

HKNOG 8.0 @ Wan Chai, Hong Kong

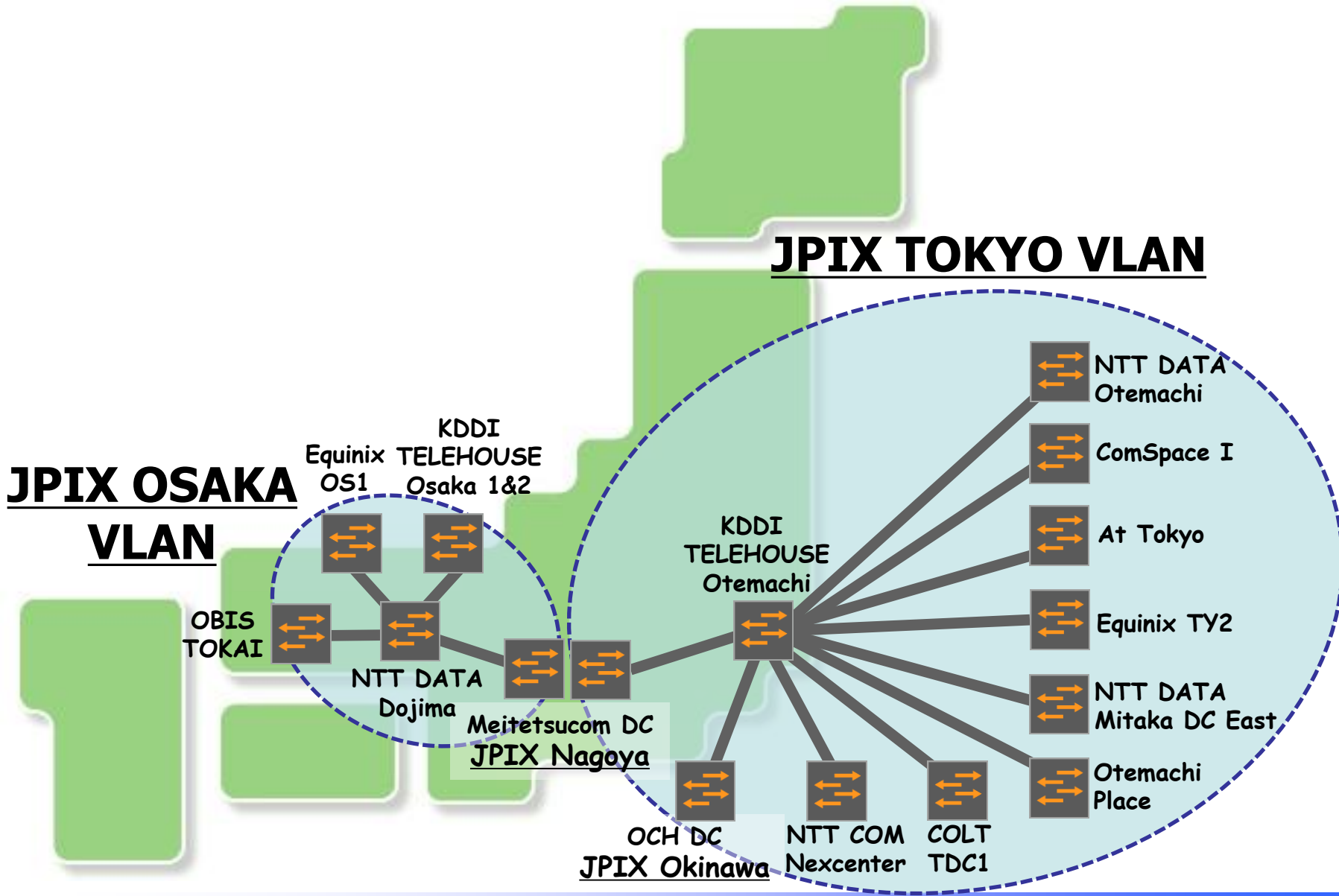
Connecting to HKIX vlan from JAPAN

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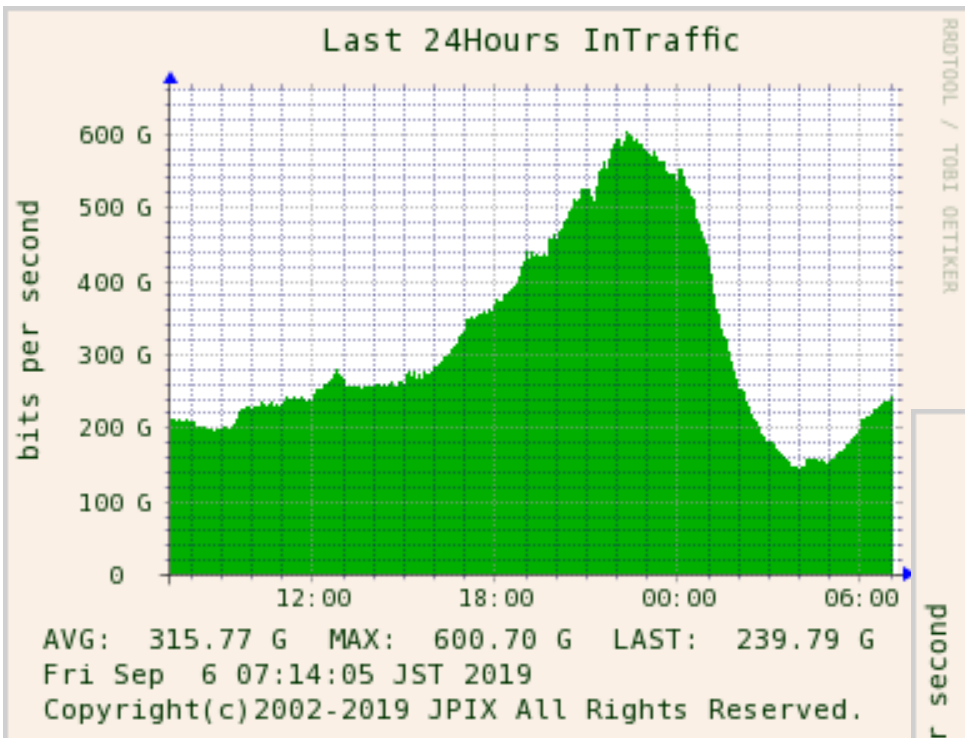
Introduction of JPIX network

JPIX TOKYO VLAN

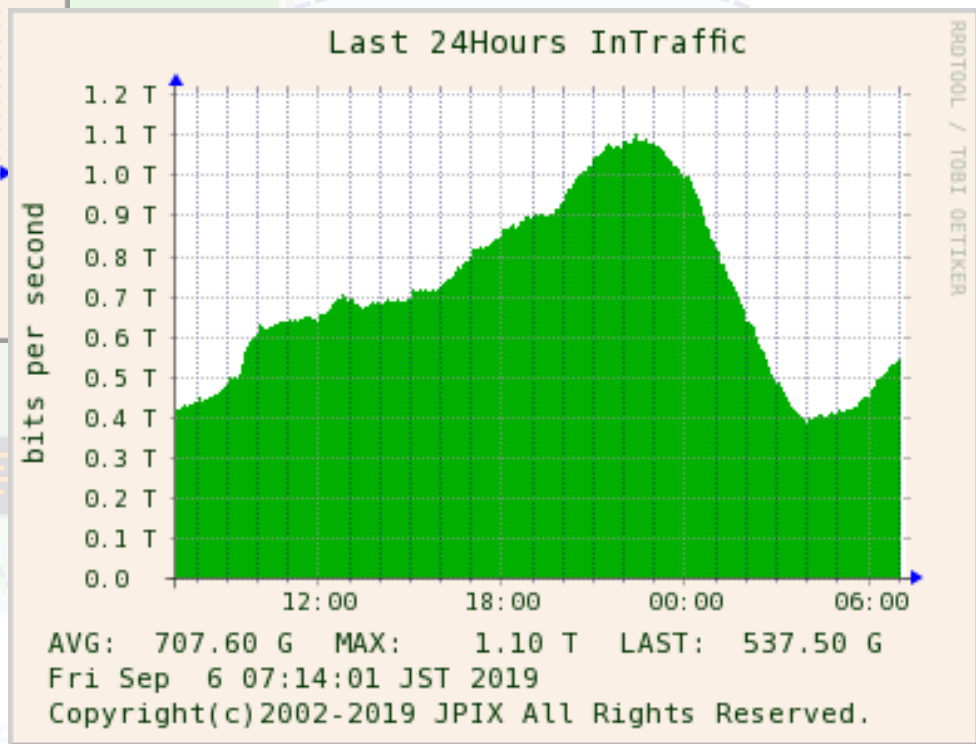
JPIX OSAKA VLAN



Introduction of JPIX network



JPIX OSAKA



JPIX TOKYO

Introduction of JPIX network



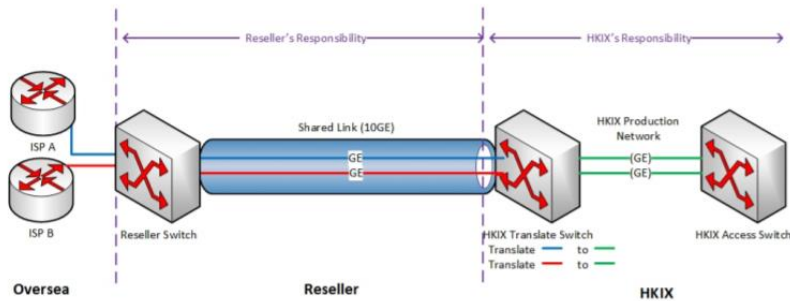
**I want to do
our service
extension
more!**

OCH
JPIX Okinawa

Background

HKIX Updates at HKNOG 7.0

Reseller Network Topology Diagram



HKIX Reseller Program

- Target overseas participants for peering
- Non exclusive arrangement / resellers can be IXPs, Data Centres, local and regional ISPs
- First batch will be available in satellite sites only
- Second batch will be extended to HKIX core sites

If you are interest be one of our resellers, please contact [info@\[hkix.net\]](mailto:info@[hkix.net]).

<https://hkno.net/wp-content/uploads/2018/12/HKNOG7.pdf>

Motivation of JPIX

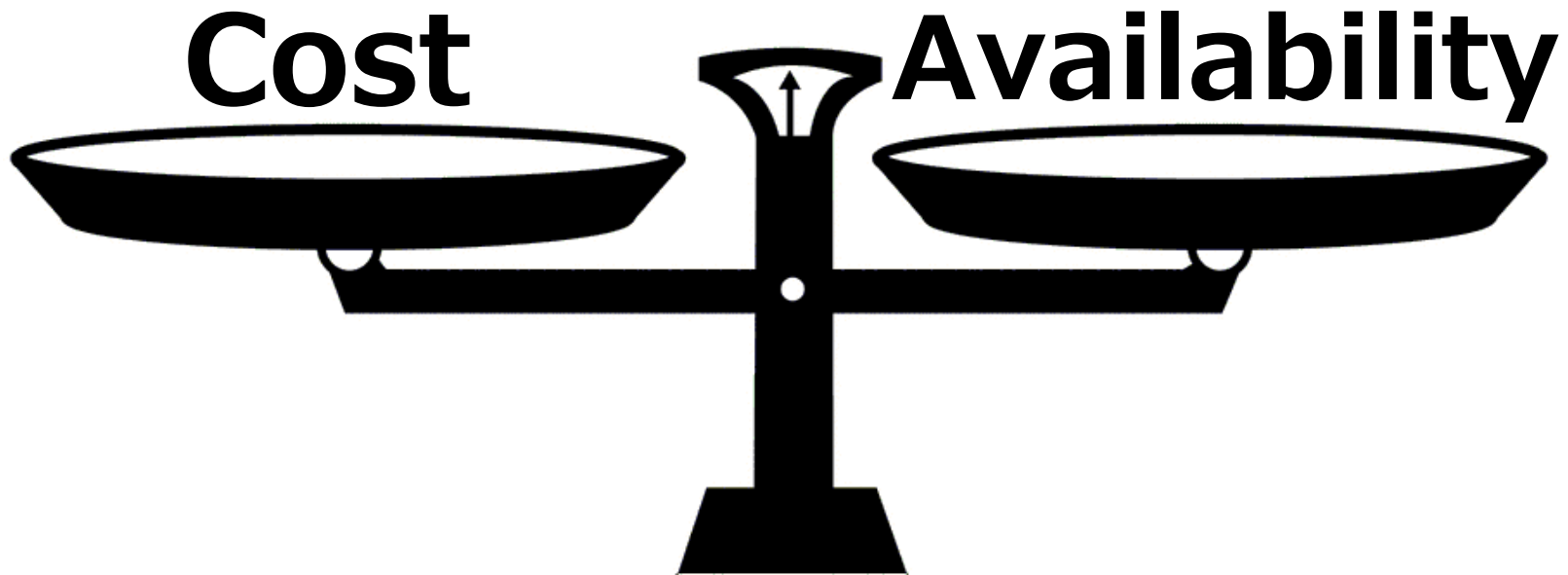
- ISPs always want to reduce the cost of their IP transit more and more.
- JPIX is encouraging our participants to do more peering in wide field.
 - From inside of Japan to other economies
- JPIX needs to have more value.
 - There is attractiveness in IXes outside of Japan.

**Reseller program is started
in HKIX
and then
Connectivity to HKIX is provided
in JPIX**

There were some challenges for JPIX...

Challenge - Long haul circuit between HKIX and JPIX

- First of all, we need a long haul circuit for connecting to HKIX from Tokyo.
- But....



Trade-off between cost and availability

Challenge – Network loop and BUM traffic

- In the environment of existing multiple IX networks in a switch...
 - The risk of network loop is increased, and the BUM traffic to handle is also increased.
 - And the BUM traffic is increased, the load on the IX switch is increased....
- We have to keep our IX switch stable, and consider monitoring the switches for stability.
 - CPU load, packet queuing counter, and etc....

Challenge - The number of MAC address

- JPIX participants can connect to HKIX and JPIX TOKYO VLAN on a physical IX port.
 - It's separated by using 802.1Q VLAN
- JPIX TOKYO switch maintains a lot of MAC address entries for HKIX and JPIX TOKYO.
 - HKIX VLAN : 400 entries
 - JPIX TOKYO VLAN : 250 entries
 - And JPIX TOKYO switch has other MAC addresses on other VLAN of JPIX service as well
- JPIX is monitoring stats of MAC address table.

Challenge - Hygiene of IX network

- Hygiene of IX network is an important thing.
- IPv6 RA, DHCP, OSPF, IS-IS, PIM, IGMP, MLD, CDP, LLDP, DECNET... are unwanted packets for IX participants.
- Disabling proxy ARP, ICMP redirects, Directed broadcast are needed.

We have to do house-keeping
in multiple IX networks for protecting our participants

But I guess there is kind of cultural difference between IXPs..?

Challenge - Hygiene of IX network

Should Do

important thing.

Some Useful Operational Tips

HKIX Participants SHOULD DO:

- Make sure proxy ARP is disabled
- Establish BGP MLPA peering with BOTH HKIX route servers
- Notify HKIX NOC for schedule maintenance in advance so that we will not treat your BGP session down as failure
- Monitor the growth of number of prefixes from our route servers and adjust your max prefix setting accordingly
- Monitor the utilization of your links closely and do upgrade before they are full
- Do your own route / route6 / as-set objects on IRRDB and keep them up-to-date
- Do update your contact and peering info in PeeringDB

we may na
on IX networks f

But I guess there is k



Should Not

Some Useful Operational Tips

HKIX Participants SHOULD NOT:

- Announce route not owned by you or your customers
- Perform testing or looping on HKIX networks
- Announce full/default route to HKIX route servers
- Advertise HKIX peering LAN to other networks
- Forward link-local protocols to HKIX Peering LAN
 - IRDP
 - ICMP redirects
 - IEEE 802 Spanning Tree
 - Vendor proprietary protocols such as discovery protocols: CDP, EDP
 - VLAN/ Trunk protocols: VTP, DTP
 - Interior routing protocol broadcasts (e.g. OSPF, ISIS, IGRP, EIGRP)
 - BOOTP/DHCP
 - PIM-SM
 - PIM-DM
 - DVMRP
 - ICMPv6 ND-RA
 - UDLD
 - L2 Keepalives



http://www.hkix.net/hkix/Presentation/HKIXNOG_2018.pdf

Challenge - Language

- Language barrier...
- JPIX needs to prepare the material for HKIX service for JPIX participants in Japanese.
 - Of course, JPIX also learned about HKIX before preparing.
 - It became a good chance for JPIX to know good service of HKIX.
- JPIX needs to help JPIX participants to do good peering with HKIX participants.

Conclusion

- This experience was a good chance for me to get to know other IXP.
 - This will be beneficial for me in future too.
- JPIX continues trying to make better services for our participants.
- JPIX would like to have good relationships with the other IXPs around the world.



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