



JPNAP

an internet exchange in Japan

Katsuyasu Toyama

INTERNET MULTIFEED CO.



AGENDA

1. **Company overview**
2. **Current Internet in Japan**
3. **JPNAP**



1. Company overview



INTERNET MULTIFEED Co.

- **Established in Sep. 1997**
 - By IIJ, NTT Com, and major ISPs and ICPs in Japan.
- **JPNAP started in 2001**



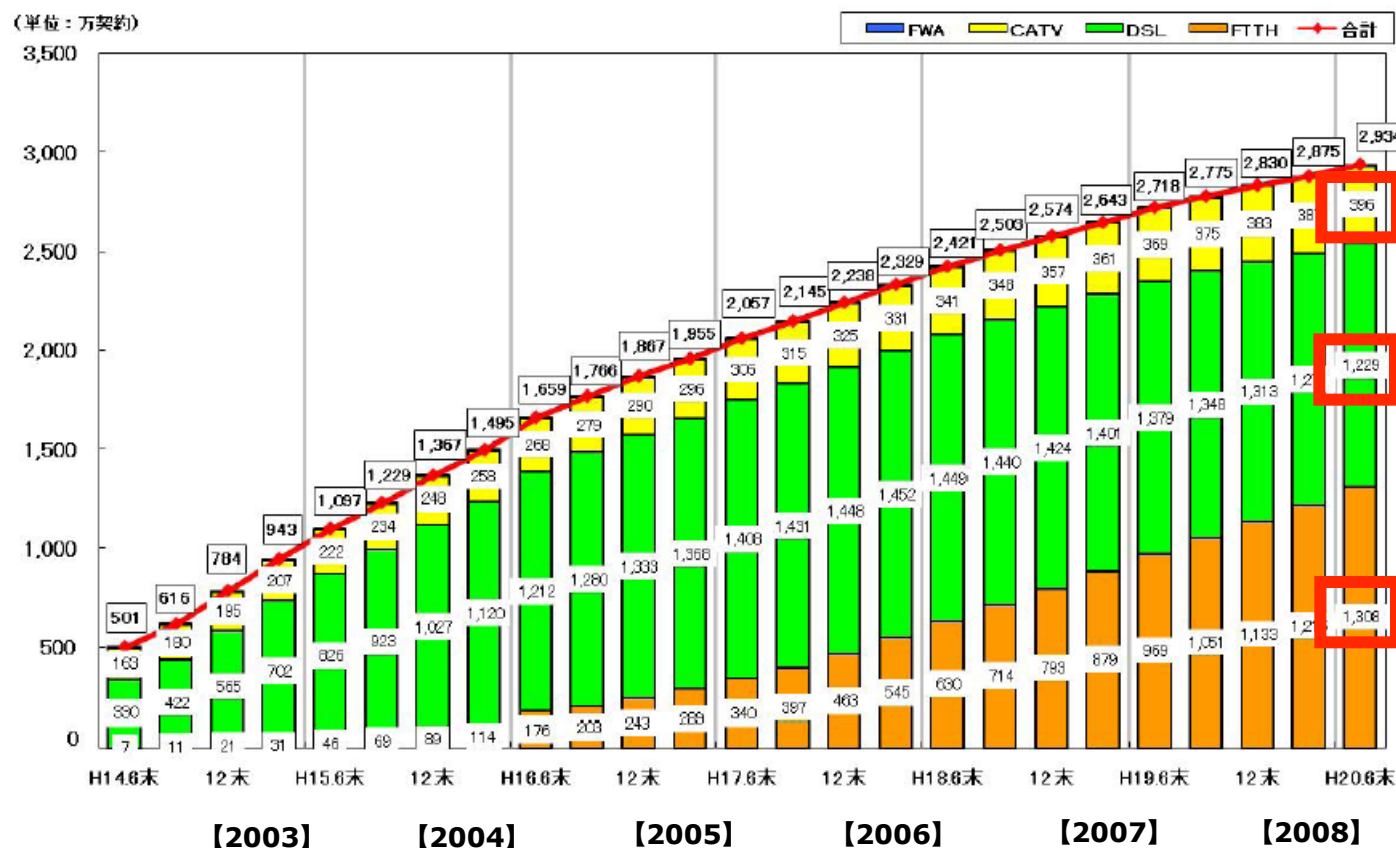


2. Current Internet in Japan

Growth of Broadband Subscribers

as of the end of September 2008

Number of subscribers :
10 thousand



CATV

DSL

FTTH

Source: Press release of the Ministry Internal Affairs and Communications (MIC) on September 2008
http://www.soumu.go.jp/s-news/2008/080917_2.html (only Japanese)

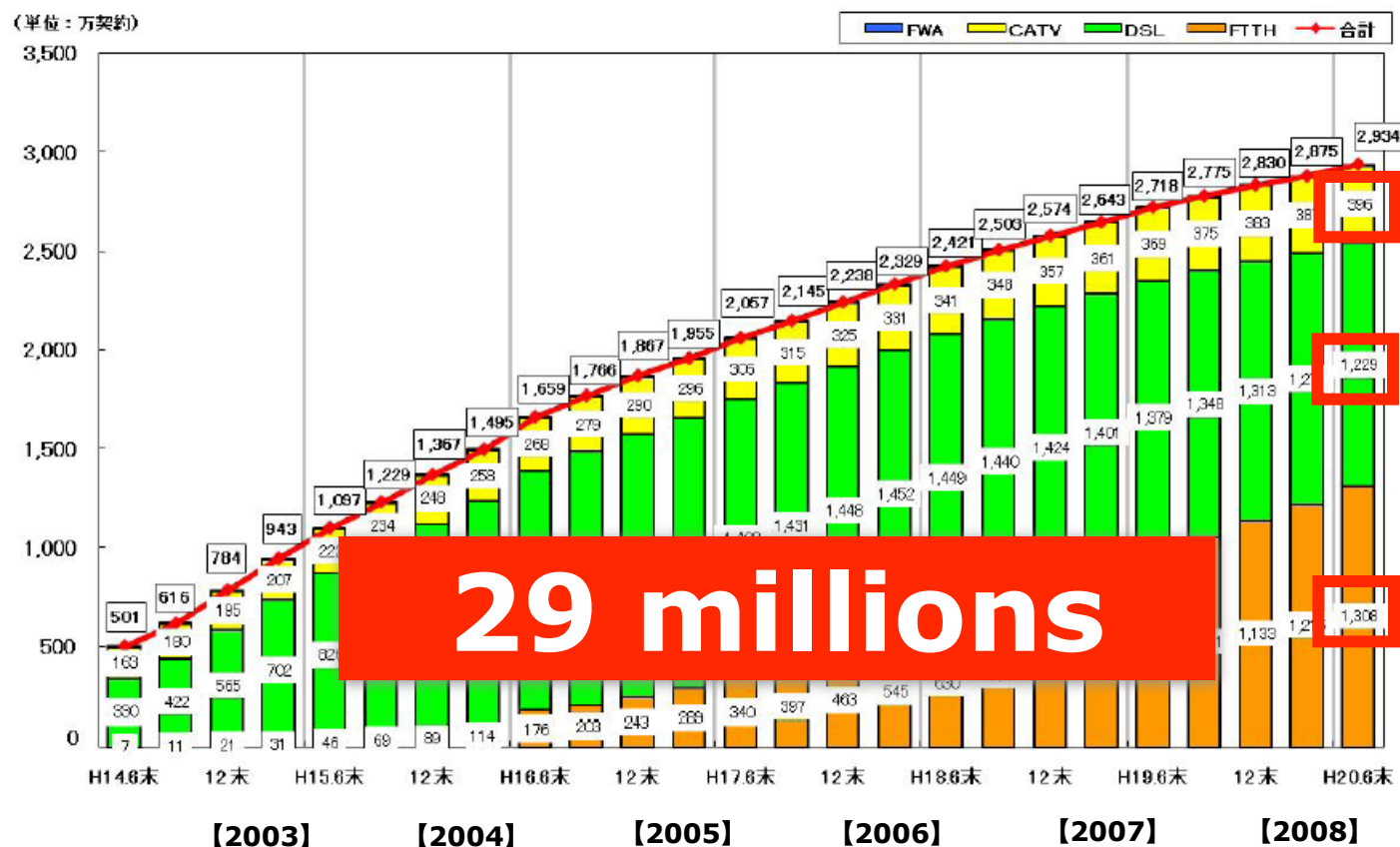
(c) INTERNET MULTIFEED CO.



Growth of Broadband Subscribers

as of the end of September 2008

Number of subscribers :
10 thousand



Source: Press release of the Ministry Internal Affairs and Communications (MIC) on September 2008
http://www.soumu.go.jp/s-news/2008/080917_2.html (only Japanese)

(c) INTERNET MULTIFEED CO.

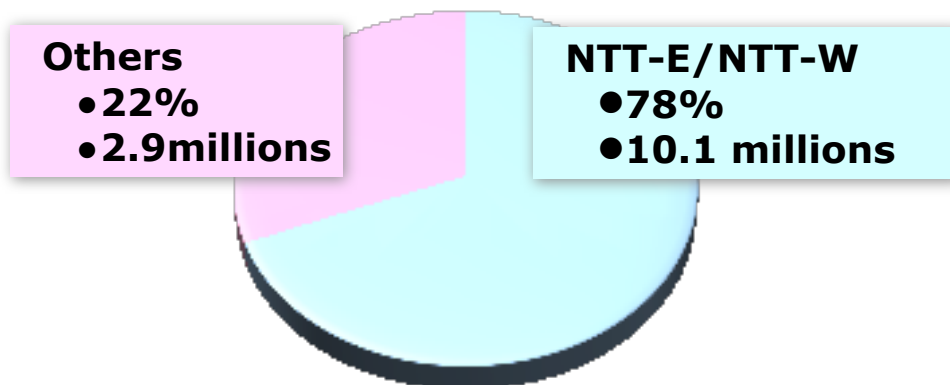


Market share of broadband subscribers

- NTT-East/NTT-West dominate broadband access line market

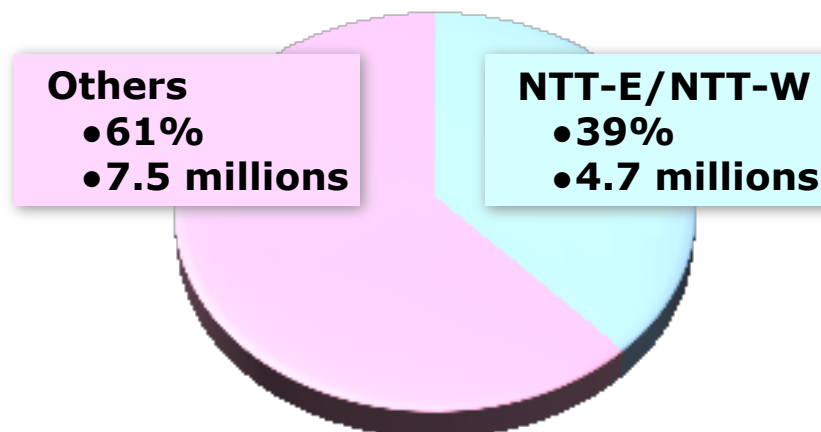
FTTH

13.0 millions



DSL

12.2 millions



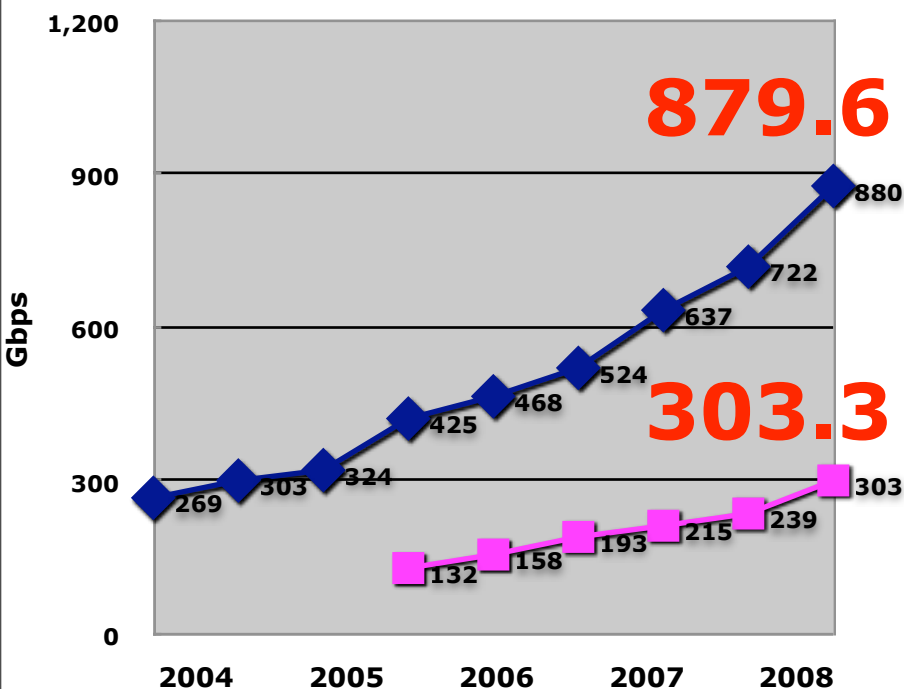
Source: Information NTT-EAST 2008
<http://www.ntt-east.co.jp/databook/index.html> (Japanese only)

: Information and Communications Statistics Database of the Ministry Internal Affairs and Communications
<http://www.johotsusintokei.soumu.go.jp/field/tsuushin03.html> (Only Japanese)



Is the Internet traffic growing in Japan?

◆ total traffic ◆ IX Peak Traffic



➤ Yes!

➤ The total traffic in 2008 reaches **1.2times** the number in 2007.

Source: Press release of the Ministry Internal Affairs and Communications (MIC) on 29 August 2008
http://www.soumu.go.jp/s-news/2008/080829_9.html

(Japanese only)



3. JPNAP



Overview (1/2)

- **A commercial Internet Exchange in JAPAN**
 - **Ethernet based L2 IX service**
- **3 exchange points:**
 - **Tokyo I, Tokyo II and Osaka**
- **Each exchange points are not interconnected**
- **“Tokyo II” is brand-new!**





Overview (2/2)

➤ JPNAP Port Connectivity

● Interface

- 10GbE (10GBase-LR)
- 1GbE (1000Base-SX/LX)
- FE (100Base-TX)

- Link Aggregation (10GbE and 1GbE)

● IPv6 is available!

- IPv6 native
- IPv4/v6 dual stack



Providing the largest number of 10G ports among IXPs in Japan

- **The number of customers using 10GbE is 26. (as of October, 2008)**
- **The number of 10GbE ports is over 70. (as of October, 2008)**



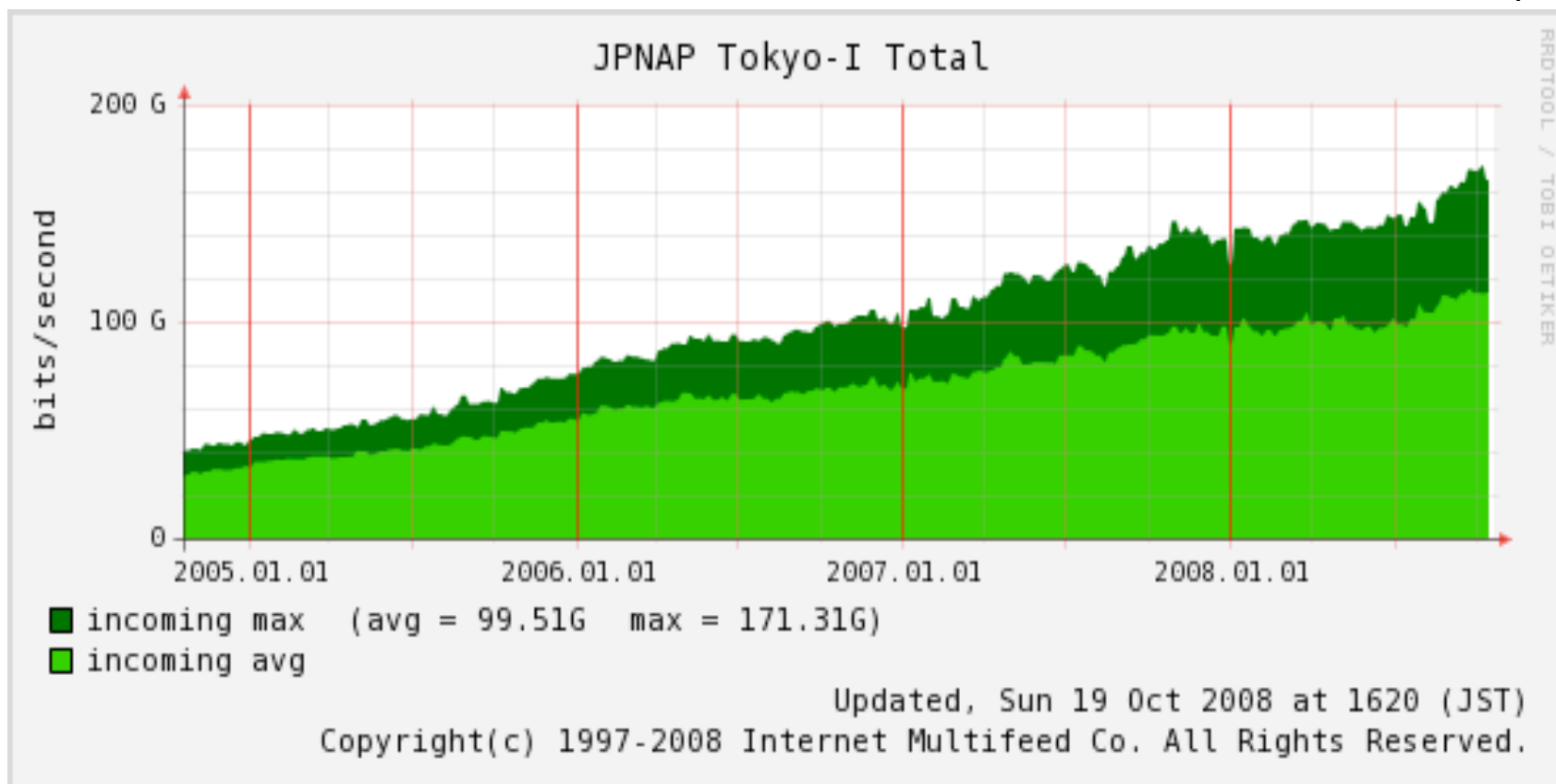
JPNAP exchanges the largest Internet traffic among IXPs in Japan.



Traffic Trend (1/4)

JPNAP Tokyo-I: 171Gbps

as of October, 2008

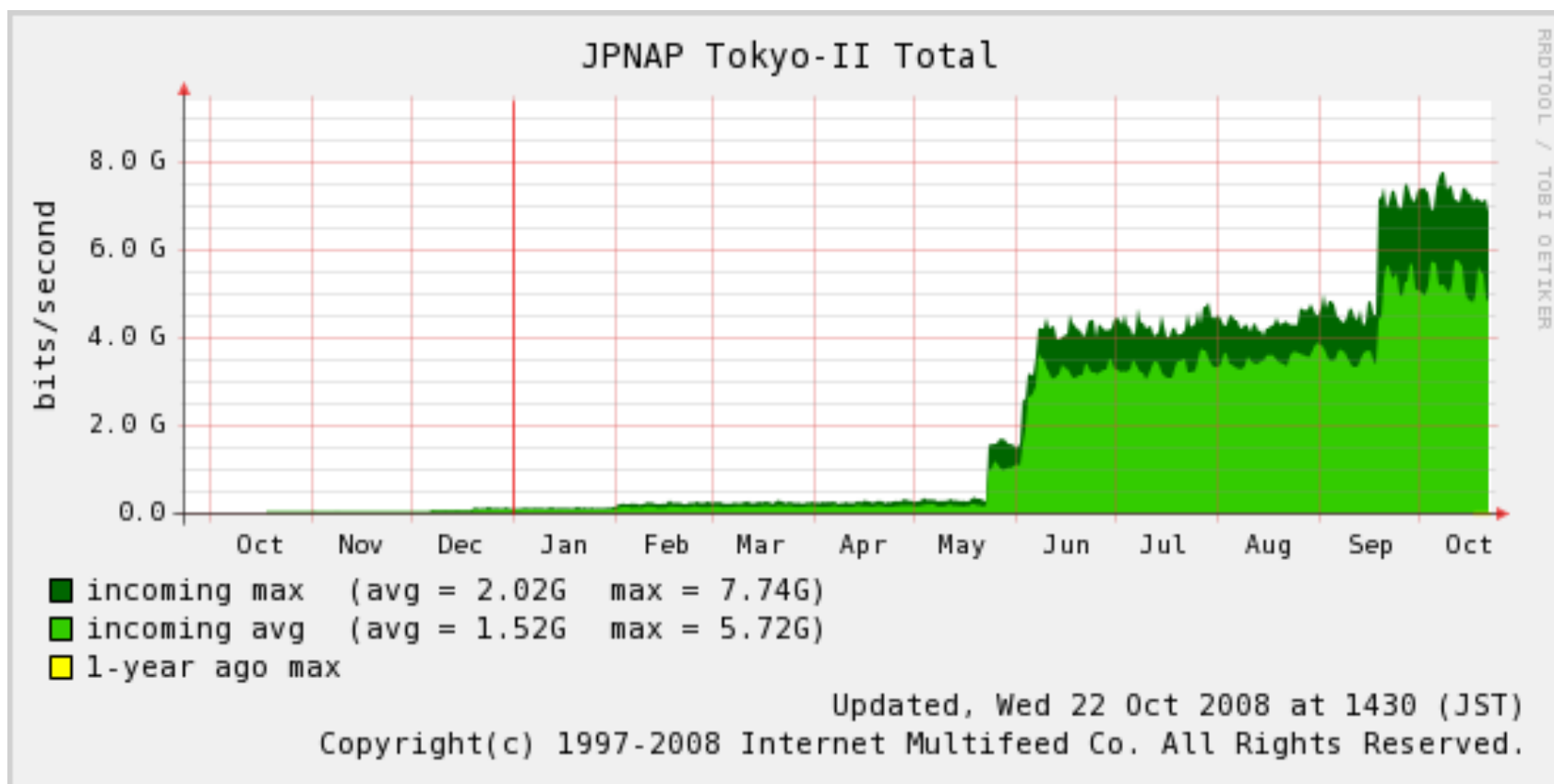




Traffic Trend (2/4)

< JPNAP Tokyo-II >

as of October, 2008

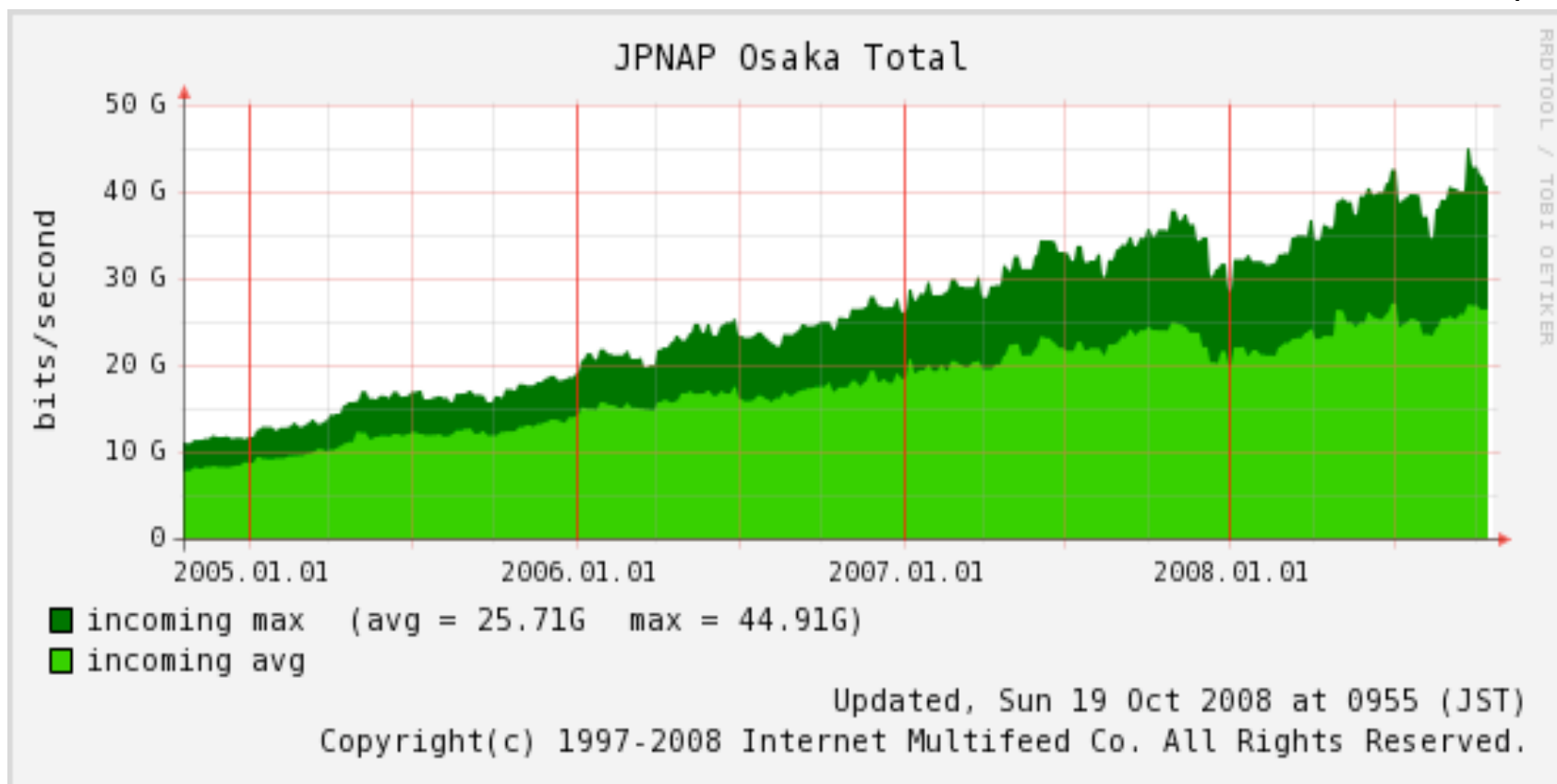




Traffic Trend (3/4)

< JPNAP Osaka >

as of October, 2008

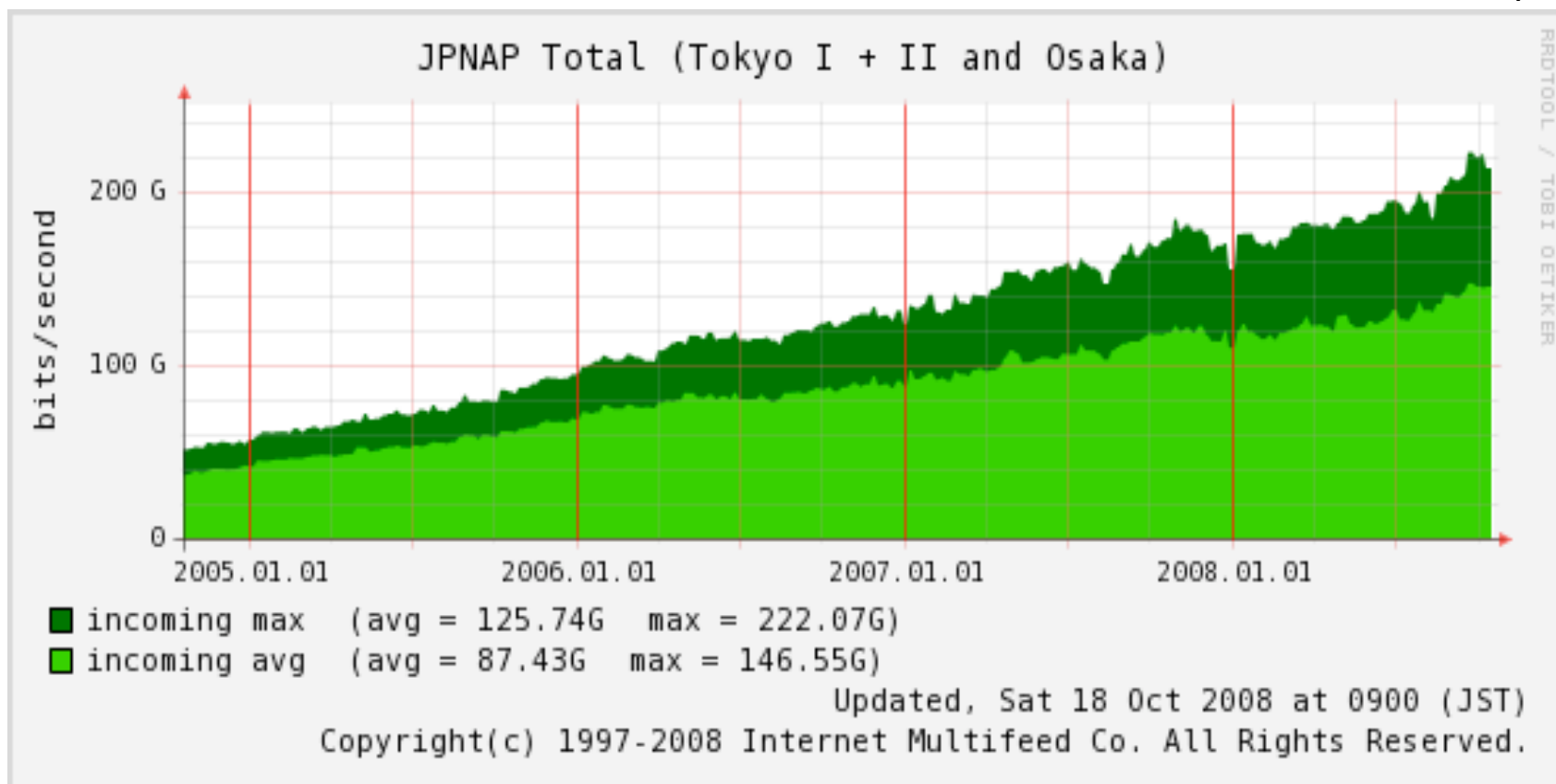




Traffic Trend (4/4)

Total: 222Gbps (Tokyo + Osaka)

as of October, 2008

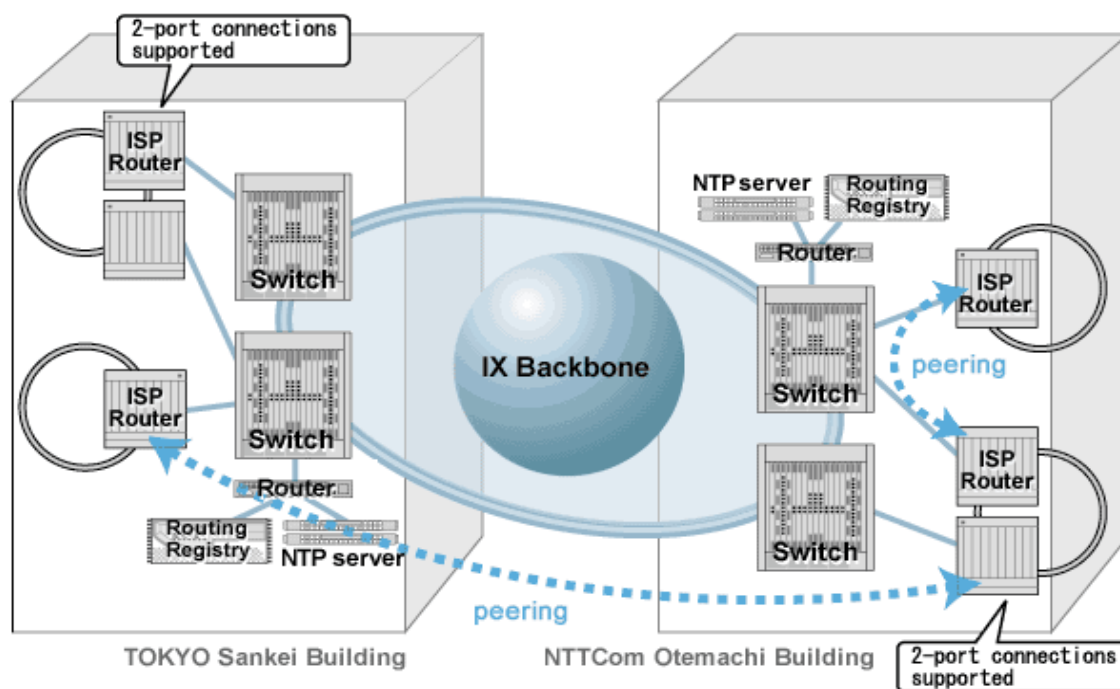




JPNAP Architecture

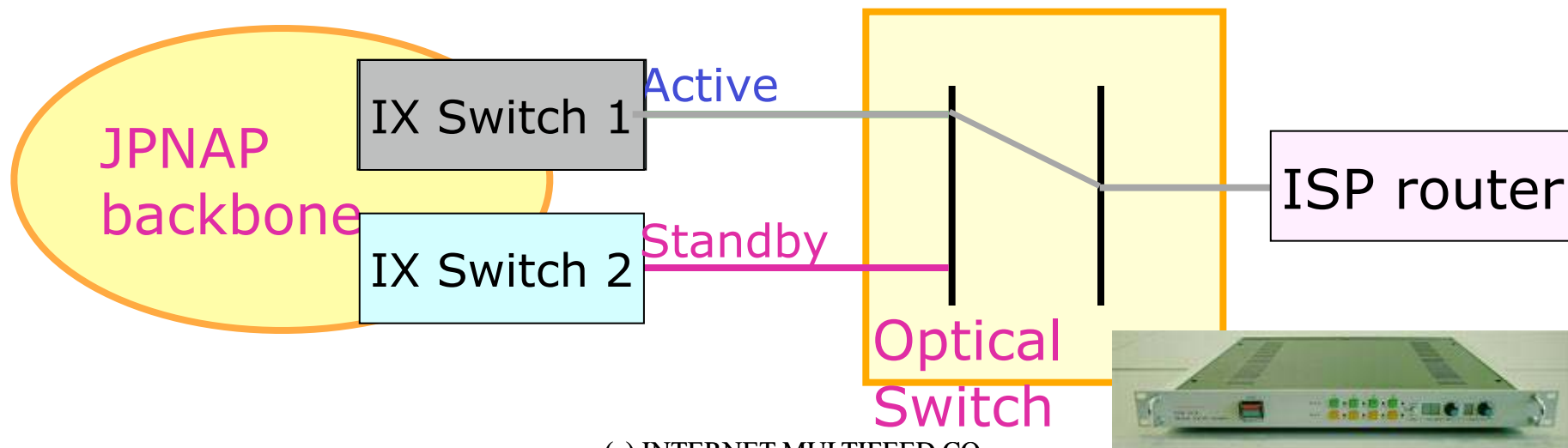
- **Highly available and reliable System**
- **Completely redundant configuration**
 - All the customers are provided with main and backup port.

< JPNAP Tokyo I >



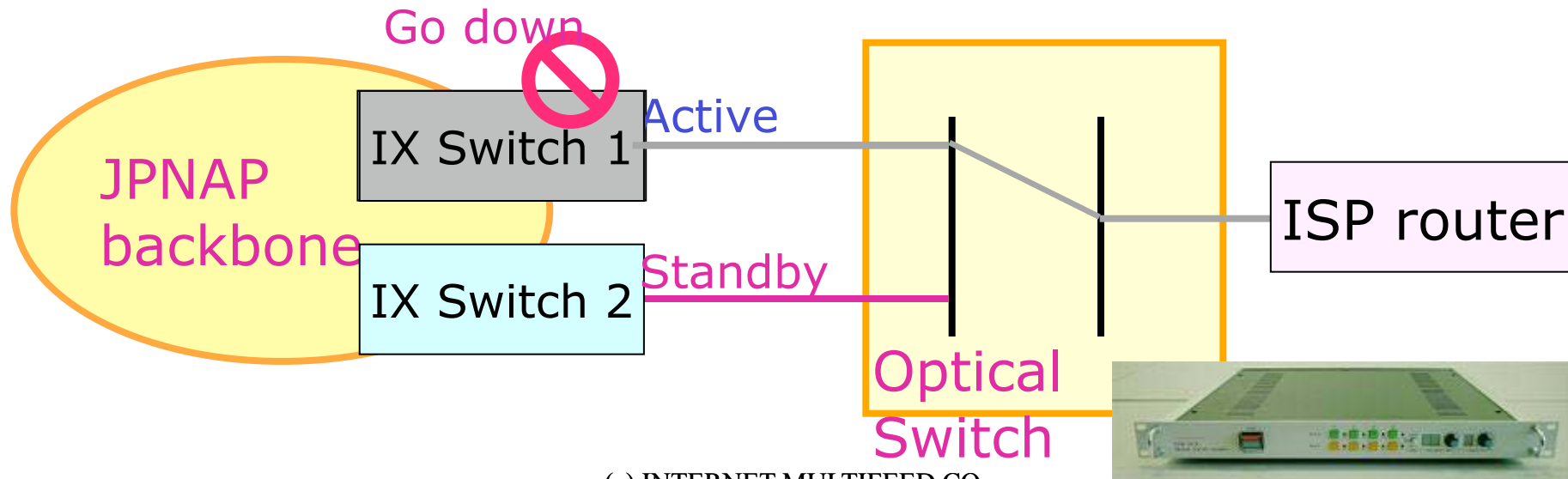
Intelligent Optical Switch

- Intelligent optical switch changes main port to backup in tens of millisecond
 - **Only JPNAP is providing it in Japan.**
- **This heavily contributes to JPNAP availability**
 - *Please refer to my presentation in NANOG43*
 - <http://www.nanog.org/meetings/nanog43/abstracts.php?pt=NjYmbmFub2c0Mw==&nm=nanog43>



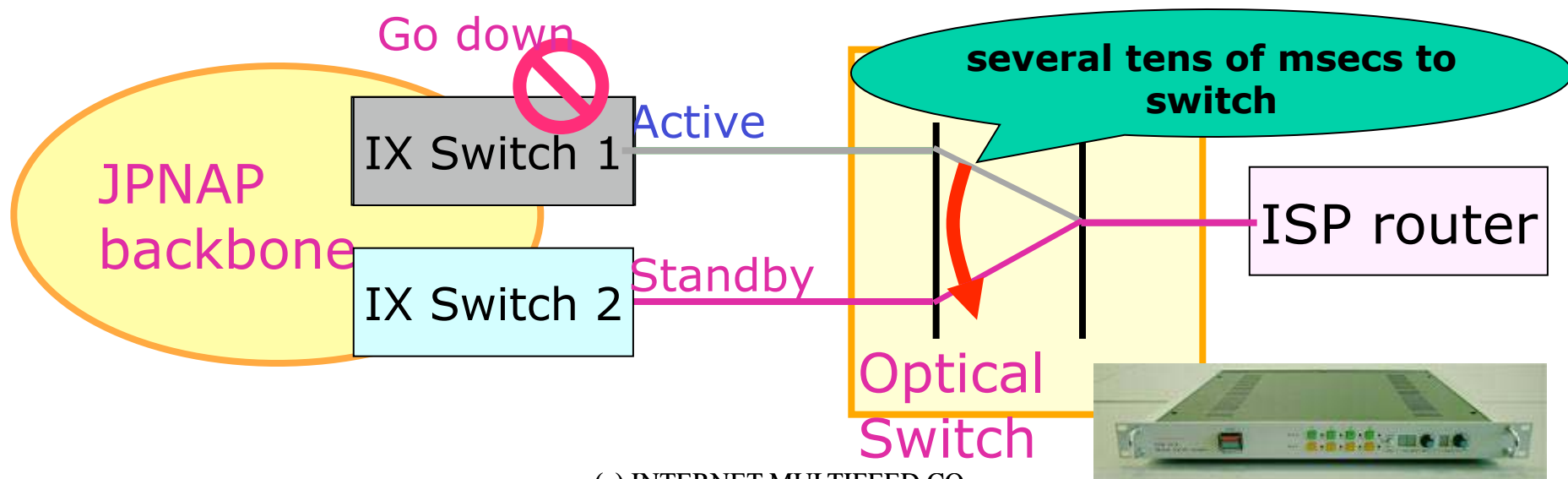
Intelligent Optical Switch

- Intelligent optical switch changes main port to backup in tens of millisecond
 - **Only JPNAP is providing it in Japan.**
- **This heavily contributes to JPNAP availability**
 - *Please refer to my presentation in NANOG43*
 - <http://www.nanog.org/meetings/nanog43/abstracts.php?pt=NjYmbmFub2c0Mw==&nm=nanog43>



Intelligent Optical Switch

- Intelligent optical switch changes main port to backup in tens of millisecond
 - Only JPNAP is providing it in Japan.
- This heavily contributes to JPNAP availability
 - Please refer to my presentation in NANOG43
 - <http://www.nanog.org/meetings/nanog43/abstracts.php?pt=NjYmbmFub2c0Mw==&nm=nanog43>

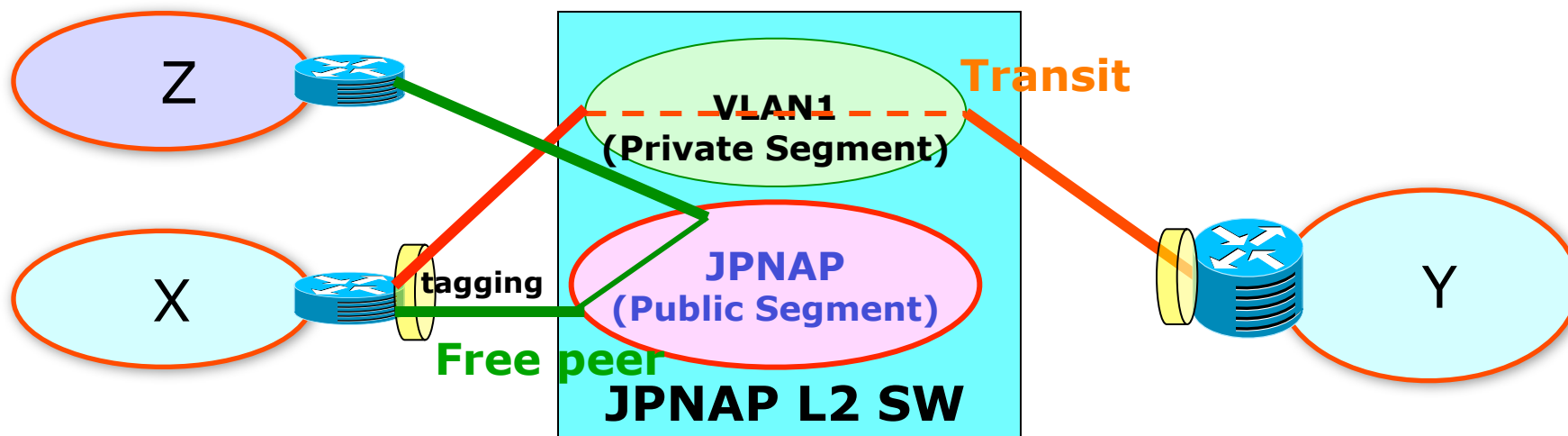




VLAN service

- **"PI (Private Interconnect)/CUG (Closed Users Group) Service"**
 - For exchanging traffic not only in the public segment, but also in the private segment
 - **Available only on JPNAP in Japan**

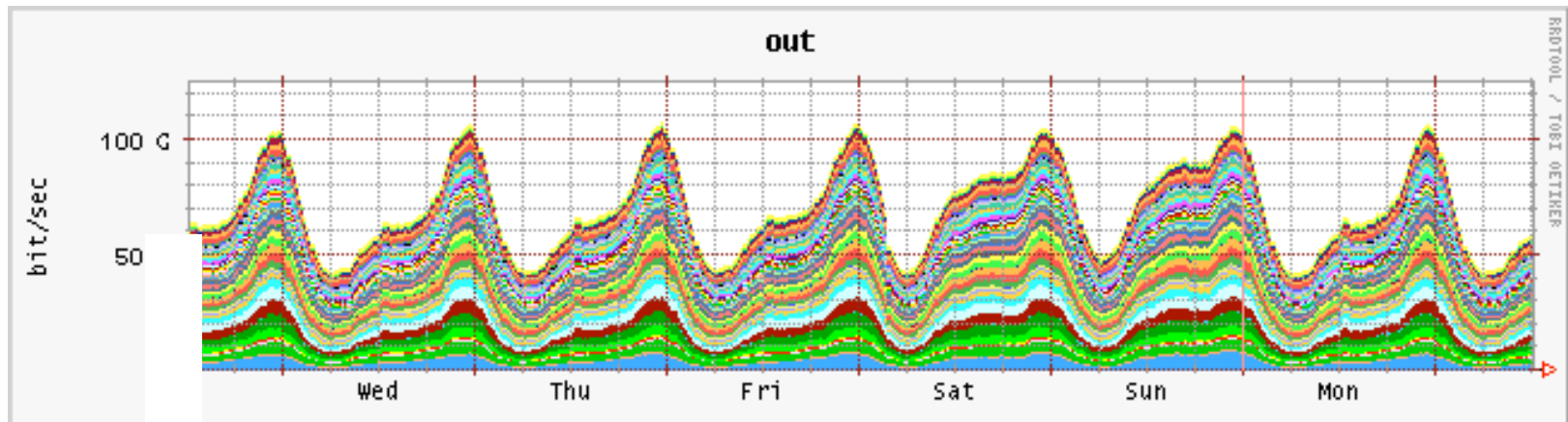
Case: PI tagging service





sFlow analysis

- “PeerWatcher” service
- Traffic is analyzed using sFlow
- Customers can see the trend of their own peering traffic





Euro-IX and JPNAP

- JPNAP is **the 1st associate member** since 2005:
 - Contributing our experiences based on our technological development, such as sFlow analysis





Thank you for your attention!

INTERNET MULTIFEED CO.

www.mfeed.co.jp

[toyama @ mfeed.ad.jp](mailto:toyama@mfeed.ad.jp)