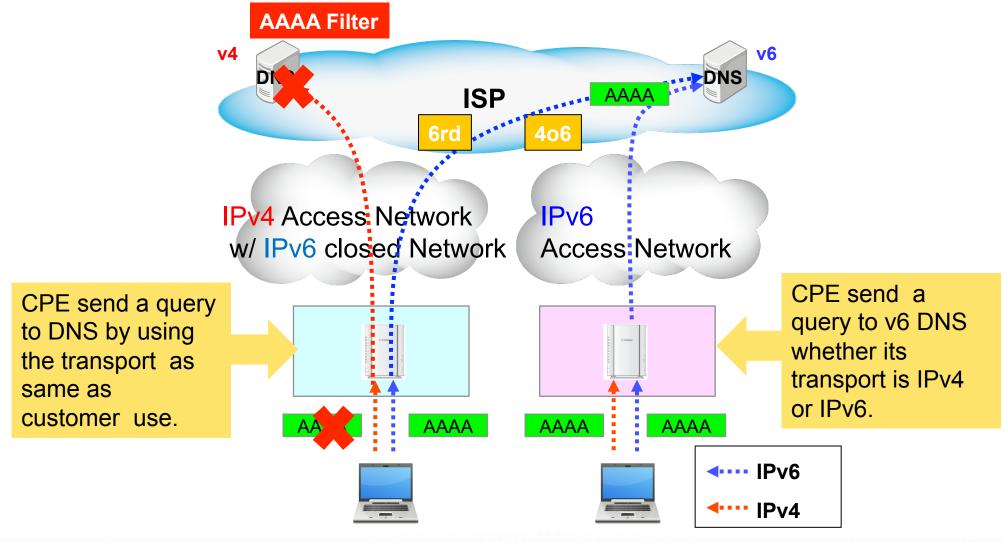- A ISP sets AAAA filter because the Japanese well-known issue.

DNS Selection Issue – Client DNS selection

- **A major client OS preserves a v6 DNS server for its queries.**
    - But the DNS is declined when:
        - Not respond
        - Too long time for the response
        - Etc..
- **The client will adopt v4 DNS server instead of the v6 DNS server**
    - But the DNS perhaps respond for a query but it's filtered AAAA record out

We need CPE to install additional DNS selection mechanism

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DNS Selection Issue – CPE's DNS Selection Mechanism

AAAA Filter

v4

DNS

ISP

6rd

4o6

AAAA

v6

DNS

IPv4 Access Network w/ IPv6 closed Network

IPv6 Access Network

CPE send a query to DNS by using the transport as same as customer use.

CPE send a query to v6 DNS whether its transport is IPv4 or IPv6.

AAAA

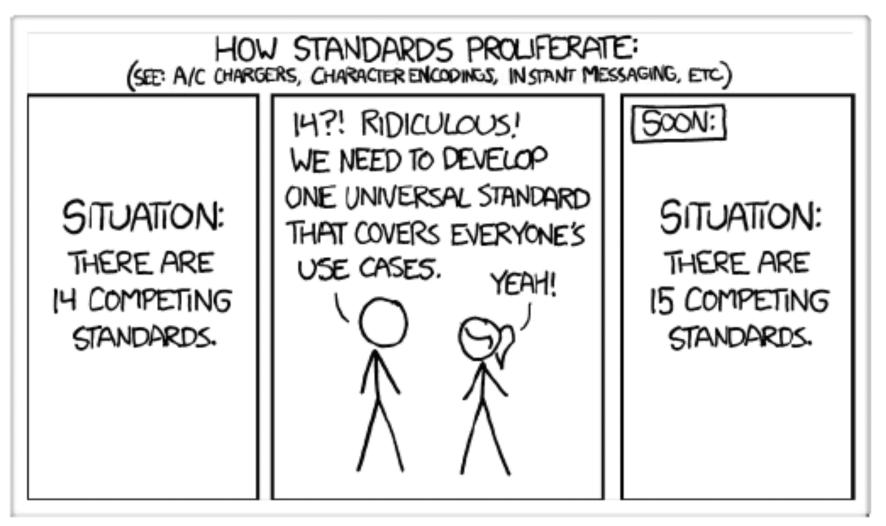AAAA

AAAA

AAAA

IPv6

IPv4

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Summary

- Key factor of IPv6 deploying is Fee, Application scheme and User environment.

- Stateless tunneling is good solution for those ISP who use leased access network or has legacy IPv4 access equipment like a DSLAM.

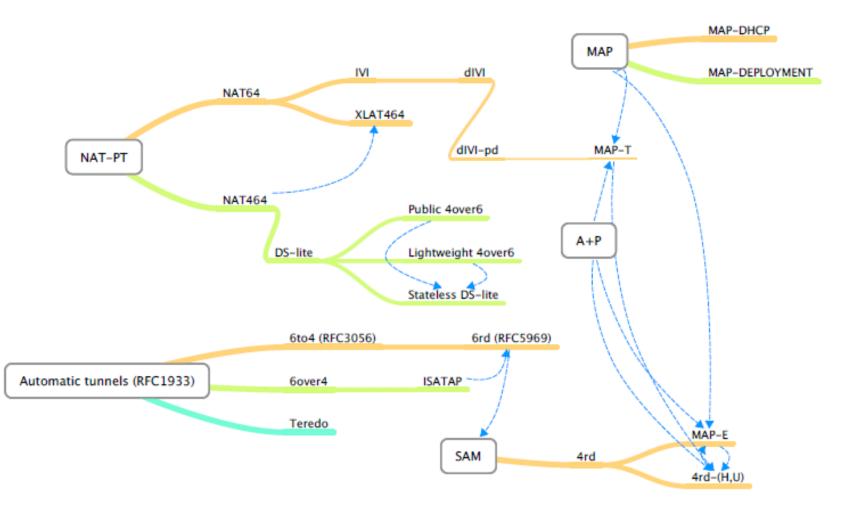- But you must care about the problem caused by IPv4/IPv6 co-existing environment

One more thing…

IETF Complication

http://xkcd.com/927/

IETF Complication –cont.

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IETF Complication –cont.

Coin Toss!

Rough consensus, running code, and the occasional coin toss.
https://www.facebook.com/photo.php?v=10150963959567666

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IETF Complication –cont.

■ASAMAP – As Soon As MAP Possible
  - ■ Also it means that implemented by ASAMA-san,
  - ■ MAP implementation for vyatta now available

http://enog.jp/~masakazu/vyatta/map/

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