Large Space IPv4 Trial Usage Program for Future IPv6 Deployment

~ Activities update Vol.8 ~

APNIC 19 Meeting / IPv6 Tech SIG

February 23rd, 2004 at Kyoto, Japan

IPv6 Promotion Council of Japan

IPv6普及・高度化推進協議会
IPv6 Promotion Council

Outline of this Program

- Authorized at the 11th APNIC Open Policy Meeting
    - Originally planned to be closed at the end of 2005
- Initiated with the following goals:
    - Providing the challenge field for coming IPv6 era
        - Exploring new services and boosting up the "end-to-end" application
        - Transferring trial to IPv6 infrastructure under the real service operation
        - Forming IPv6 address administration scheme
    - Revitalizing the historically allocated address space
- Run by IPv6 Promotion Council under supervision of JPNIC
- Updating the activity at the every APOPM
    - Reported that this program faced an issue in ending the program as planned at the last APOPM at Fiji
    - Received a comment from APNIC that the program continuation could be allowable if necessary

Participants of this Program

- **The current active participants**
    - Nationwide ADSL/VoIP service provider
    - Nationwide always-on FTTH service provider
    - Public Wireless-LAN access service provider
    - L3 connectivity/IP-Phone service provider
    - CDN

    - One drop-out: Wireless spot service provider
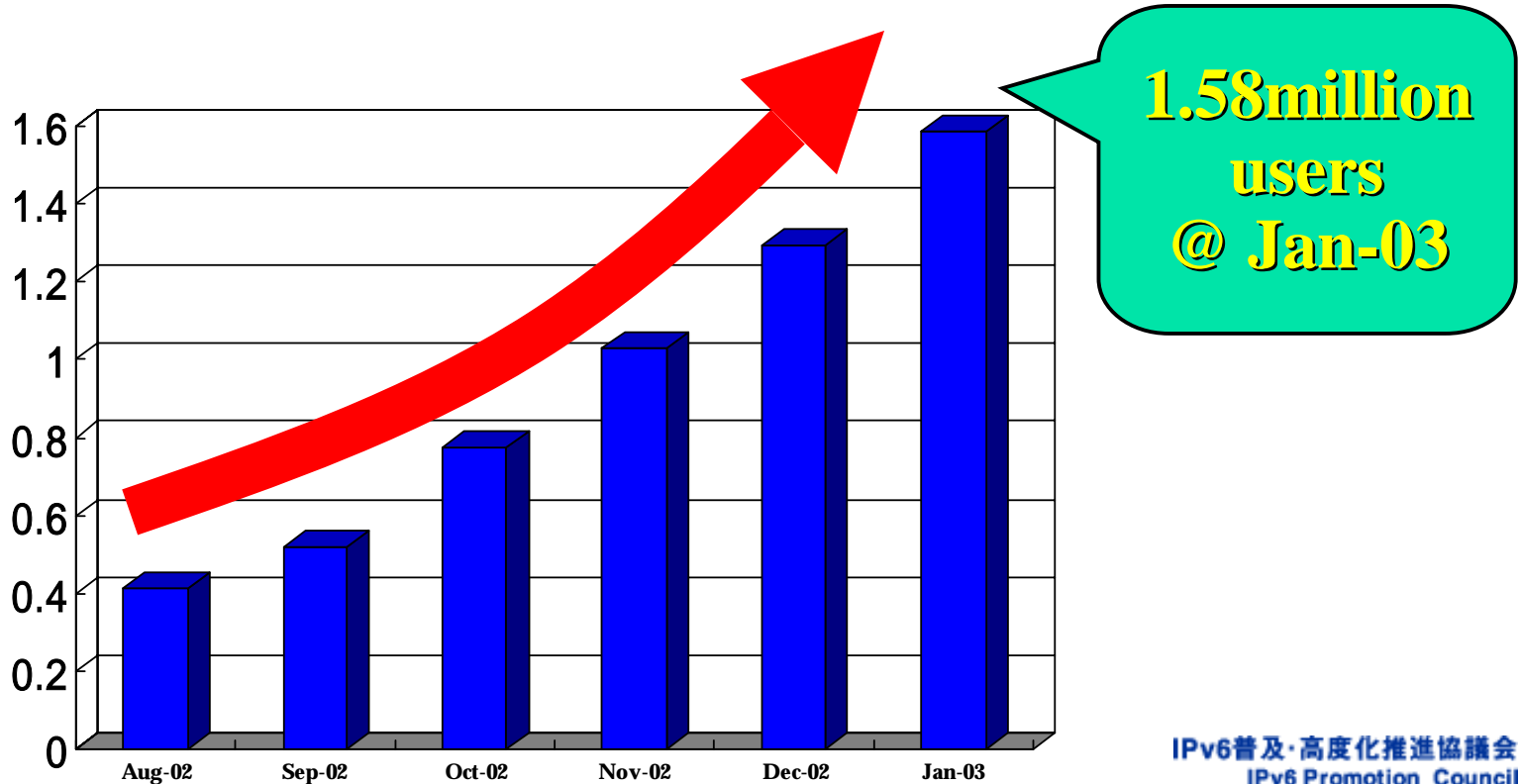
Active Participants Status:

- What they achieved -

Individual Case: Nationwide ADSL/VoIP Service

- **Achieved to deploy the one of the least expensive "always-on" service nationwide**
    - P2P data-sharing, Multi-Media contents delivery, less expensive IP-Phone service
- **IPv6 Deployment Plan**
    - Just announced their IPv6 service launch
    - Will start a trial service this year
- **IPv4 Address**
    - IPv4 address is important for the time being
    - IPv6 service starts as either IPv6/IPv4 Tunnel or IPv4/IPv6 dual way (still engineering)

Effect of this trial

- **Rapid increase of IP Phone Service**

1.58million
users
@ Jan-03

Aug-02 Sep-02 Oct-02 Nov-02 Dec-02 Jan-03

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Individual Case: Nationwide Always-on FTTH Service

- Achieved starting Fixed IP address (assignment /29 per user)
  - Enable to put individual IP address for a home server, a monitoring camera to be accessed from the internet
- IPv6 Deployment Plan
  - IPv6-ready core routers in placed
  - Replacing the edge routers to IPv6-ready ones gradually
  - Start preparation of sending application for IPv6 allocation
  - Plan to start IPv6 service in the limited service area
- IPv4 Address
  - IPv4 address is important for the time being
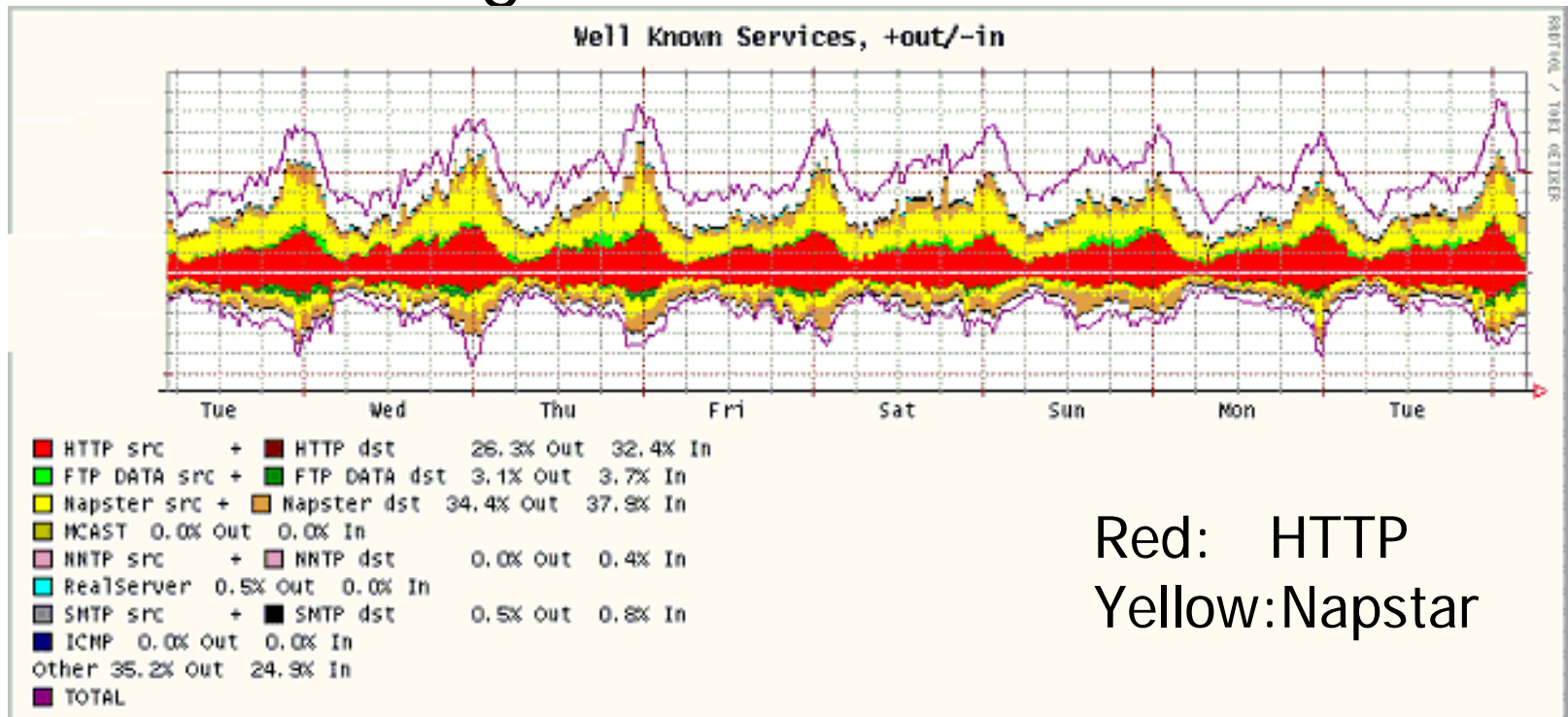 - IPv6 service starts as IPv4/IPv6 dual way preferably

Effect of this trial

- Rapid increase of Fixed IP Address service
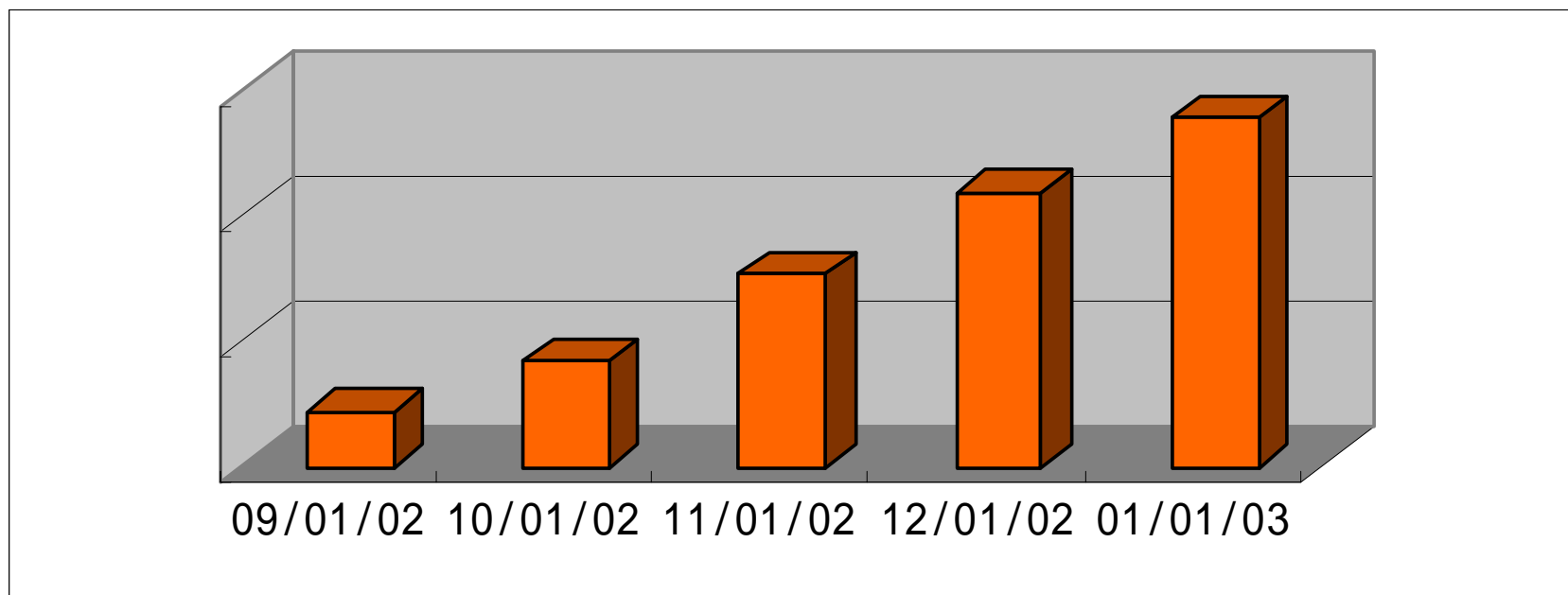
Effect of this trial

- **Increasing P2P Traffic ratio**

Red: HTTP
Yellow:Napstar

Individual:
Public Wireless-LAN access

- Achieved starting a city-wide wireless info service for vitalizing a sightseeing city
    - A wireless mobile connection, area-based information delivery, wireless VoIP
- Achieved a ballpark wide wireless multicast service
    - User can watch info and close-up view via PDA
- IPv6 Deployment Plan
    - Still under R&D for wireless IPv6 connectivity service
        - Try on High-speed authentication and hand-over by MIPS (v6)
        - Try on MIPS + LIN6 for smooth mobility
- IPv4 Address
    - It is still under R&D investigation for a pure IPv6 service for the above service. It is also necessary to keep the current IPv4 addresses for a deployment of IPv6 services

Individual Case:
L3 Connectivity/IP-Phone service

- Started IPv6 IP Phone service
  - IPv6-ready IP Phone terminal is available now
  - Found IPv6 Phone is much less-cost to install than the IPv4 Phone
    - Less technical issue for installation by IPv6 RA
    - 40 hours installation work necessary for 140 IPv4 Phones is shortened to 6 hours work for 140 IPv6 Phones
- IPv6 Deployment Plan
  - Done for IP Phone service
  - Still planning for Fixed IP service
- IPv4 Address
  - Returning IPv4 addresses used for IP Phone service
  - IPv4 addresses for Fixed IP service is necessary for the time being till the same functional level of network devices are put into place

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Individual Case:
CDN (Content Distribution Network)

- Achieved CDN service in Music delivery which is depend on the Domain name by every artist name

- IPv6 Deployment Plan
  - IPv6 Ready Load Balancer is now available. It is under investigation for real usage
  - It is planned to deploy IPv6 in the Intranet within this year
  - It is found that IPv6 is more responsive than IPv4. It could be the value-added service by IPv6

- IPv4 Address
  - IPv4 addresses is still important. It is found that the pace of IPv6 ready devices' launch is a bit behind from expected (say, two to three years).

Program Status (for each purpose):

- Achieved raising ISPs' motivation to move (or start) on IPv6 services by review the real value of global IP address
    - IPv6 deployment plan now on table
- Achieved revitalizing the historical IPv4 space as providing the playing field for preparing IPv6 service
    - Contributing to ISPs for creating their new service(s)
    - Promoting Non-ISP players coming into IT industry to provide their new IP services
- Achieved a low-cost operation scheme and developing the IP address management tools
    - Contributing to lower the hurdle in IP resource management work for Non-ISP organizations to establish their service
- Continuation of this trial
    - Exploring more IPv6 potential business field(s)
    - Proposed to continue this trial till 2008 for more time to start the real IPv6 service

Introduction of IPv6 Address Assignment Management Tool

- **Objective of this tool development**
  - For **LIRs** allocated IPv6 address block from APNIC
  - To support LIRs' IPv6 address resource management task, especially **for new comers (non ISPs)**
  - To enable LIRs/new providers establish their IPv6 management system by utilizing the source code of this tool with **cost-free**

Introduction of IPv6 Address Assignment Management Tool (2)

- Characteristics:
    - **Web-based** architecture
    - Functions:
        - Assignment management
        - Assignment report to APNIC
            - TBD: WHOIS setting
        - Sub Allocation management
        - Delegation setting of reverse DNS
- Fore more info:

    http://www.v6nic.net/system/index-e.html
    - Reference:
        http://www.ipv6style.jp/en/tryout/latest.shtml

Consideration

- At the time starting this project (in 2001), it was believed to be able to replace services from IPv4-based to IPv6-based by 2005, then IPv4 addresses can be returned

  But, in fact:
  - 1-2 year delay from the original estimation of deployment level
    - No DNS Support, still advancing RFC, etc.
    - But, No report from participants that IPv6 allocation policy is a hurdle
  - Most services are going to IPv4/IPv6 dual way
- IPv4 addresses are still necessary for IPv6-based service deployment
- It is necessary to reconsider the project planning toward 2005 with the facts found so far
  - Program continuation will be proposed at Policy SIG

Any question and comment?

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