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- IPv4 Transfer Policy
- Routing Security

# Update of IPv6 situation in Japan



社団法人 日本ネットワークインフォメーションセンター

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# General approach for IPv6 deployment in JP

- The approach of the Japanese government :
  - provides information and a forum for having discussions
  - “Research Society concerning Faster Utilization through IPv6” opened from Feb 2009
  
- “Task Force on IPv4 Exhaustion, Japan” is the body for major Internet industry entities in JP to exchange information
  - 21 Organizations, plus “Ministry of Internal Affairs and Communications (MIC)” as an observer
  - Developed milestone for Industry players on what to do
  
- Awareness of IPv6 is generally high in Japan
  
- The focus is on raising technical knowledge on IPv6 for operators

Task Force on IPv4 Exhaustion, Japan 

➤ <http://www.kokatsu.jp/blog/ipv4/en/index.html>

# Updates from TF on IPv4 Exhaustion, JP

- ❑ Current status and the future direction of IPv6 in Japan
- ❑ Recommended actions for the Japanese ISPs to support the World IPv6 Day
- ❑ Released Action Plan and Milestone Toward IPv4 Address Exhaustion (ver. 2010.10)

Visit the URL below for details:  
<http://www.kokatsu.jp/blog/ipv4/en/news/>



News List

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**NEWS** 11.14.2011

› [Current status and the future direction of IPv6 in Japan](#)

Task Force on IPv4 Address Exhaustion, Japan produced an update report on the IPv6 deployment in Japanese market. It consists of the update in the IPv6 service provision by Japanese... [> detail](#)

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**NEWS** 04.27.2011

› [Recommended actions for the Japanese ISPs to support the World IPv6 Day](#)

To whom concerning how Japanese Internet community work toward the World IPv6 Day, Hiroshi Esaki, Ph.,D., chairman, IPv4 Address Exhaustion Task Force, Japan 1. Current Stat... [> detail](#)

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**NEWS** 10.07.2010

› [Released Action Plan and Milestone Toward IPv4 Address Exhaustion \(ver. 2010.10\)](#)

The Task Force on IPv4 Address Exhaustion, Japan updated again "Action Plan and Milestone Toward IPv4 Address Exhaustion" on October 2010 as a reference for industry players t... [> detail](#)

# General situation of IPv6 deployment in JP

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## □ IPv6 Supported in Basic Infrastructure

- NTT East and West provide national wide IPv6 infrastructure as NGN
- In KDDI, IPv6 supported for 15% of their subscribers by Oct 2011 (600K IPv6 prefix)

## □ On the other hand, NGN based IPv6 network has some issues

- NGN assigns IPv6 to its subscribers within NGN's
- Intranet This leads to multi-prefix and IPv6 → IPv4 fallback issues

[http://meetings.apnic.net/\\_\\_data/assets/file/0019/38233/APOPS1\\_NGN.pdf](http://meetings.apnic.net/__data/assets/file/0019/38233/APOPS1_NGN.pdf)

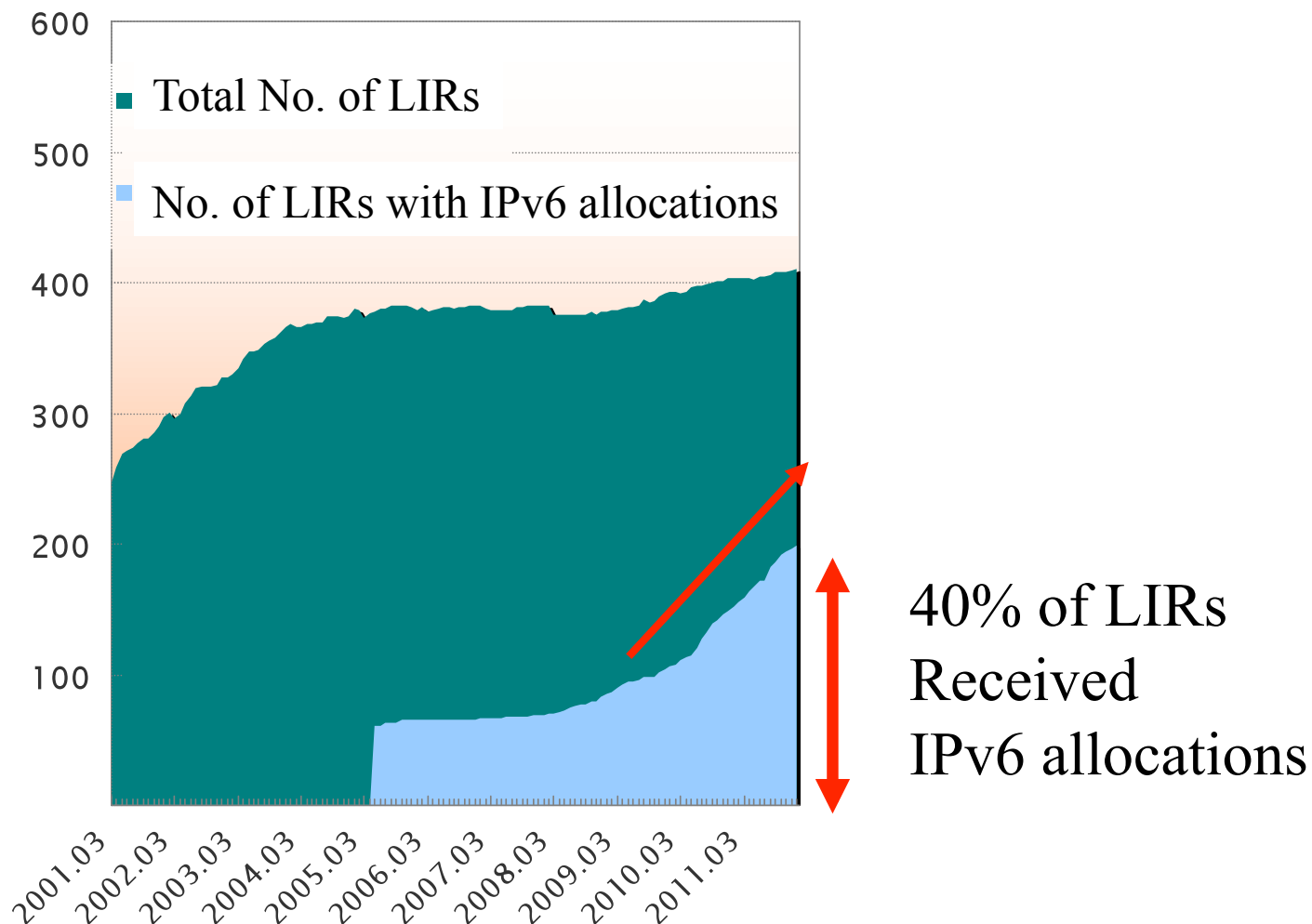
[http://www.jaipa.or.jp/ipv6day/data/111121\\_google.pdf](http://www.jaipa.or.jp/ipv6day/data/111121_google.pdf)

# Preparation for World IPv6 Launch

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- ❑ Discussions in JANOG ML and JANOG29 on how ISPs can prepare for the 6<sup>th</sup> June event
  - Information available in Japanese at <http://www.attn.jp/worldipv6launch/>
  
- ❑ Major issue is IPv6 → IPv4 fallback based on NGN network
  - As NGN assigns IPv6 address within its intranet, subscribers without IPv6 connection from its upstream will experience latency
    - ❑ DNS first connects with IPv6, then falls back to IPv4
  - Turning off AAAA record is the solution for a number of ISPs but stops native IPv6 users connecting to IPv6
  
- ❑ Operators in Japan are discussing how to resolve this issue

# IPv6 Allocation status



No. of allocations growing steadily since 2009

About 40% of our LIRs have received IPv6 allocations

# JPNIC's IPv6 activities

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- ❑ Collaborates and exchange information with other Internet bodies in Japan through TF on IPv4 Exhaustion, Japan
  
- ❑ Service deployment is the business decision by ISPs
  
- ❑ JPNIC focus on raising technical knowledge of operators
  - Tutorials in Internet Week, regular IPv6 hands on seminars
  - Provide IPv6 test-bed environment



# Tutorials and Hands on seminars

## □ Internet Week

- Annual technical conference with 3,000 attendees
- IPv6 hands on seminars, security in IPv6, IPv6 readiness update session, etc

## □ Regular IPv6 hands on seminars

- 630 attendees since 2009
- Held 11 times in three cities in 2011
- Programs per type of service

□ access line providers, CATV providers, Hosting providers



English Materials for Hands on seminars

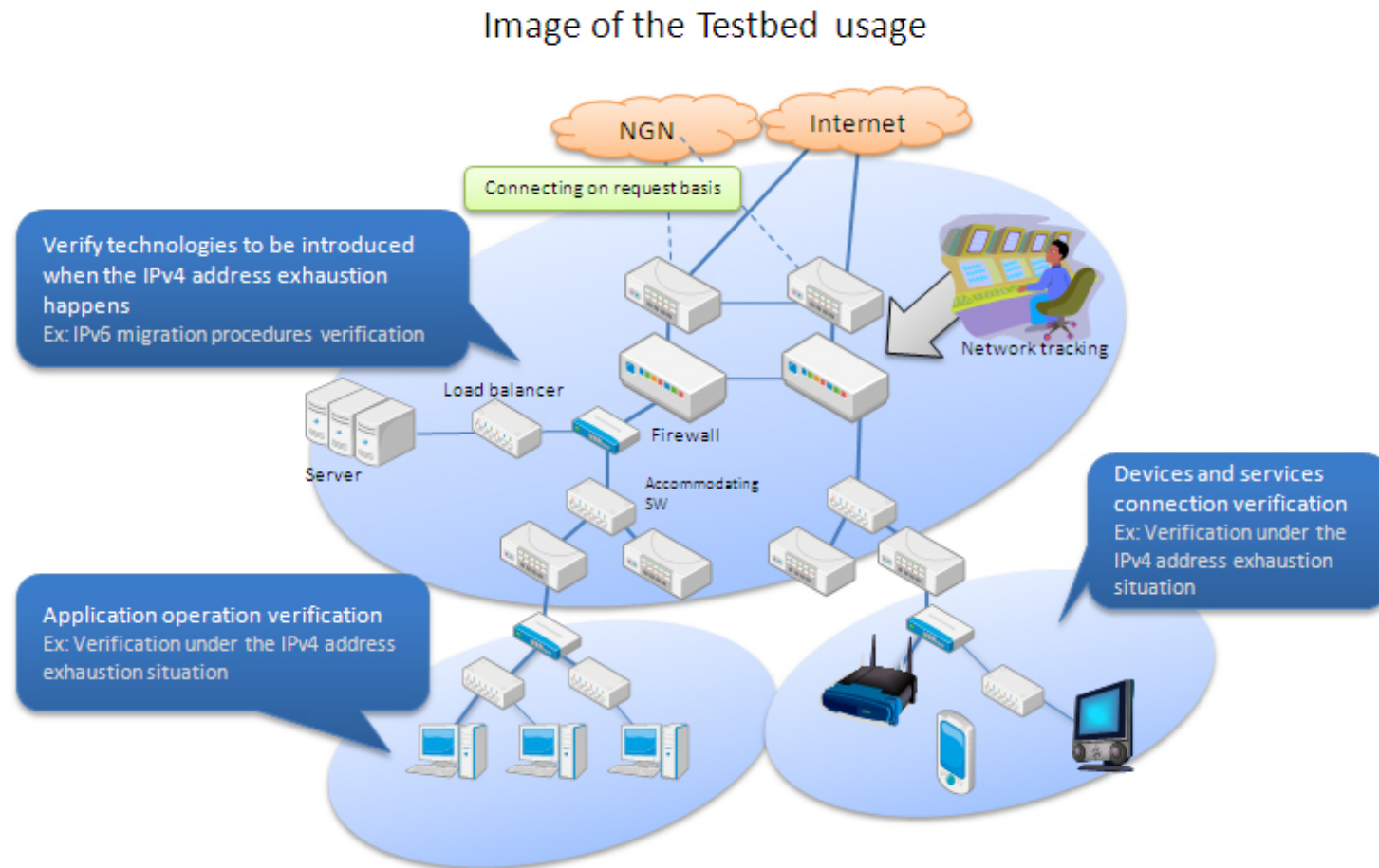
➤ <http://www.kokatsu.jp/blog/ipv4/en/data/ipv6-hs-materials-en.html>

# IPv6 Test-bed

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- JPNIC took over the operation from TF on IPv4 Exhaustion
  
- To verify IPv6 in real-life environment
  - For verifying the IPv6 migration steps by recreating your own company's network in the test bed
  - For verifying IPv6 migration procedures
  - Test technologies such as LSN

# Image of the Test Bed Usage



Reference in English available at:

➤ <http://www.v6pc.jp/en/entry/wg/2010/05/v4exh-testbed-en.phtml>

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# Other Activities in JPNIC for Post IPv4 Exhaustion



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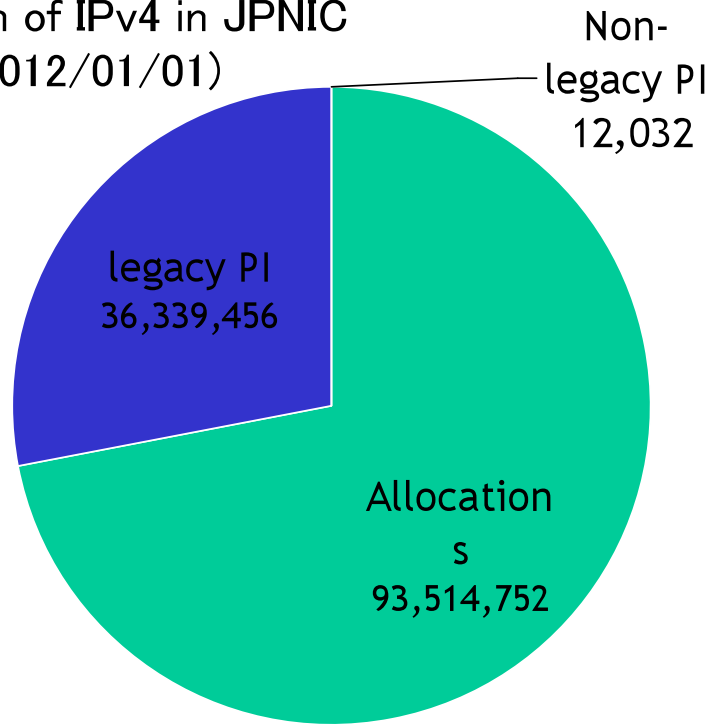
# Management of historical IPv4 address

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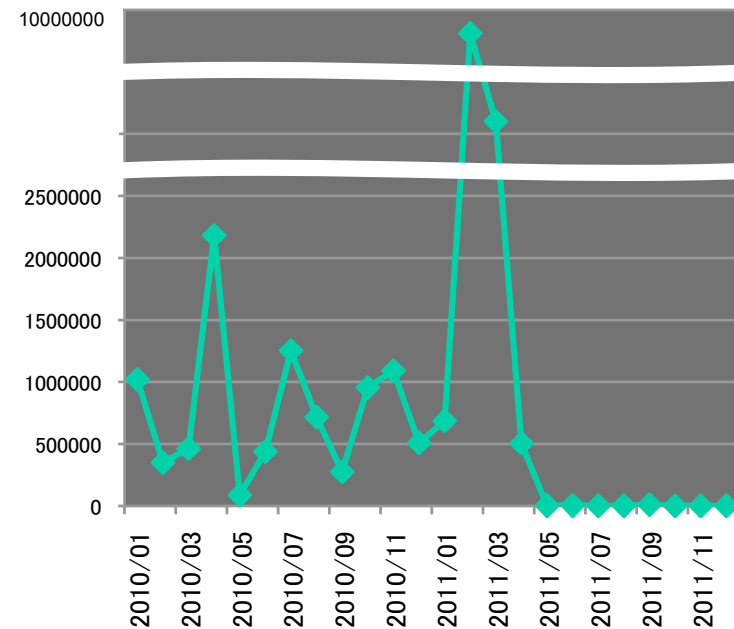
- JPNIC completed signing a contract with all historical address holders (Dec2004 – Mar2009)
  - Currently approximately 1,300 organizations
  - Those who do not exchange contract had their address space reclaimed
  
- We will start charging historical resource holders from April 2012
  - Apply the same fee structure as LIRs

# IPv4 Address Distribution managed by JPNIC

Distribution of IPv4 in JPNIC  
(2012/01/01)



IPv4 Allocations



◆ Volume of IPv4 allocated

Total IPv4 Managed by JPNIC = 7.7

\*/8

30% of the is legacy space



# IPv4 Transfer Policy

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- ❑ Implemented in Aug 2011
  - Have completed 16 cases (Feb 2011)
  - IPv4 Transfer log available in English
    - ❑ <http://www.nic.ad.jp/en/ip/ipv4transfer-log.html>
  
- ❑ Joined panel discussions at JANOG on the realities of the transfer in Japan
  - Developed into discussions on :
    - ❑ how to raise awareness of historical address holders about the needs for IPv4 transfers on ISP side
  
- ❑ Will be discussing about transfer with APNIC and ARIN in our next OPM
  - It didn't reach consensus at our last OPM in Nov 2011

# Routing Security

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- ❑ JPNIC runs our own IRR, JPIRR
  - <http://www.nic.ad.jp/en/ip/irr/>
  
- ❑ Collaborate with our operators to provide detection system of route hijack
  - Compare JPIRR data with route announcement
  
- ❑ Have started holding routing security session at Internet Week since 2010
  
- ❑ Currently considering plans to provide testing for our ISPs on RPKI
  - Awareness is still not high overall but a few operators had expressed interests in the technology



# Summary

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- JPNIC currently focus on raising skills of operators in JP by trainings and seminars in IPv6 area
- Other areas we focus are Management of historical IPv4 address, IPv4 Transfer policy as issues to handle in the transition phase
- We feel the need to share more information about routing security and RPKI within Japan

# Q&A

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