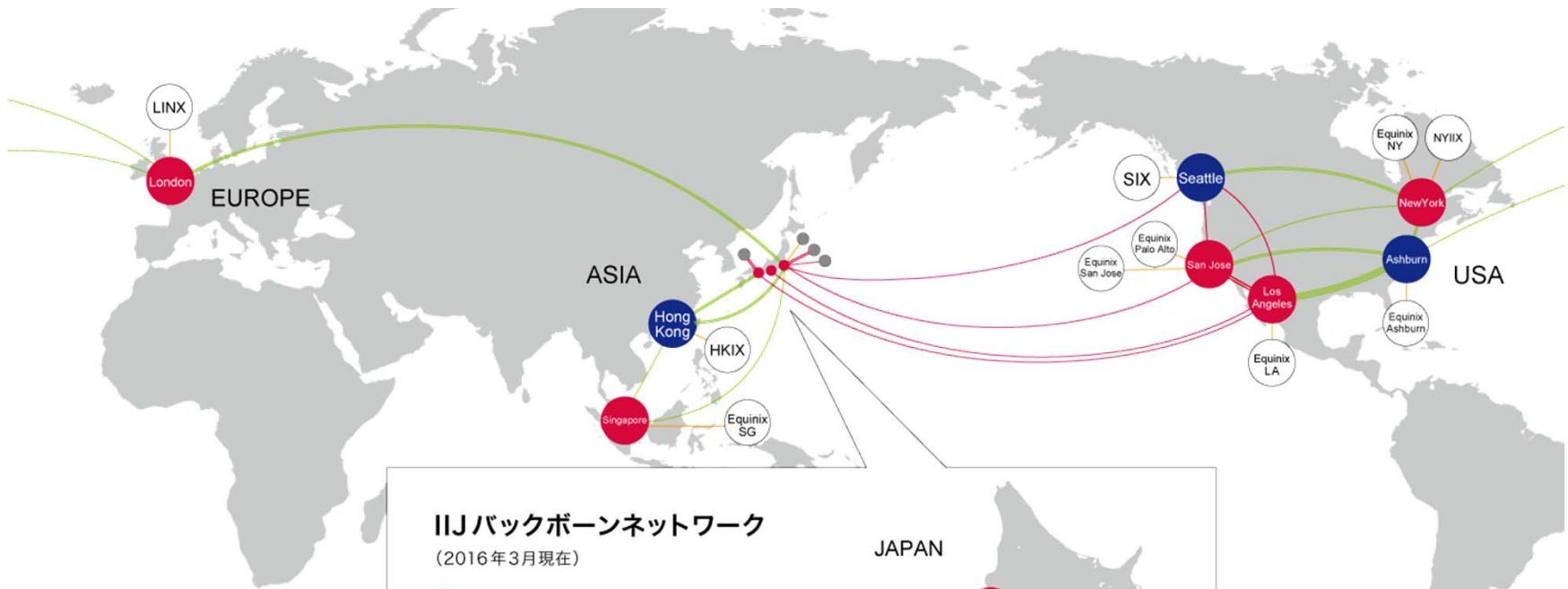


OTT Traffic and Trends

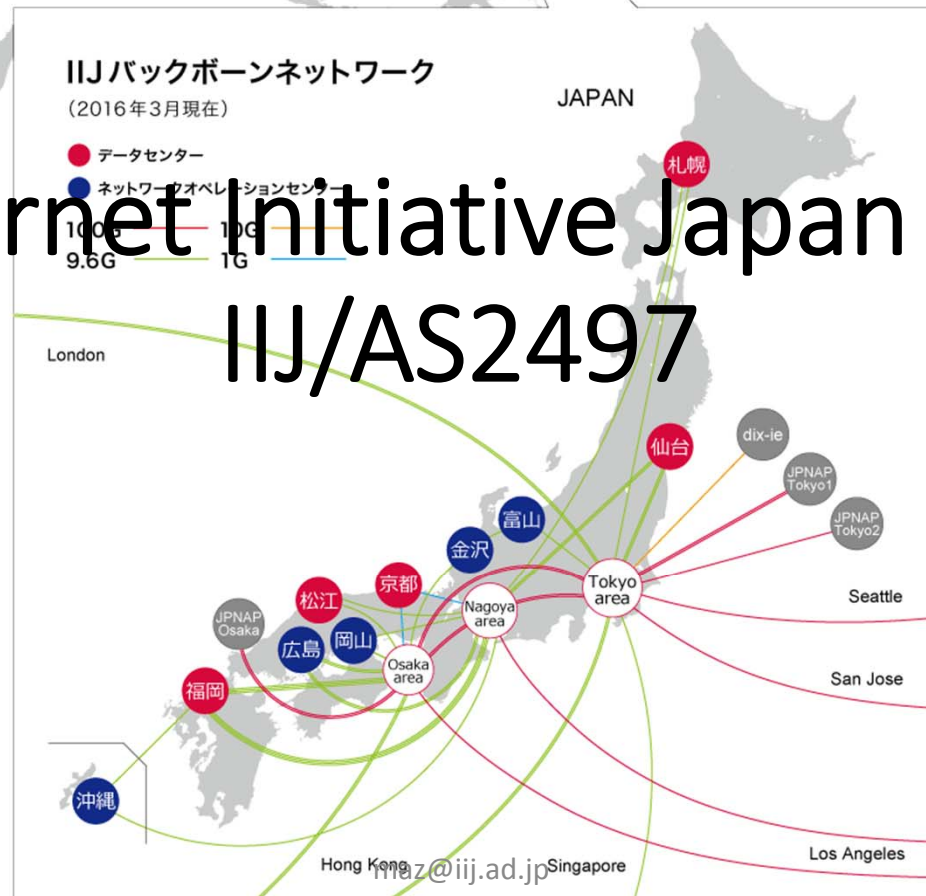
Matsuzaki 'maz' Yoshinobu

<maz@ij.ad.jp>



Internet Initiative Japan Inc.

IIJ/AS2497



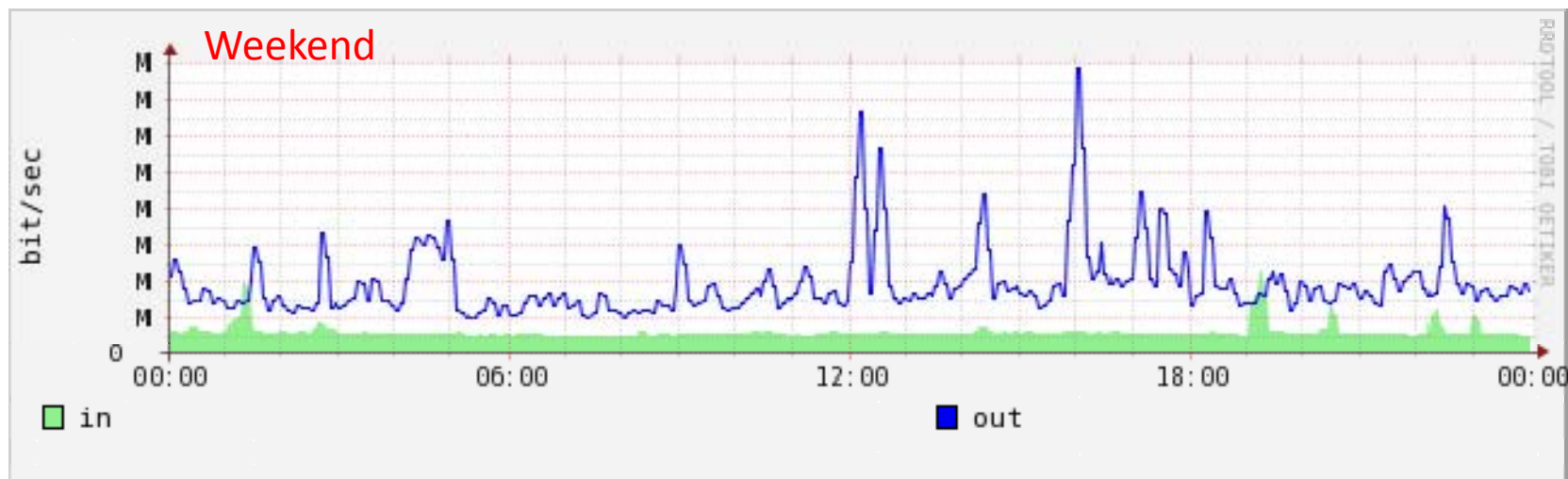
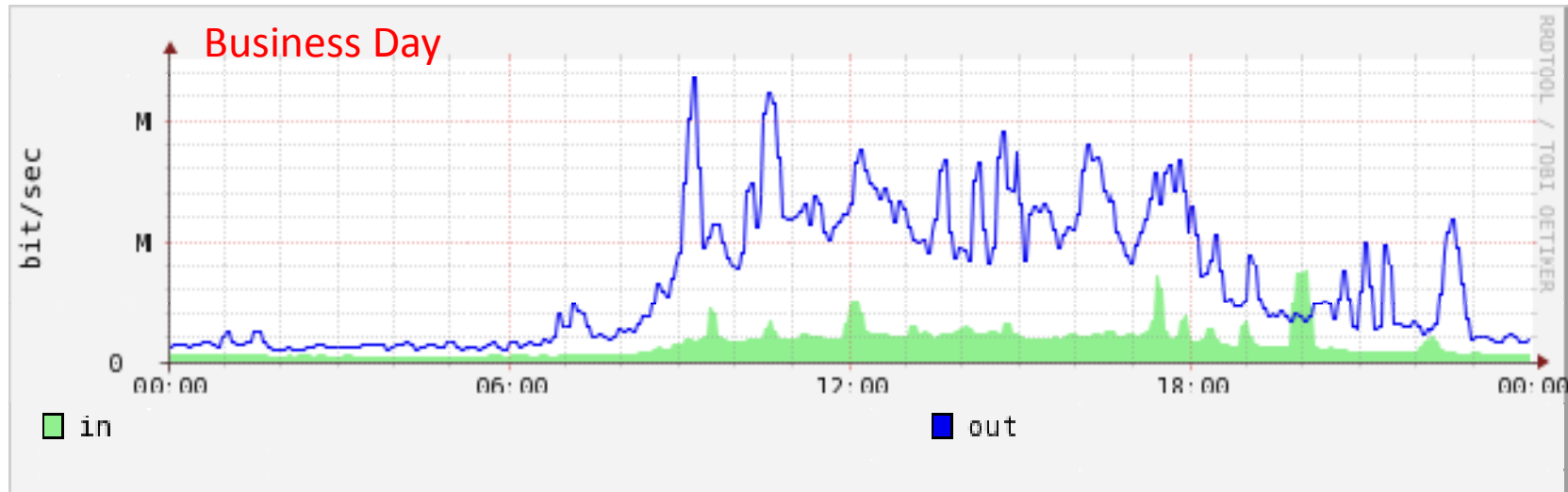
IIJ/AS2497

- Very conservative about qualities
 - over provisioning
 - pretty straight-forward, nothing strange
- Techies
 - IPv6
 - DNSSEC
 - IRR & RPKI
 - Source Address Verification (BCP38/uRPF)

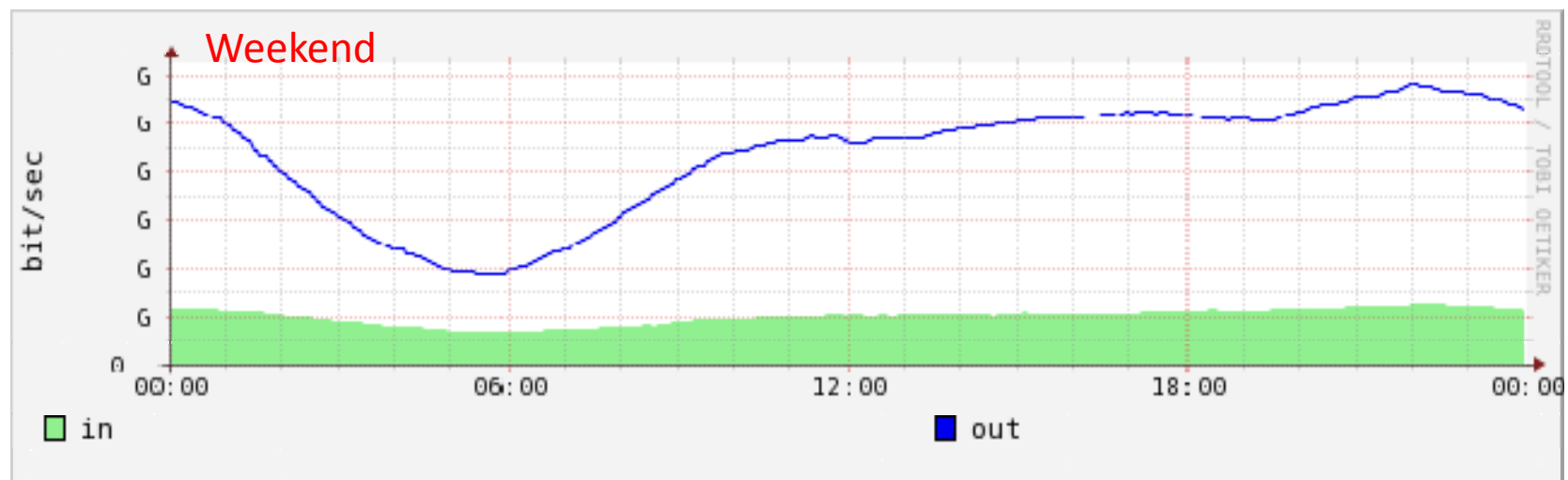
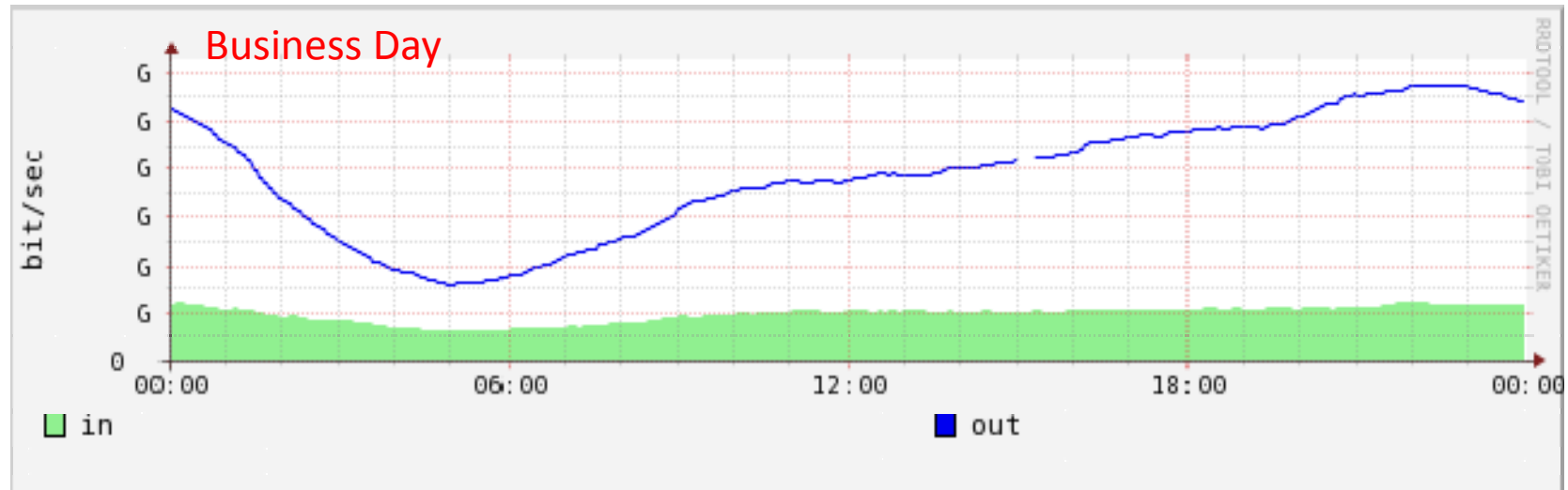
Over The Top?

- IIJ does not care that much about the contents
 - our most popular contents service would be...
ftp.ij.ad.jp ;)
 - IIJ is just carrying IPv4/IPv6 packets
- As an ISP, we care about Volume, Traffic and Trends
 - to upgrade our network
 - most traffic are not much controllable anyway
- ISPs should be flexible and adjustable

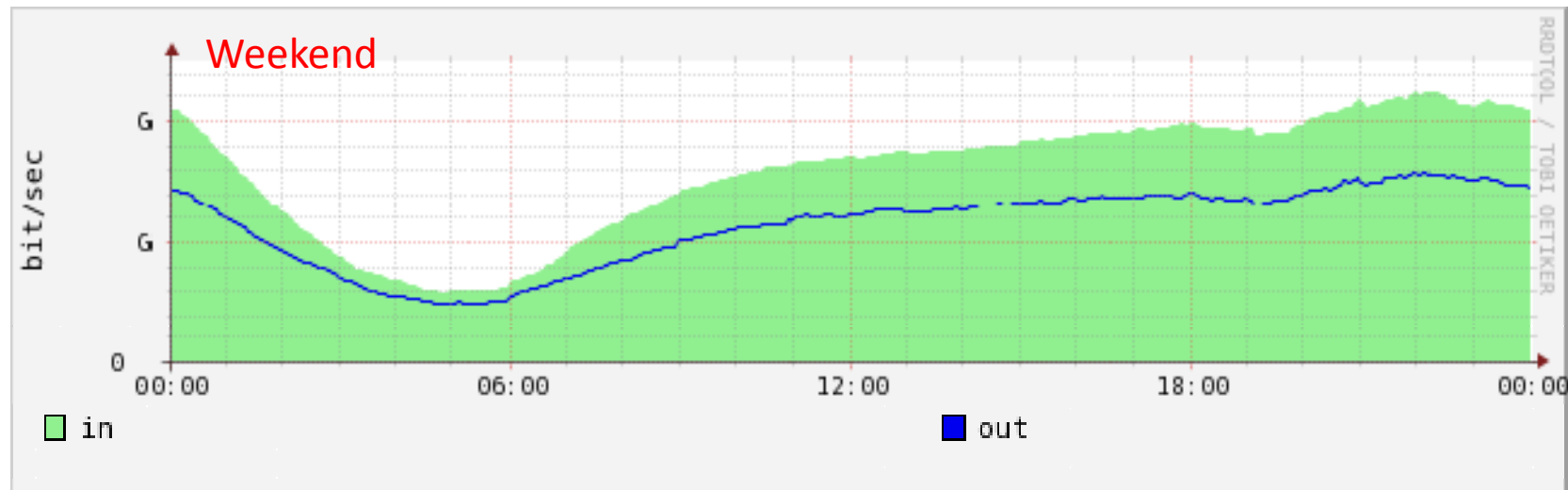
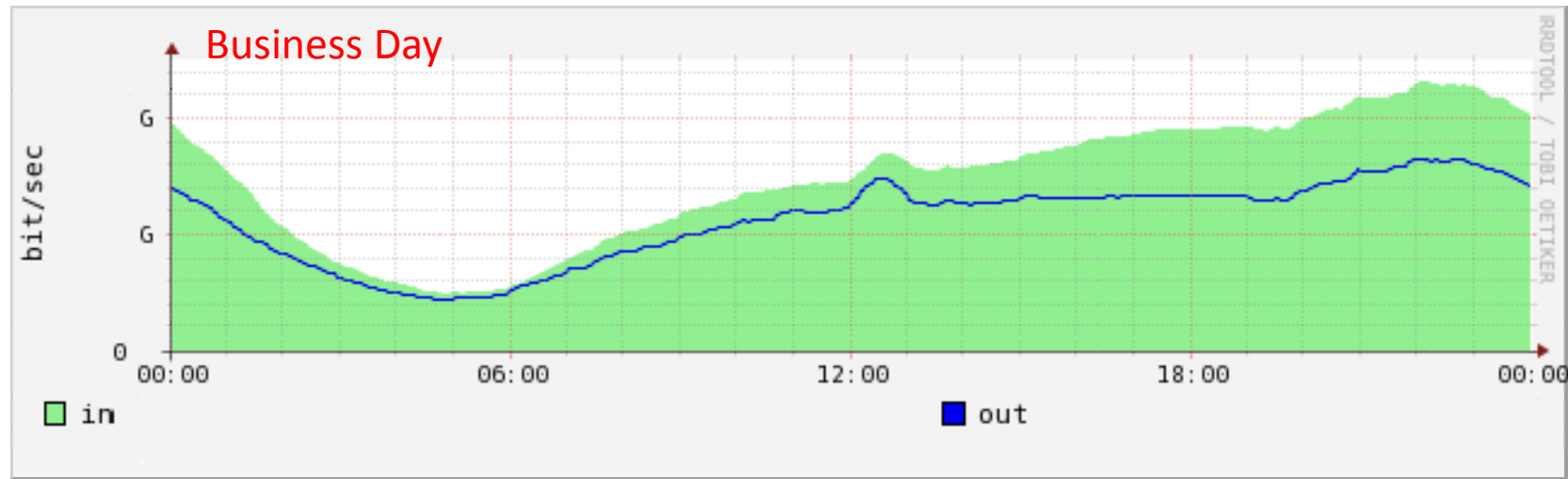
An enterprise



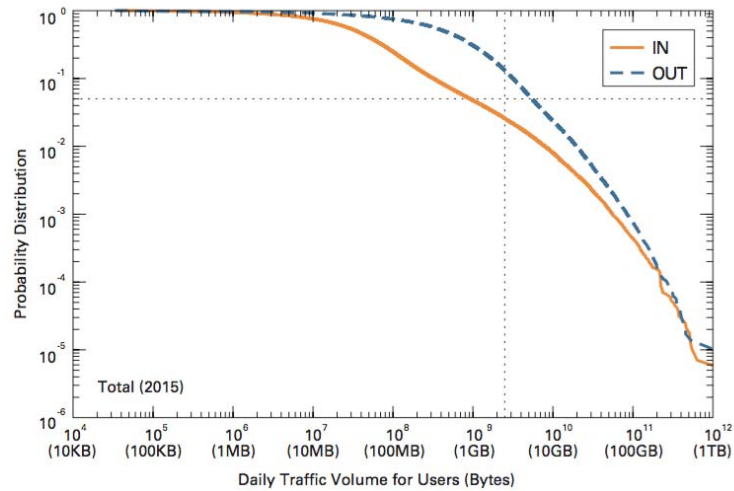
broadband (aggregated)



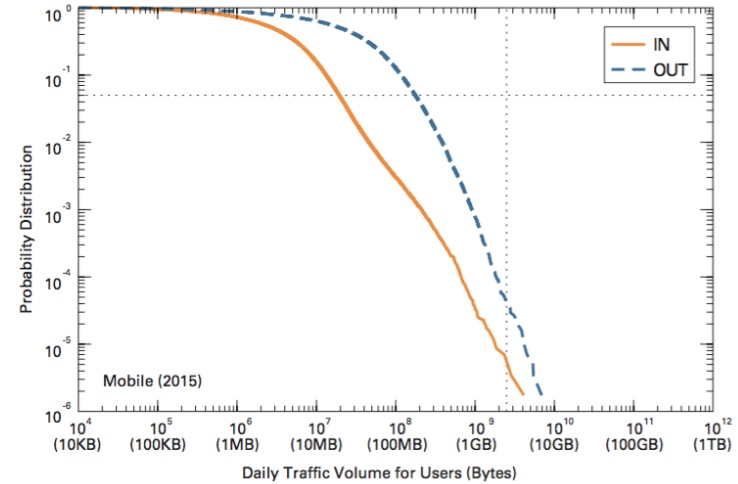
peering traffic (aggregated)



complementary cumulative distribution of the daily traffic volume for users



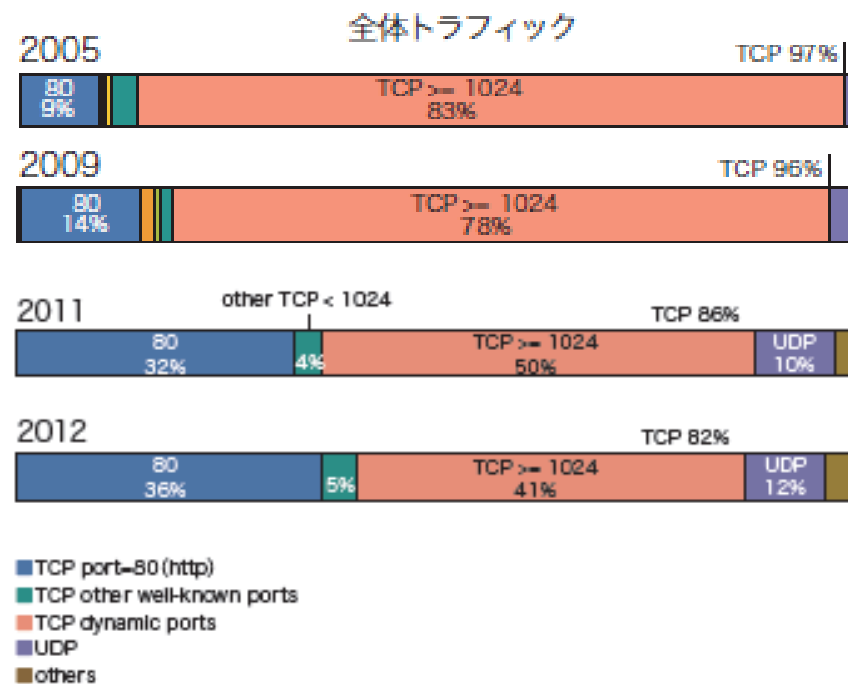
Broadband Users



Mobile Users

http://www.ij.ad.jp/en/company/development/iir/pdf/iir_vol28_report_EN.pdf

protocol number usage



protocol number usages in 2015

	Broadband(%)	Mobile(%)
TCP	80.8	93.8
80(http)	37.9	52.5
443(https)	23.3	37.4
1935(rtmp)	1.8	0.5
81	0.5	0.5
UDP	11.4	5.2
443(https)	0.9	1.0
ESP	7.4	0.7
GRE	0.2	0.3

http://www.ij.ad.jp/en/company/development/iir/pdf/iir_vol28_report_EN.pdf

Contents Distributers

port 443 heavy sources

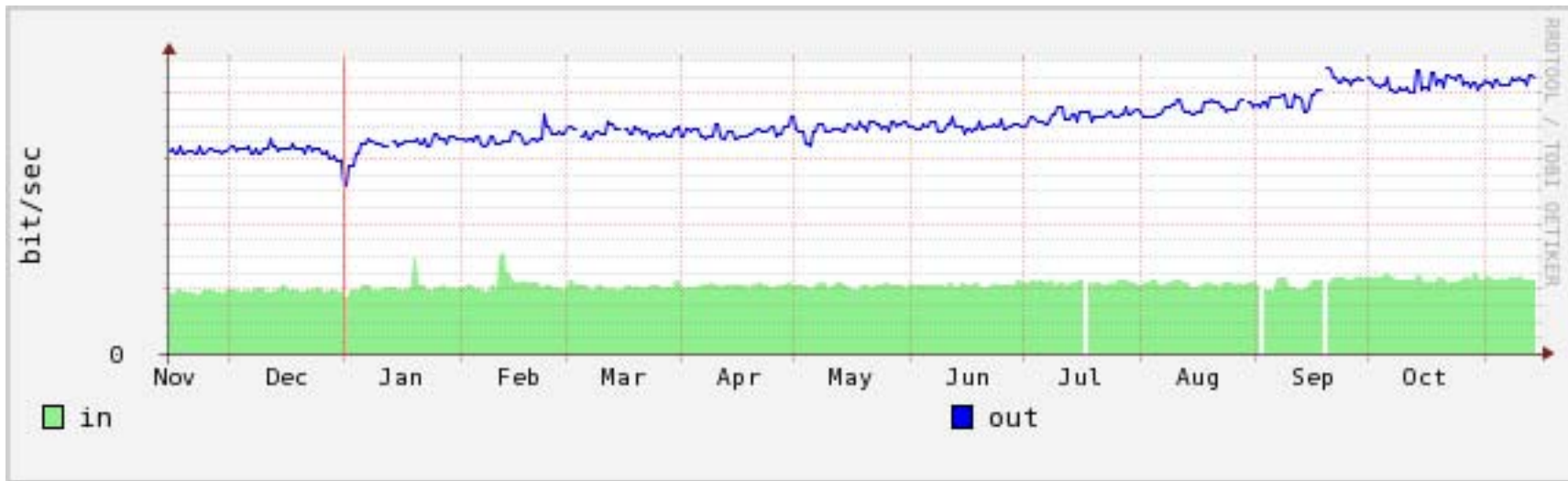
- Google
- Amazon
- Facebook
- Microsoft

port 80 heavy sources

- Akamai
- Apple
- Limelight
- Netflix

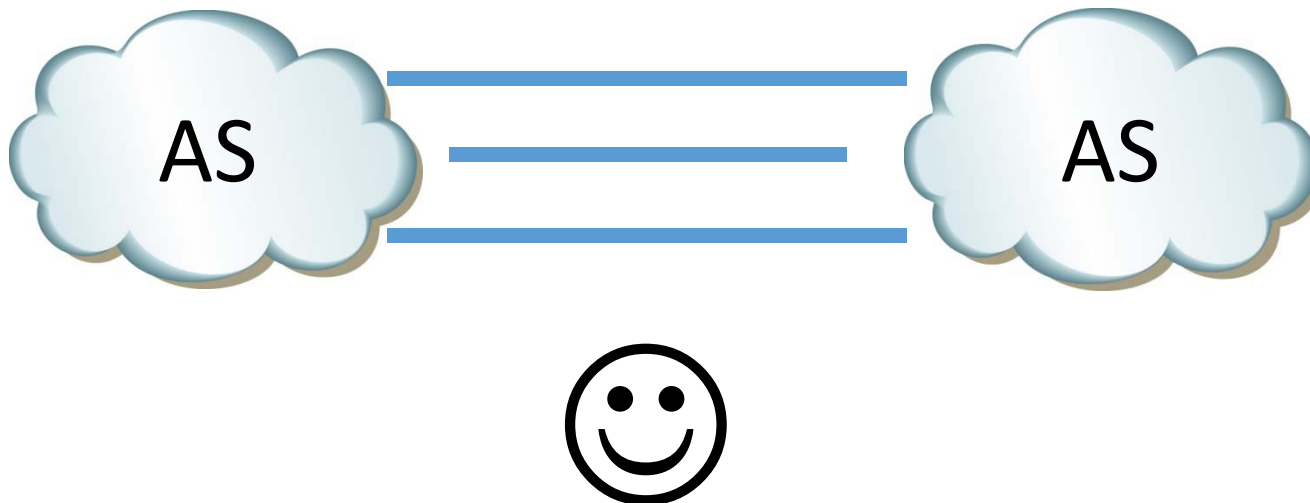
thinking of upgrading

- more users
- more applications
- more bandwidth



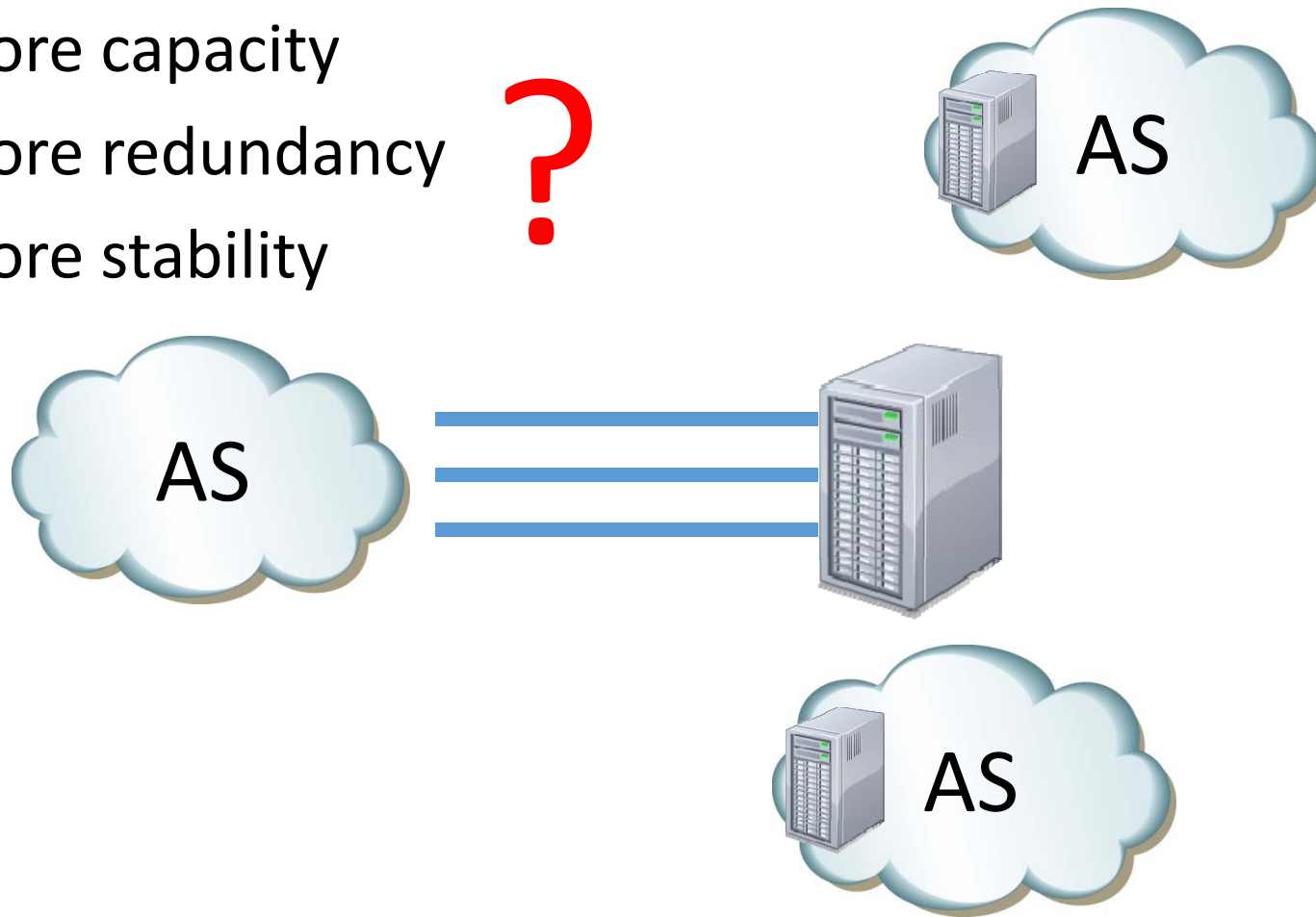
Upgrading peering connections

- more capacity
- more redundancy
- more stability



Upgrading connections with CDNs

- more capacity
- more redundancy
- more stability



considering the differences of upgrading...

- It will be of benefit to customers
 - more capacity 😊
- Only CDNs will increase ability of traffic engineering
 - more unbalance :P
 - Usually outbound traffic control is easier, and inbound traffic control is much harder
- **It's mutually beneficial, but risks are different**
 - You should be aware of the CDNs' traffic engineering in advance

Summary

- ISP does not have control of the Internet usages
 - End-nodes handle it
 - p2p, CDNs, multi TCP
- ISP should keep its network flexible and adjustable
 - ‘Keep it simple and stupid’
 - To constantly adapt ‘new’ usages
- Let’s openly share our operational policy with each others
 - Better understanding can bring better network designs and operations