

**VNIX-NOG 2019 @ Nha Trang City**

# **JPIX introduction**

## **~ Network and Traffic ~**

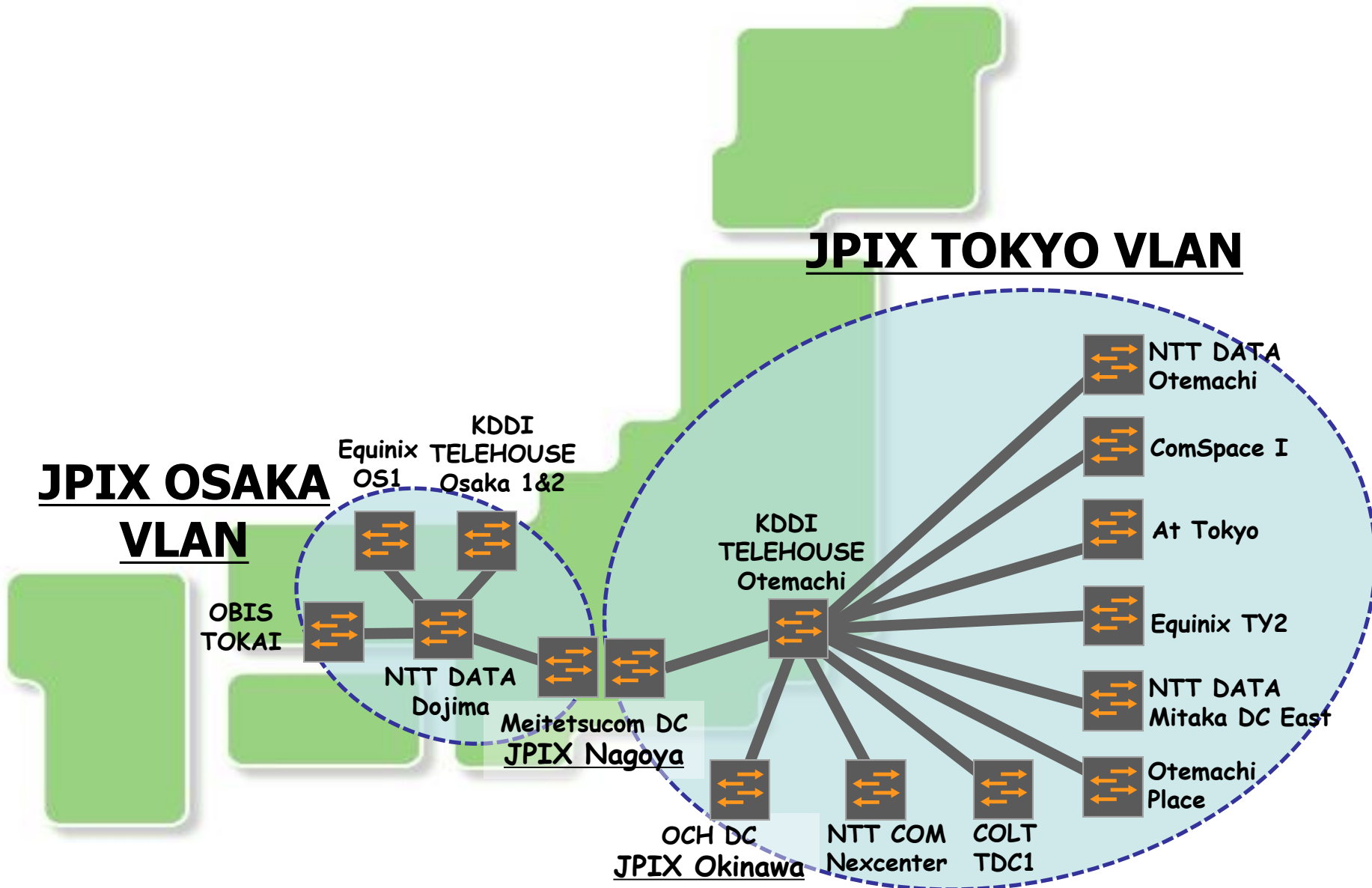
**Japan Internet Exchange Co., Ltd.**  
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# JPIX at a glance

IX Name	<b><u>JPIX TOKYO</u></b>	<b><u>JPIX OSAKA</u></b>
City, Country	Tokyo, Nagoya and Okinawa, Japan	Osaka and Nagoya, Japan
Point of Presence	<ul style="list-style-type: none"> <li>• KDDI TELEHOUSE Otemachi</li> <li>• NTT DATA Otemachi</li> <li>• Comspace I</li> <li>• Equinix TY2</li> <li>• AT Tokyo</li> <li>• COLT TDC1</li> <li>• NTT DATA Mitaka DC East</li> <li>• NTT COM Nexcenter DC</li> <li>• Otemachi Place</li> <li>• Meitetsucom DC (Nagoya)</li> <li>• OCH DC (Okinawa)</li> </ul>	<ul style="list-style-type: none"> <li>• NTT DATA Dojima aka. Dojima Bldg. #4</li> <li>• KDDI TELEHOUSE Osaka 1&amp;2</li> <li>• Equinix OS1</li> <li>• Meitetsucom DC (Nagoya)</li> </ul>
# of connected ASN	200	60
Peak traffic	910G	540G
Route Servers	Yes (Cisco IOS-XE)	Yes (Cisco IOS-XE)
Remarks	Our IX switch in Nagoya can offer both JPIX TOKYO vlan and OSAKA one.	

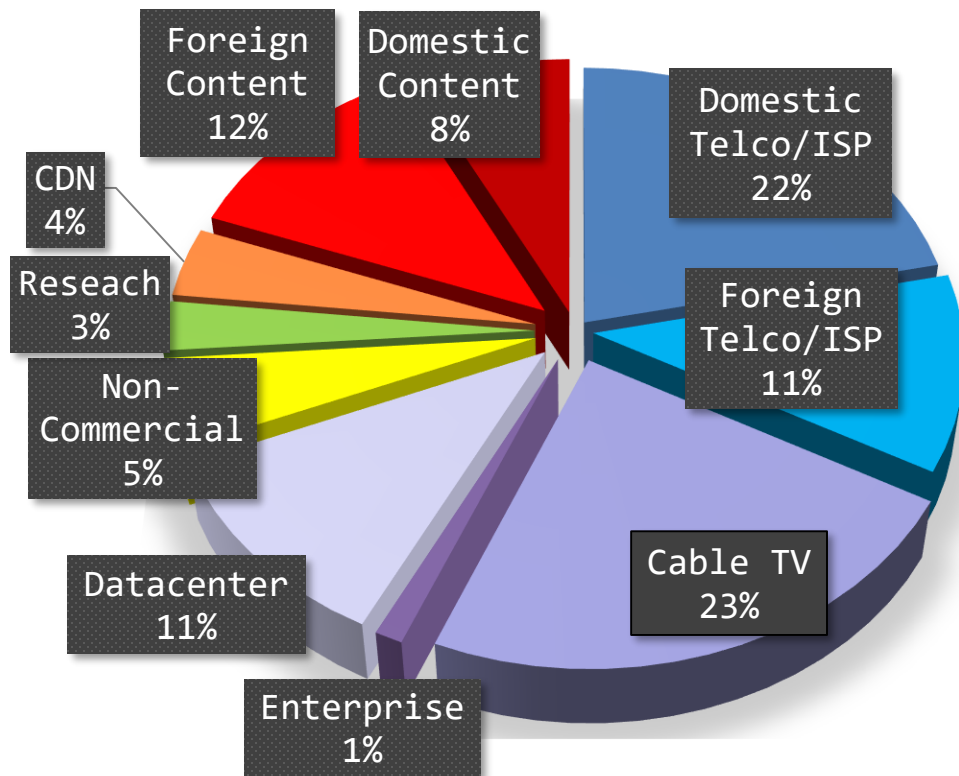
**JPIX is operating two IX networks(Ethernet fabric)**  
**JPIX TOKYO and JPIX OSAKA**

# JPIX service location and network topology

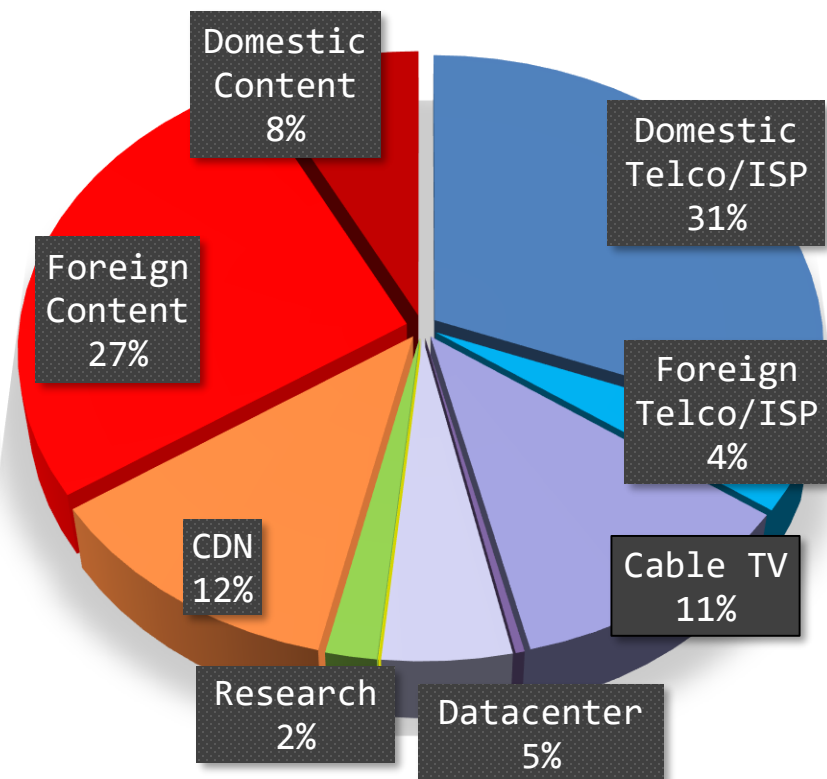


# Industry statistics of JPIX participants

**By the number of ASNs**



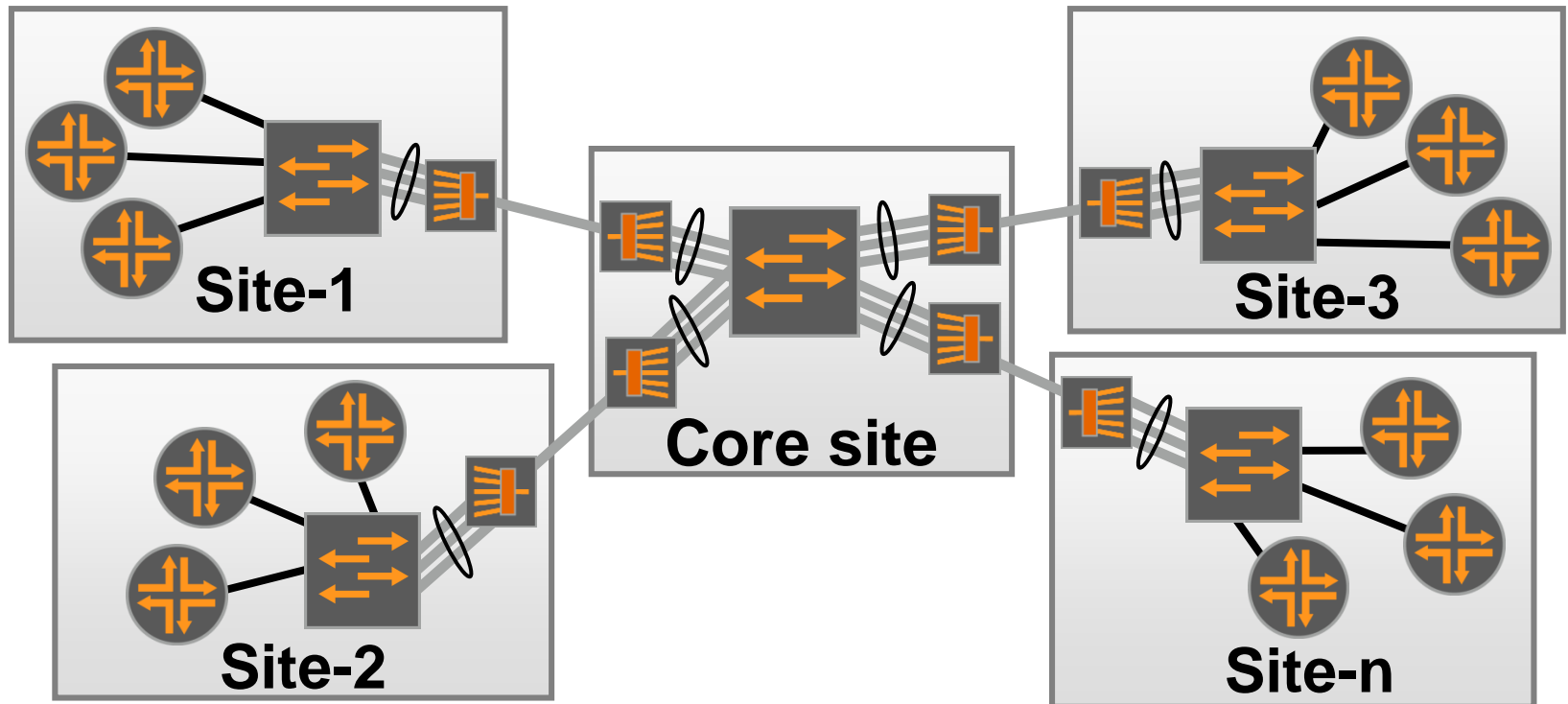
**By connected capacity**



Almost half of JPIX participants is eyeball network

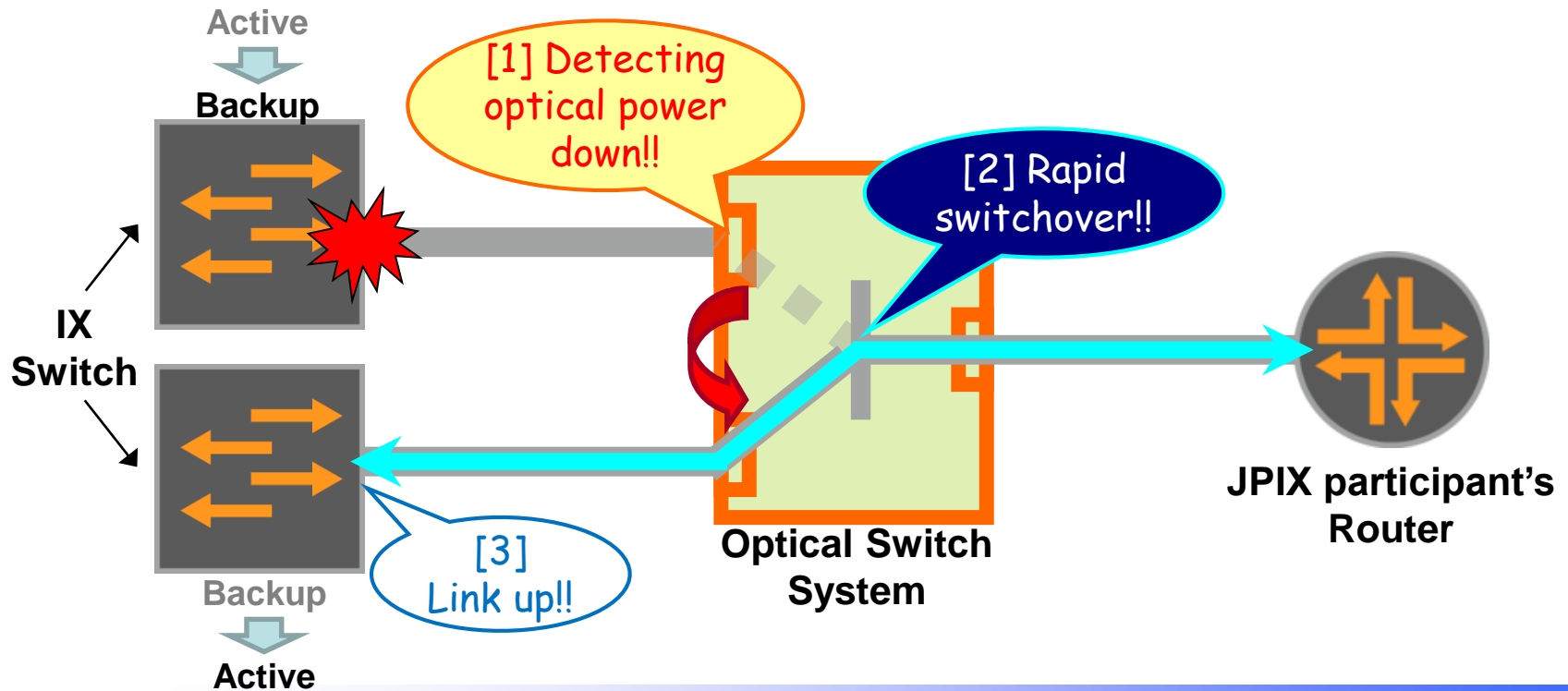
# JPIX network design

- All JPIX sites are connected by L2 switches in a star topology.
  - LACP (short mode) is introduced between IX switches for preventing blackholing due to blackout on a fiber strand.
- Dark fibers and WDM systems with 40GbE and/or 100GbE are used for site-to-site circuits



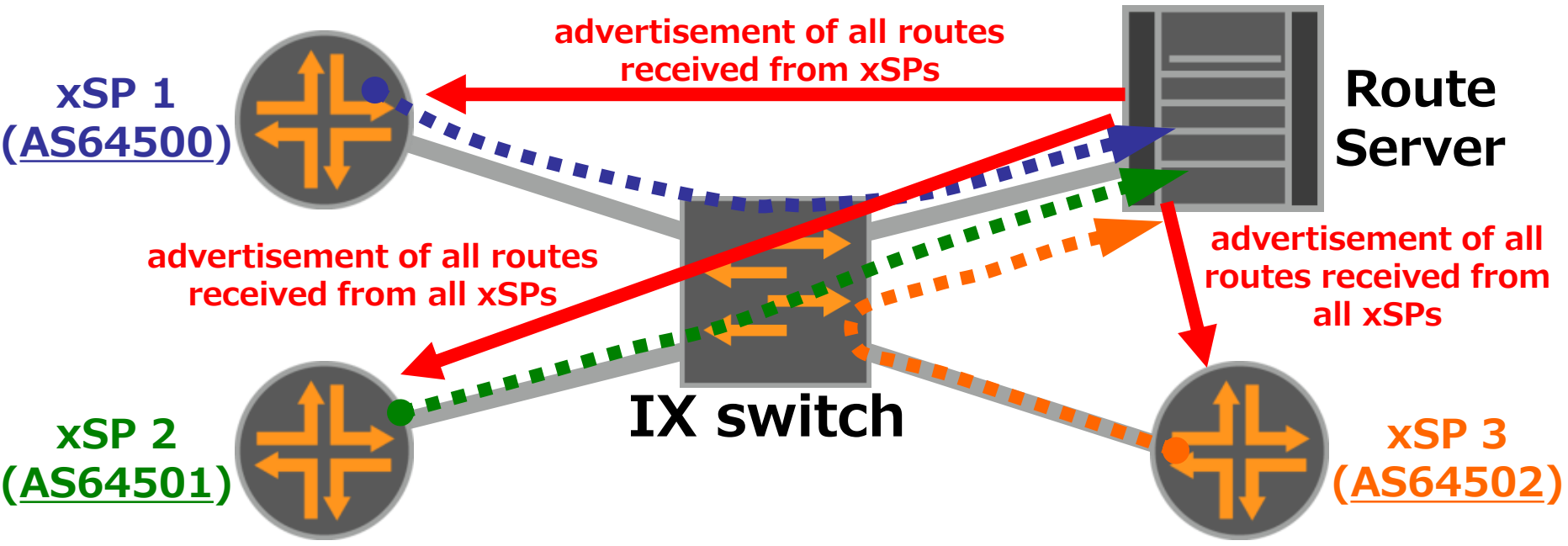
# Optical switch system for IX service availability

- Optical switch system is introduced in circuits between JPIX switch and participant's router
- Switchover time is about several tens of milliseconds
  - If your router could have proper carrier-delay configuration, detecting link down might be prevented for rapid switchover.



# Route Server operated in JPIX

**Routing Table of Route Server**  
 Routes advertised from AS64500  
 Routes advertised from AS64501  
 Routes advertised from AS64502



JPIX route server transparently advertises all routes received from all xSPs (RS clients) to each xSP (RS client).

# Current statistics of JPIX Route Server

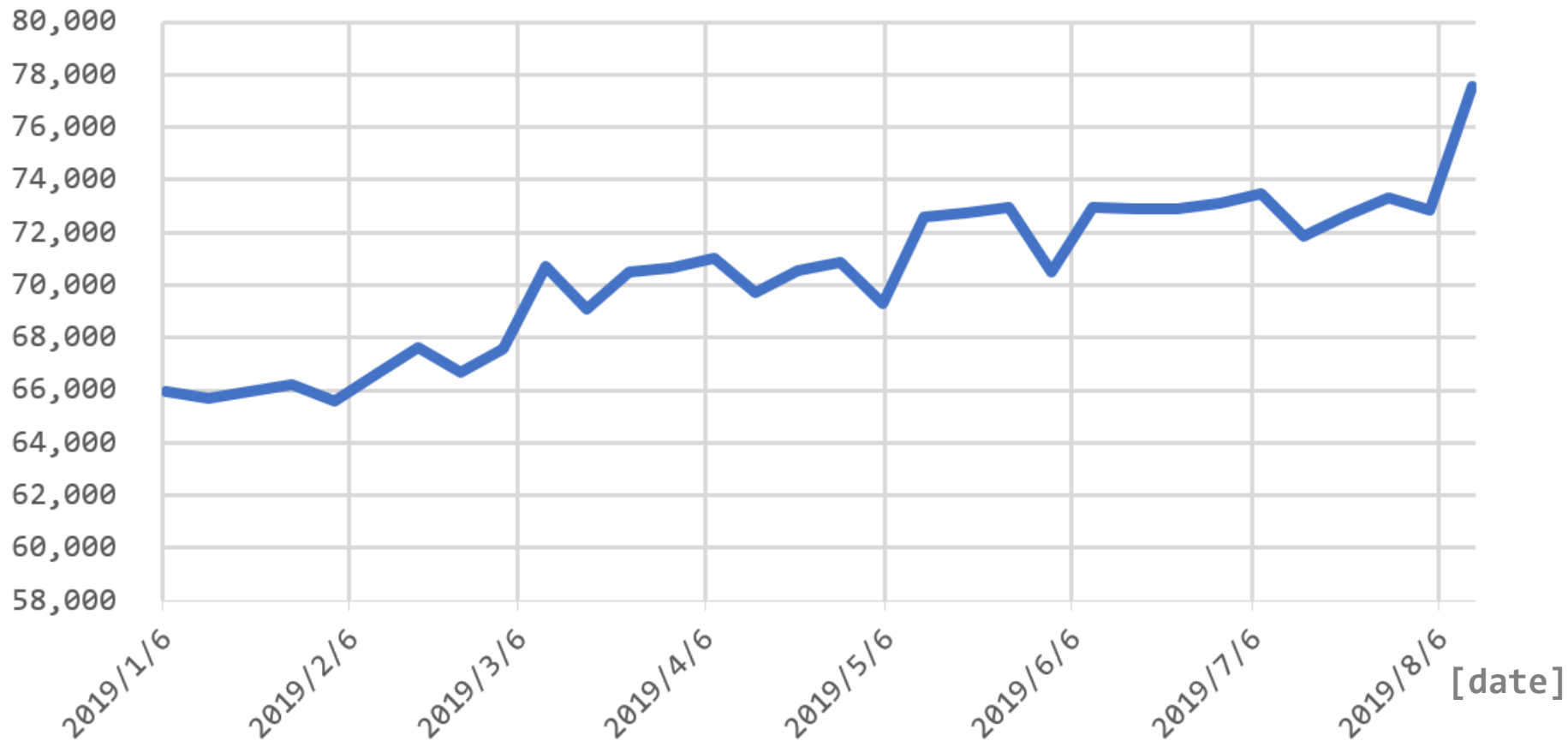
IX	IPv4/IPv6	The number of peers on the route server
JPIX TOKYO	IPv4	172
	IPv6	125
JPIX OSAKA	IPv4	47
	IPv6	40

Approx. 80% of ASNs in JPIX TOKYO/OSAKA is peering with JPIX route server.



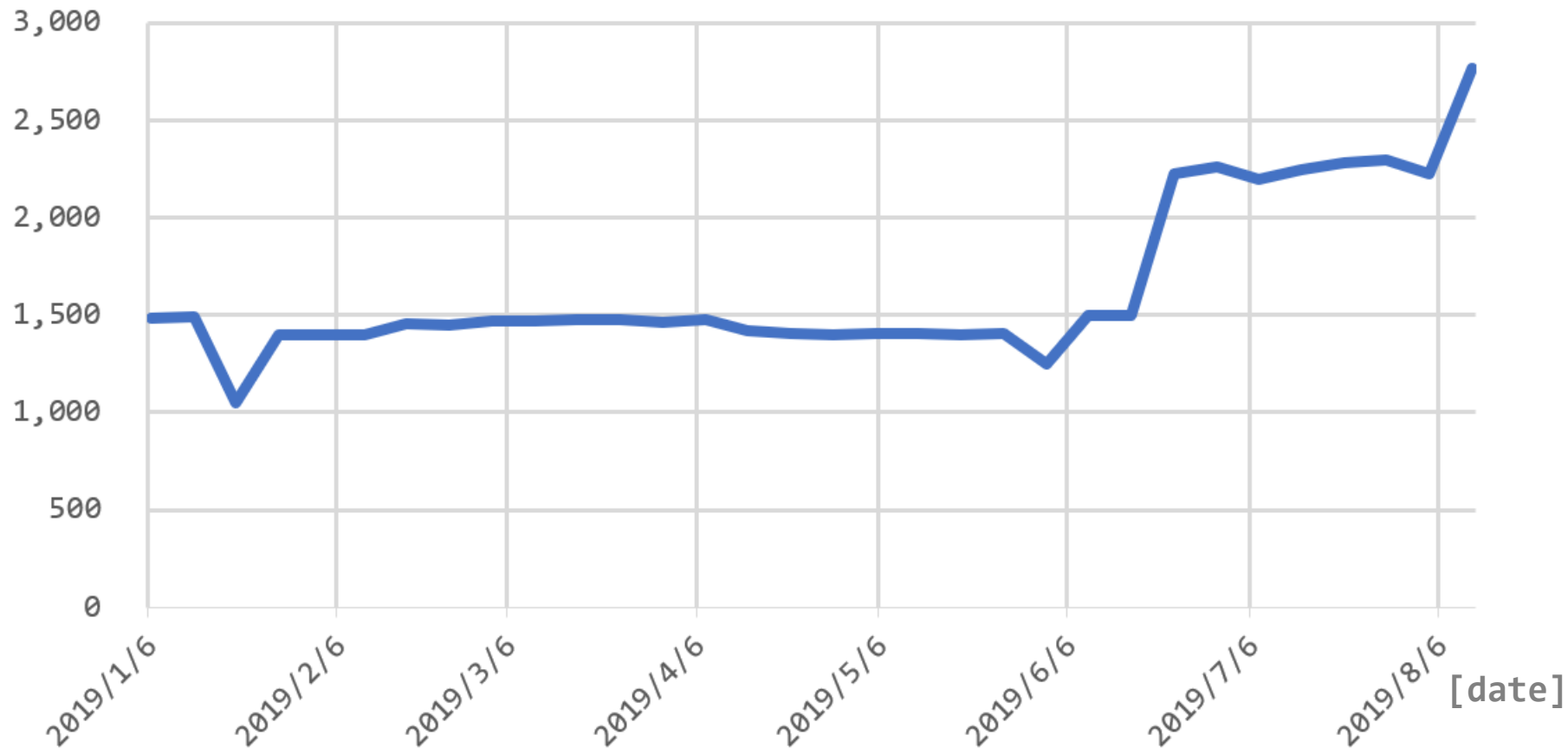
# The number of received IPv4 prefixes Route Server at JPIX TOKYO

[IPv4 prefix]



# The number of received IPv6 prefixes Route Server at JPIX TOKYO

[IPv6 prefix]

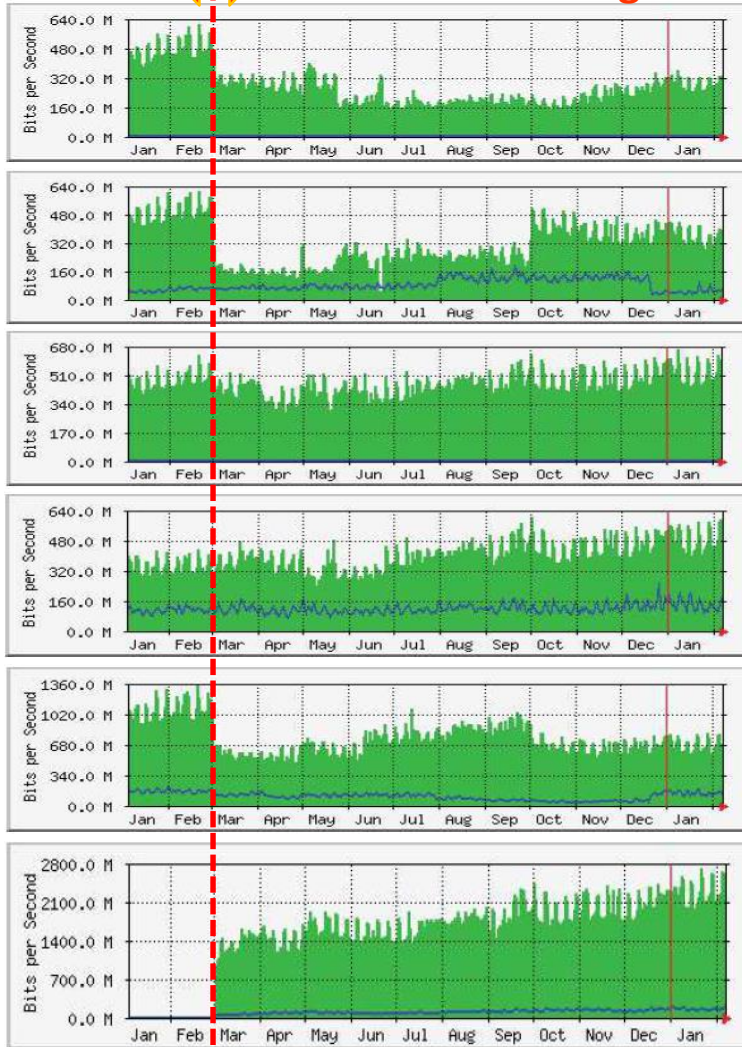


[date]

# Shifting traffic volume to IX

[Case study] a Cable TV internet provider connected to JPIX TOKYO

Before ↔ After connecting to JPIX



[ Transit ISP 1 ]  
Before: 640 [Mbps] → After: 320 [Mbps]

[ Transit ISP 2 ]  
Before: 640 [Mbps] → After: 400 [Mbps]

[ Transit ISP 3 ]  
Before: 650 [Mbps] → After: 650 [Mbps]

[ Transit ISP 4 ]  
Before: 450 [Mbps] → After: 640 [Mbps]

[ Transit ISP 5 ]  
Before: 1360 [Mbps] → After: 850 [Mbps]

[ JPIX TOKYO ]  
Before: 0 → After: 2800 [Mbps]

Most traffic of this participant has been moved to JPIX TOKYO port!!

# Conclusion

- The most important thing as a IX is providing stable service. JPIX is always making efforts to keep our network more stable. (LACP, Optical switch system, etc.)
- Most JPIX participants are peering with our route server. So once a newcomer connects to JPIX, their traffic can flow out to JPIX.
- JPIX would like to have good relationships with ISPs in Vietnam.

## BCOP document for router configuration of xSPs

<https://www.apnic.net/wp-content/uploads/2018/07/JANOG-IX-Configuration-Best-Practices.pdf>

### Recommended router configuration for connecting to an Internet Exchange

#### 1. Abstract

An Internet Exchange (IX) is an important infrastructure for exchanging Internet traffic between network service providers. For this reason, AS operators should have a common understanding and be aware of the technical requirements of connecting to an IX.

This document aims to improve the operation and stability of an IX. It describes the recommended configuration of routers connected to an IX by an AS operator, including Peering LAN, a LAN on which many individual ASes connect to.

This document does not describe information about routing outside of connecting to an IX. For example, the contents of routing information which a network service provider advertises to their peers and the contents of traffic which is exchanged between network service providers are excluded from this document.

#### 2. Terminology



Japan Internet Exchange Co., Ltd.