



HKIX Updates at APAN 44

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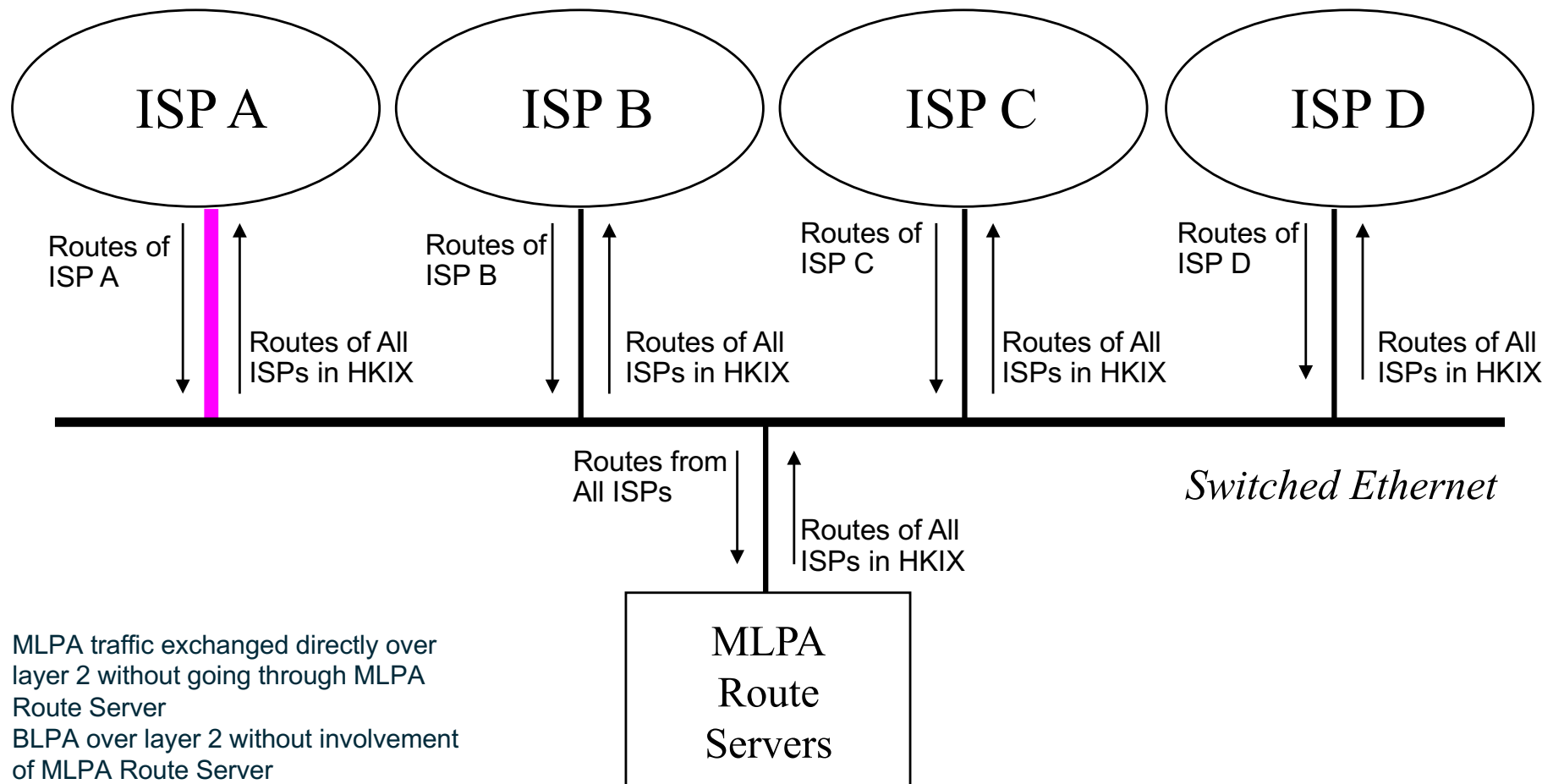
www.hkix.net

31 Aug 2017

What is HKIX?

- Established in Apr 1995, [Hong Kong Internet eXchange \(HKIX\)](#) is the main layer-2 Internet eXchange Point (IXP) in Hong Kong where various autonomous systems interconnect with one another and exchange traffic
- HKIX is now owned and operated by the Hong Kong Internet eXchange Limited (a wholly-owned subsidiary of The Chinese University of Hong Kong Foundation Limited) in collaboration with [Information Technology Services Centre](#) of [The Chinese University of Hong Kong](#)
- HKIX serves both commercial networks and R&E networks
- The original goal is to keep intra-Hong Kong traffic within Hong Kong

HKIX Model — MLPA over Layer 2 + BLPA



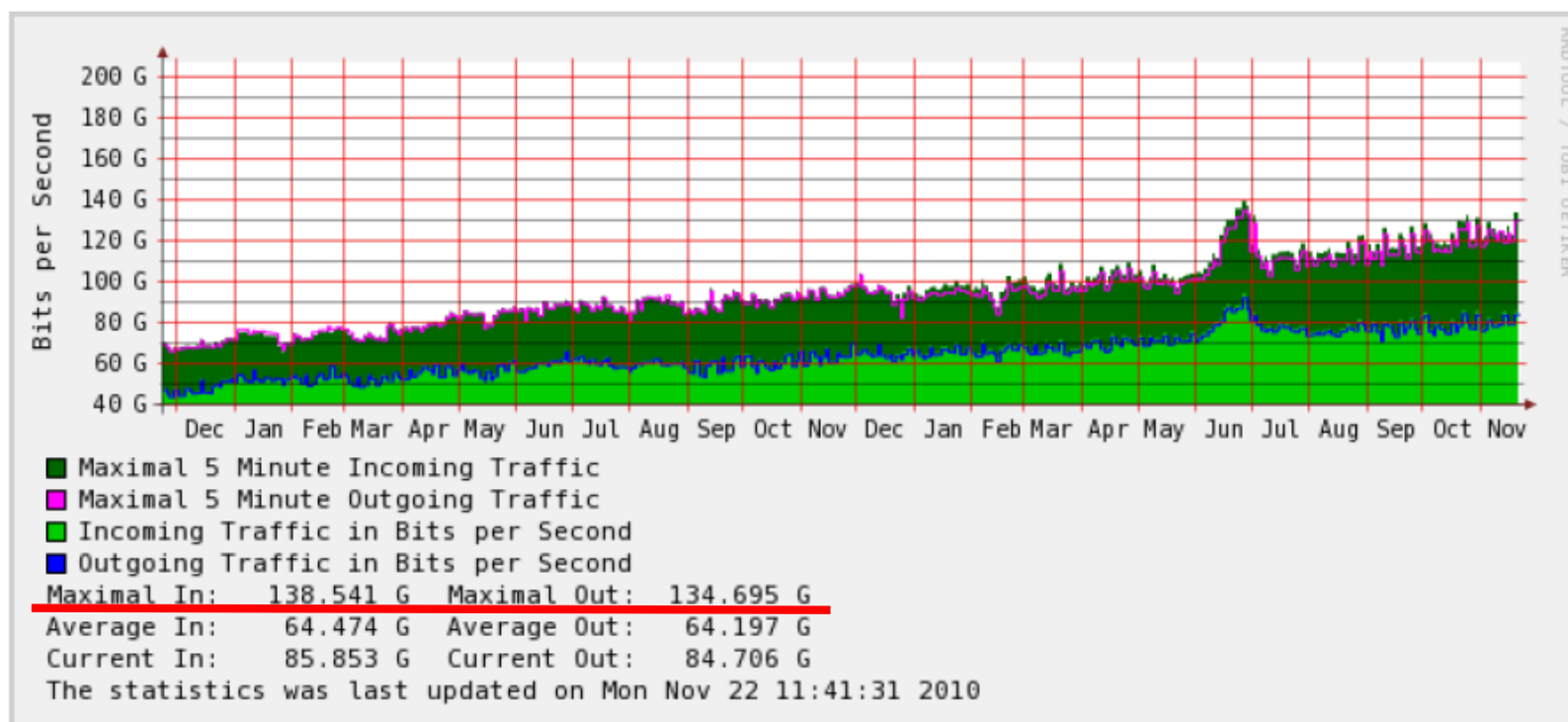
- MLPA traffic exchanged directly over layer 2 without going through MLPA Route Server
- BLPA over layer 2 without involvement of MLPA Route Server
- Supports both IPv4 and IPv6 over the same layer 2 infrastructure

Help Keep Intra-Asia Traffic within Asia

- We have almost all the Hong Kong networks
- So, we can attract participants from Mainland China, Taiwan, Korea, Japan, Singapore, Malaysia, Thailand, Indonesia, Philippines, Vietnam, India and other Asian countries
- We now have more non-HK routes than HK routes
- We do help keep intra-Asia traffic within Asia
- In terms of network latency, Hong Kong is a good central location in Asia
- HKIX does help HK maintain as one of the Internet hubs in Asia
- HKIX supports both domestic and international traffic

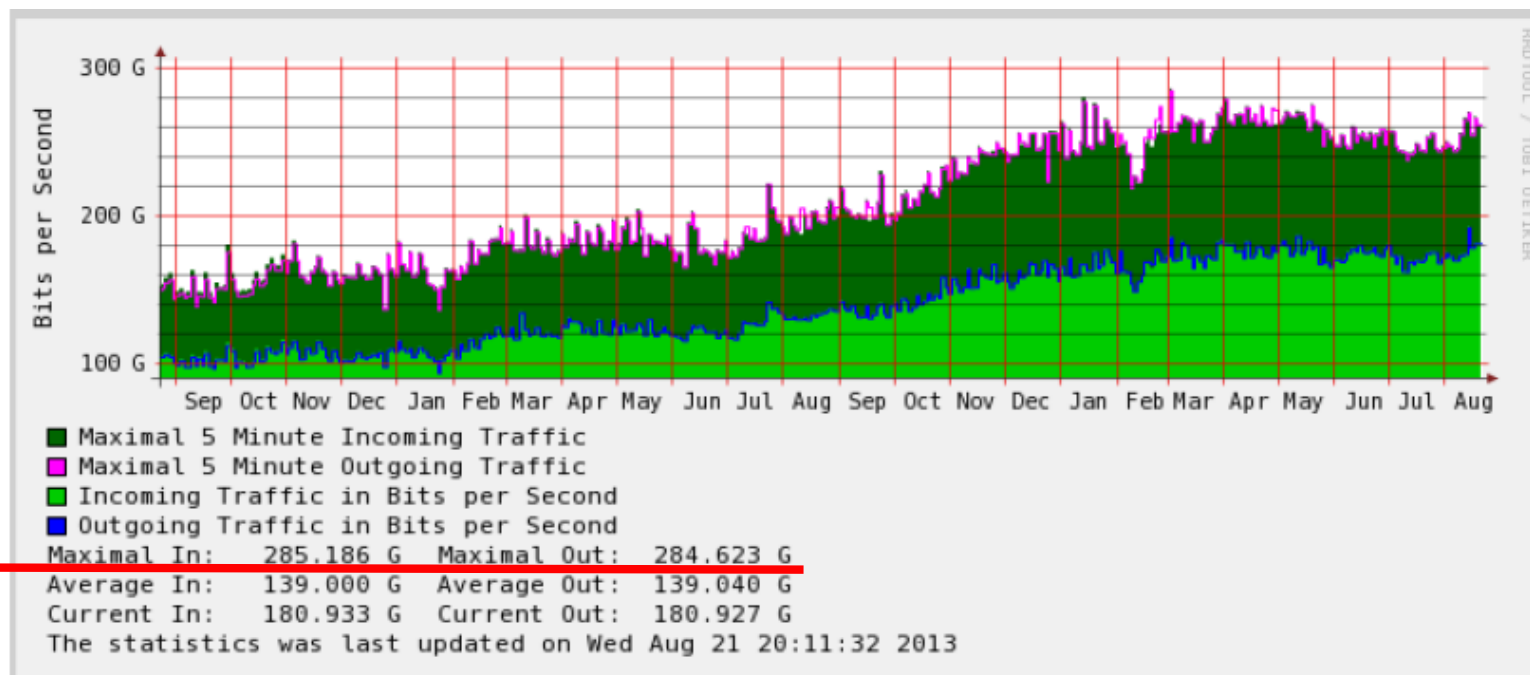
Historical Statistics for HKIX's Traffic (1)

Year 2010

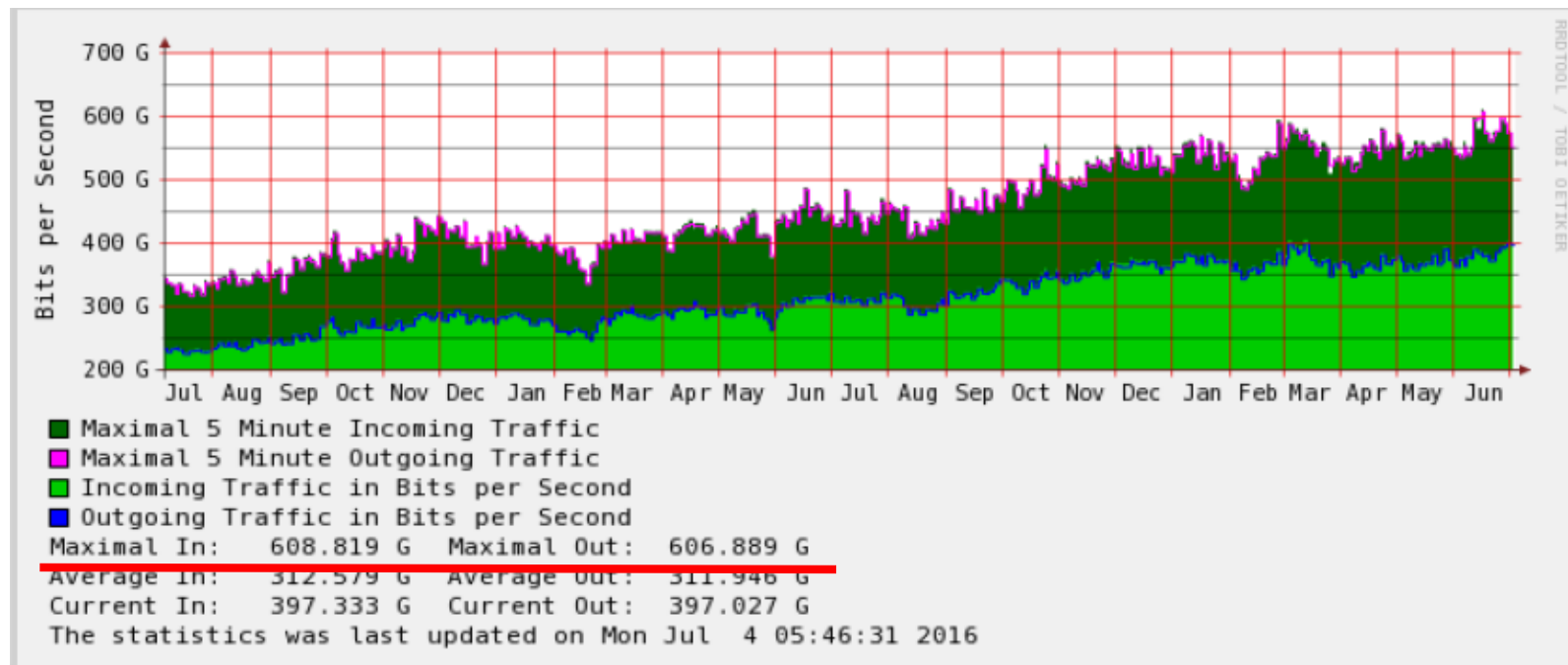


Historical Statistics for HKIX's Traffic (2)

Year 2013



Historical Statistics for HKIX's Traffic (3) Year 2016

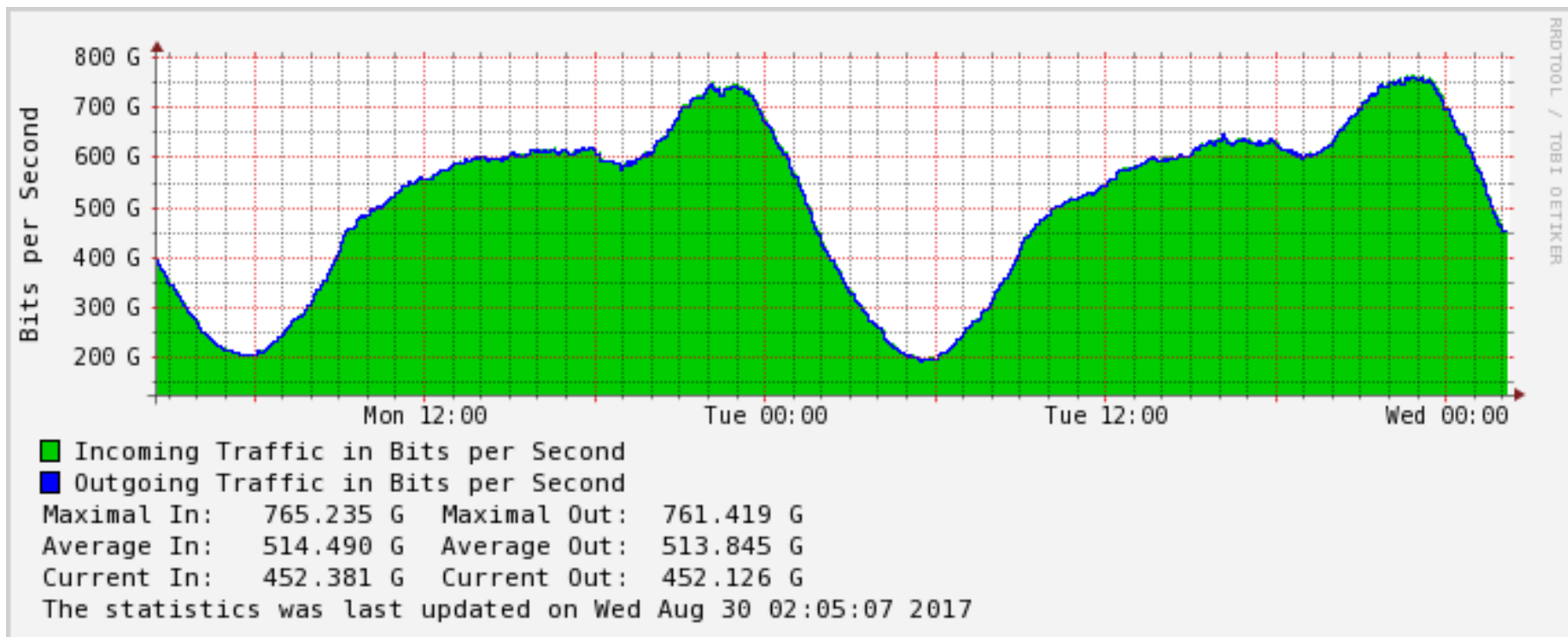


HKIX Today

- Supports both MLPA (Multilateral Peering) and BLPA (Bilateral Peering) over layer 2
- Supports IPv4/IPv6 dual-stack
- More and more non-HK participants
- 270+ different networks (autonomous systems) connected
- 500+ physical connections in total
 - 14 **100GE**, 290+ **10GE** & 200+ **GE**
- 850+Gbps (5-min) total traffic at peak
- Annual Traffic Growth **~30%**

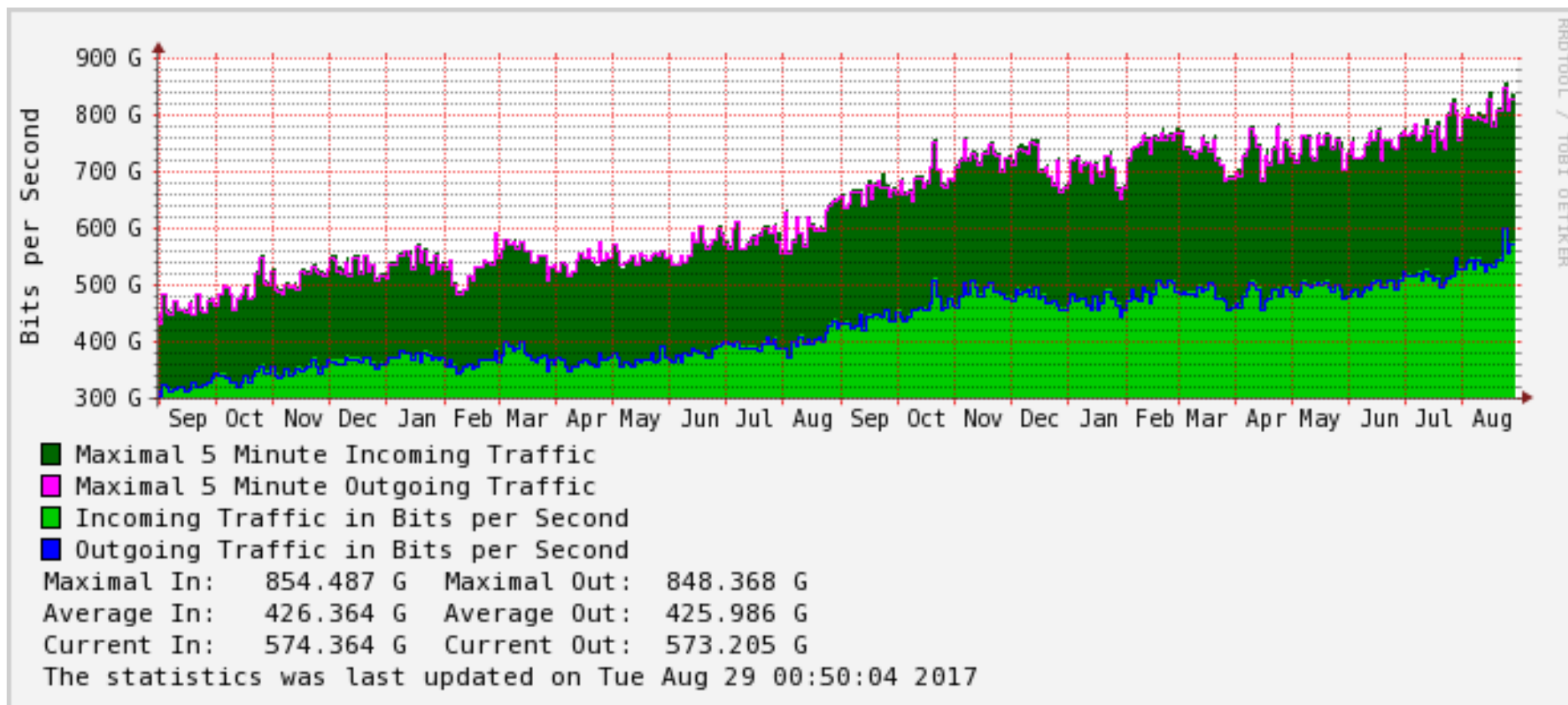
Current HKIX Traffic

Daily Graph (5-min average)



Current HKIX Traffic

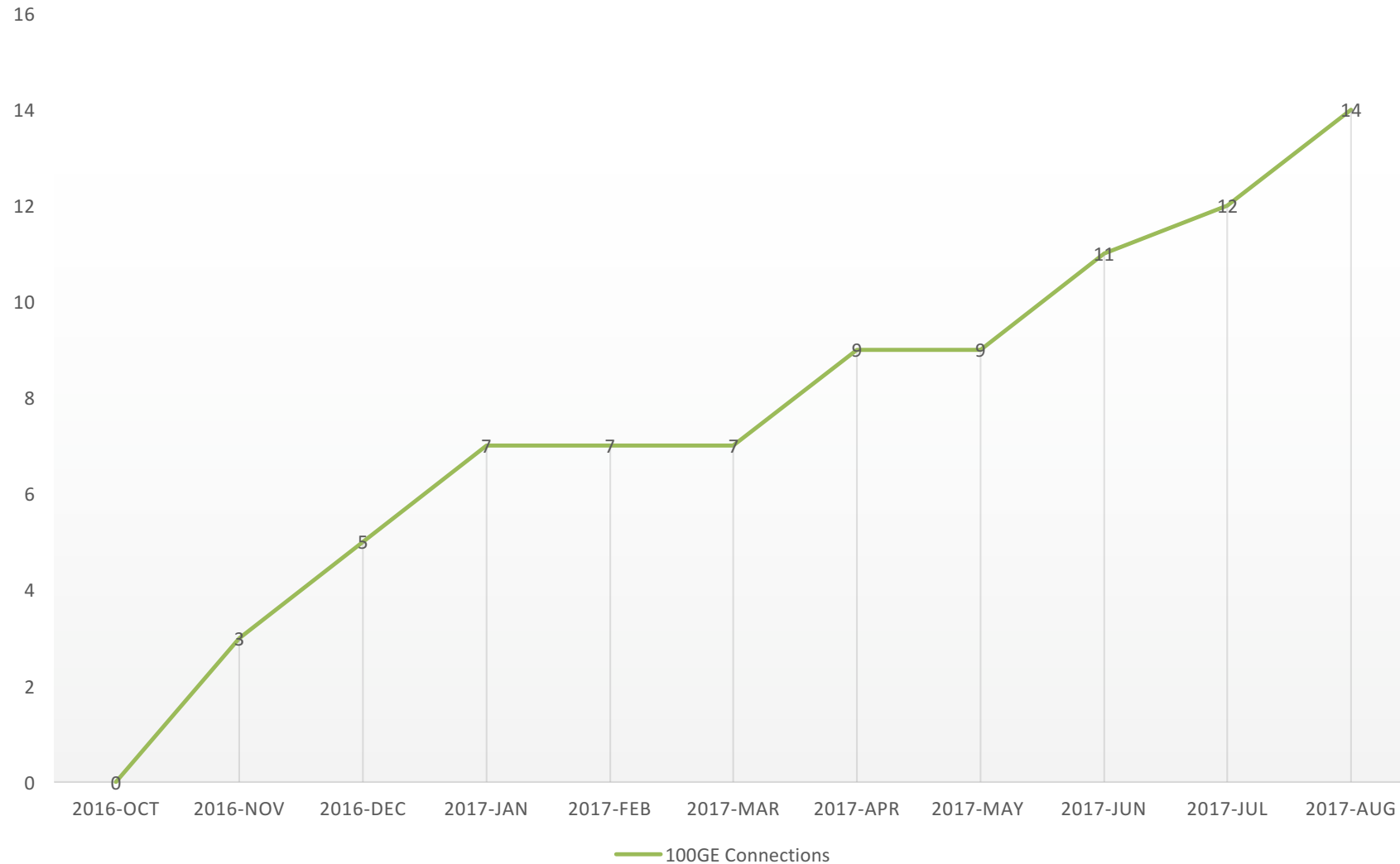
Yearly Graph (1-day average)



Trend of 100GE connections



Total 100GE HKIX Ports Connected (2016 OCT - 2017 AUG)



HKIX 100GE Participants

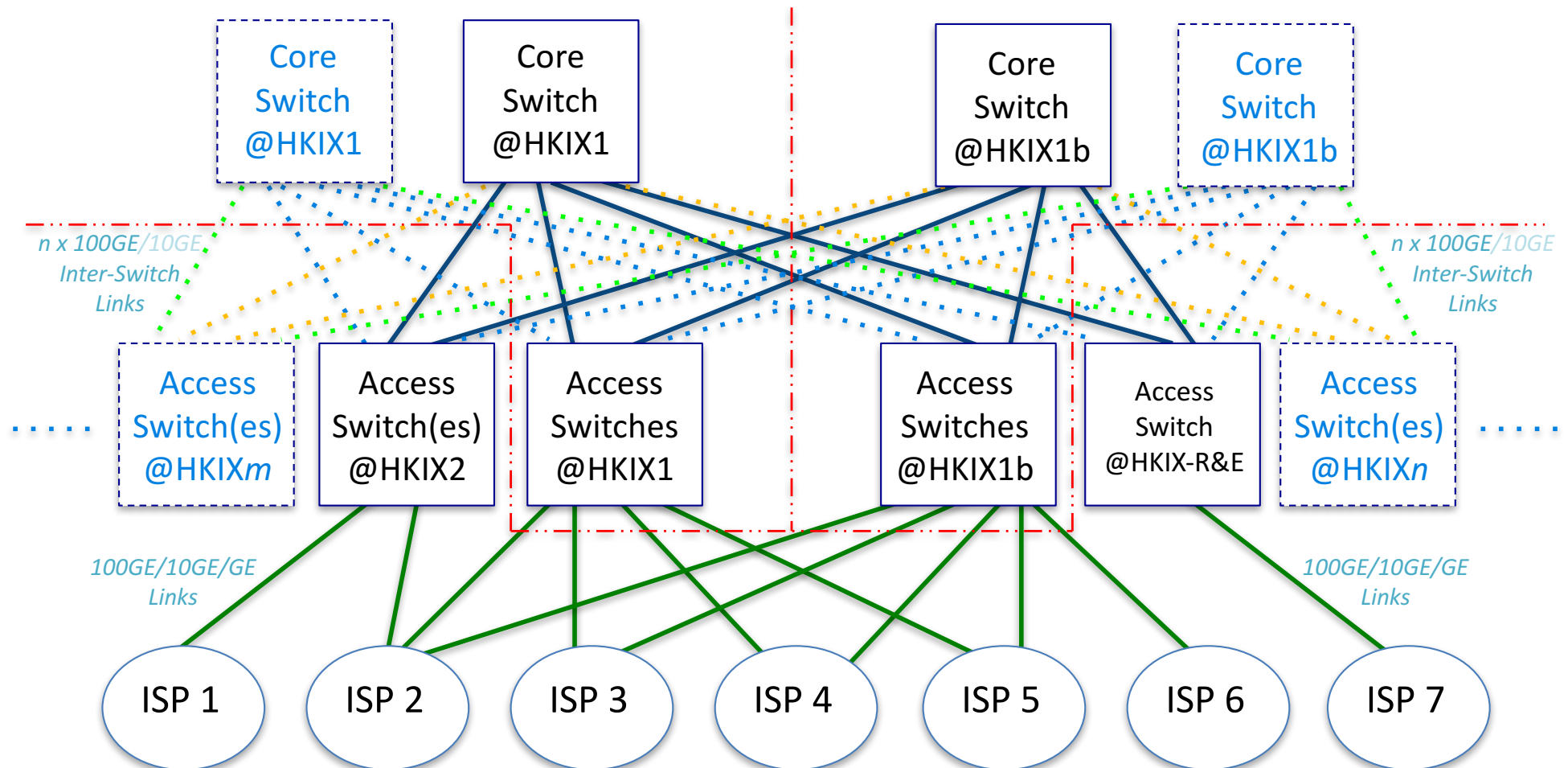


- Akamai
- Amazon
- CloudFlare
- Facebook
- Hurricane Electric
- Tencent
- Yahoo

New HKIX Dual-Core Two-Tier Spine-and-Leaf Architecture For 2014 and Beyond



HKIX1 Core Site @CUHK -----(<2km)----- HKIX1b Core Site @CUHK





Setup Multiple HKIX Satellite Sites

Hong Kong, 08 Feb 2017

HKIX announces that 3 new satellite sites will be established in collaboration with 3 commercial data centres which provide colocation services as well as easy connections to HKIX.

Satellite Site	Satellite Site Collaborator	District	Ports Supported	Status
HKIX2	CITIC Telecom International	Kwai Chung	GE/10GE	Ready for Service
HKIX3	SUNeVision / iAdvantage	Fo Tan	GE/10GE/100GE	Ready for Service 28 Feb 2017
HKIX4	NTT Com Asia	Tseung Kwan O	GE/10GE/100GE	Ready for Service 19 Jun 2017
HKIX5	KDDI / Telehouse / HKCOLO.net	Tseung Kwan O	GE/10GE/100GE	Ready for Service 24 Mar 2017

- For connections to HKIX at Satellite Sites, **special connection charges** will be charged by relevant operators, in addition to the **port charges** charged by HKIX.
- For HKIX participants not co-located at HKIX satellite sites, they can still connect to any of the two HKIX core sites, i.e. HKIX1 and HKIX1b sites by local loops via local loop providers.

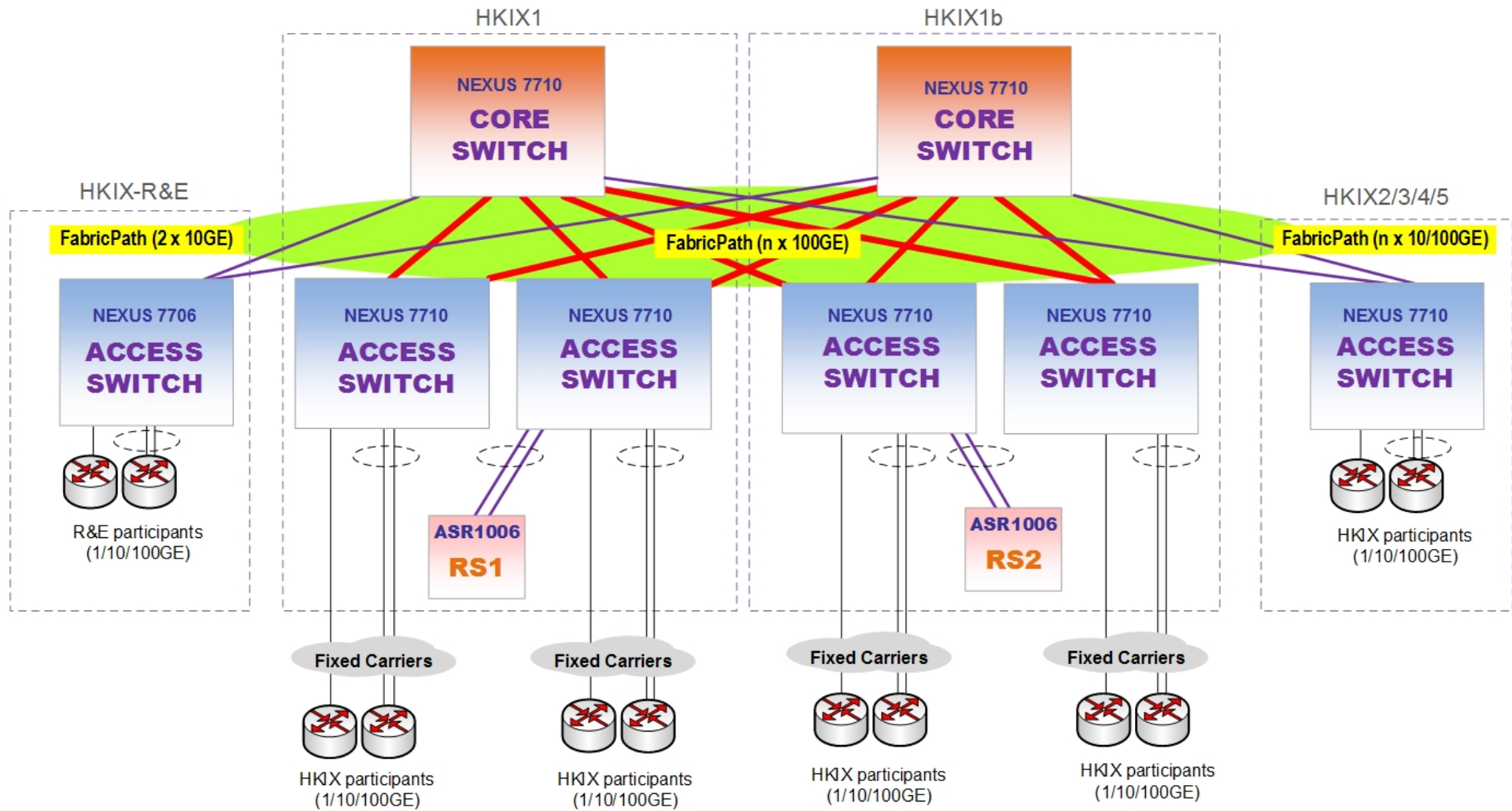
Setup Multiple HKIX Satellite Sites

- Allow participants to connect to HKIX more easily **at lower cost** from those satellite sites in Hong Kong
- Open to commercial data centres in HK which fulfil minimum requirements so as to maintain neutrality which is the key success factor of HKIX
- Create a win-win situation with satellite site collaborators
- To be named HKIX2/3/4/5/6/etc

Recent updates:

- HKIX2 has been migrated from old model to HKIX Satellite Site
- HKIX3/4/5 are new Satellite Sites and they are **Ready for Service** now
- ***HKIX1 and HKIX1b (the two HKIX core sites located within CUHK Campus) will continue to serve participants directly***

HKIX Network Diagram (Jun 2017)



1. **HKIX1** and **HKIX1b** are the two core sites of HKIX at CUHK while **HKIX2/3/4/5** are HKIX satellite sites outside of CUHK.
2. HKIX participants are encouraged to connect to multiple sites for site resilience.

HKIX-R&E – Special Support

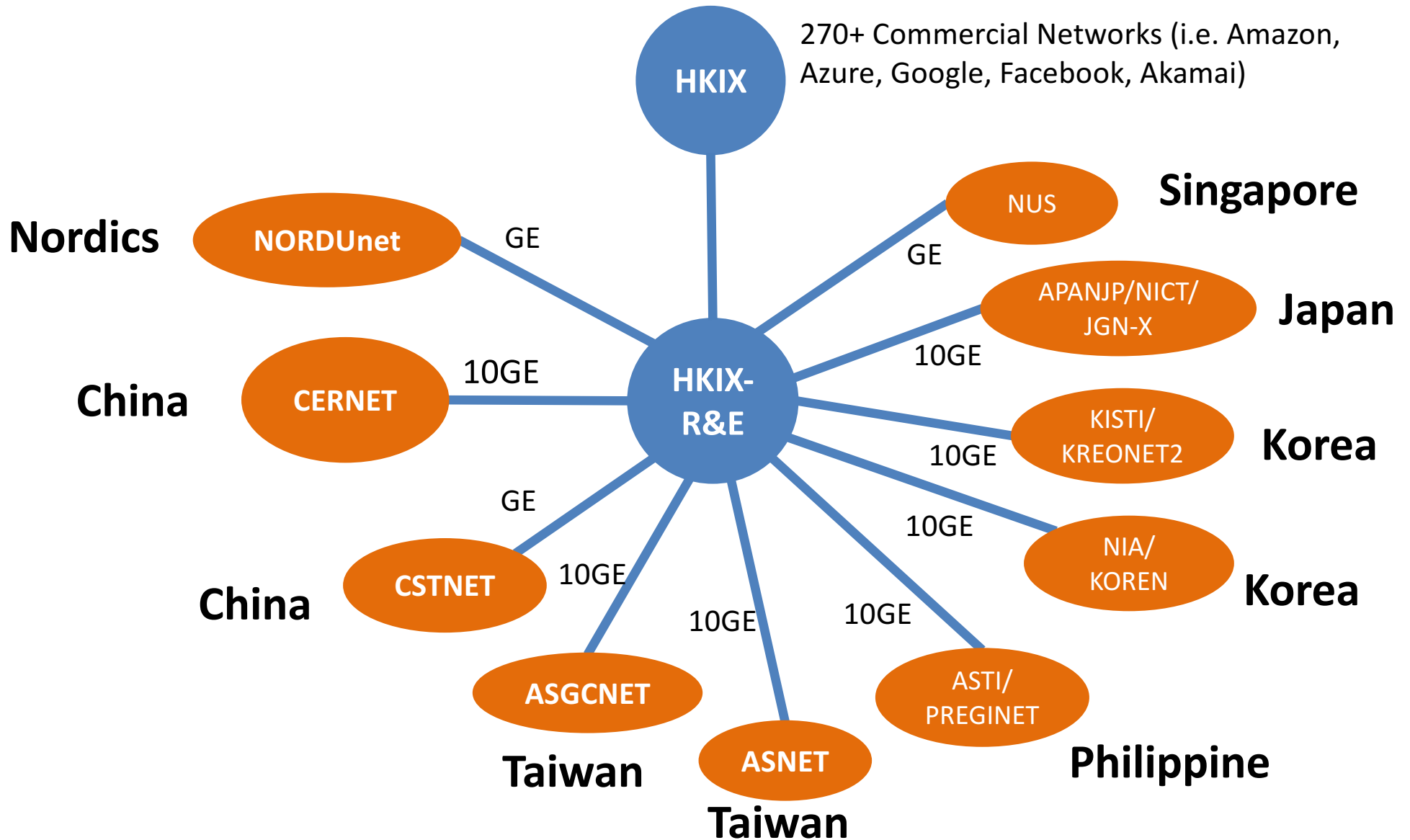
for R&E Networks Having Presence in HK

- HKIX helps those R&E Networks interconnect among themselves and with commercial networks without restrictions via HKIX-R&E switch at MEGA-i
- The main purpose is to facilitate those National R&E Networks having presence in Hong Kong to do interconnections among themselves *and* do peering with commercial networks at HKIX more easily and at a lower cost.
- Started in 2008
- **Free of charge** (no port charge on HKIX-R&E switch and the connection to HKIX)
- Support GE/10GE/100GE Trunk Ports for R&E networks
- Support Point-to-point VLANs for R&E networks
 - For private interconnections among any 2 R&E networks
 - Jumbo Frame support
- Fiber Cross Connect to be provided by R&E networks
- 7x24 NOC support
- **Operate by HKIX with the HKIX-R&E switch at MEGA-i**

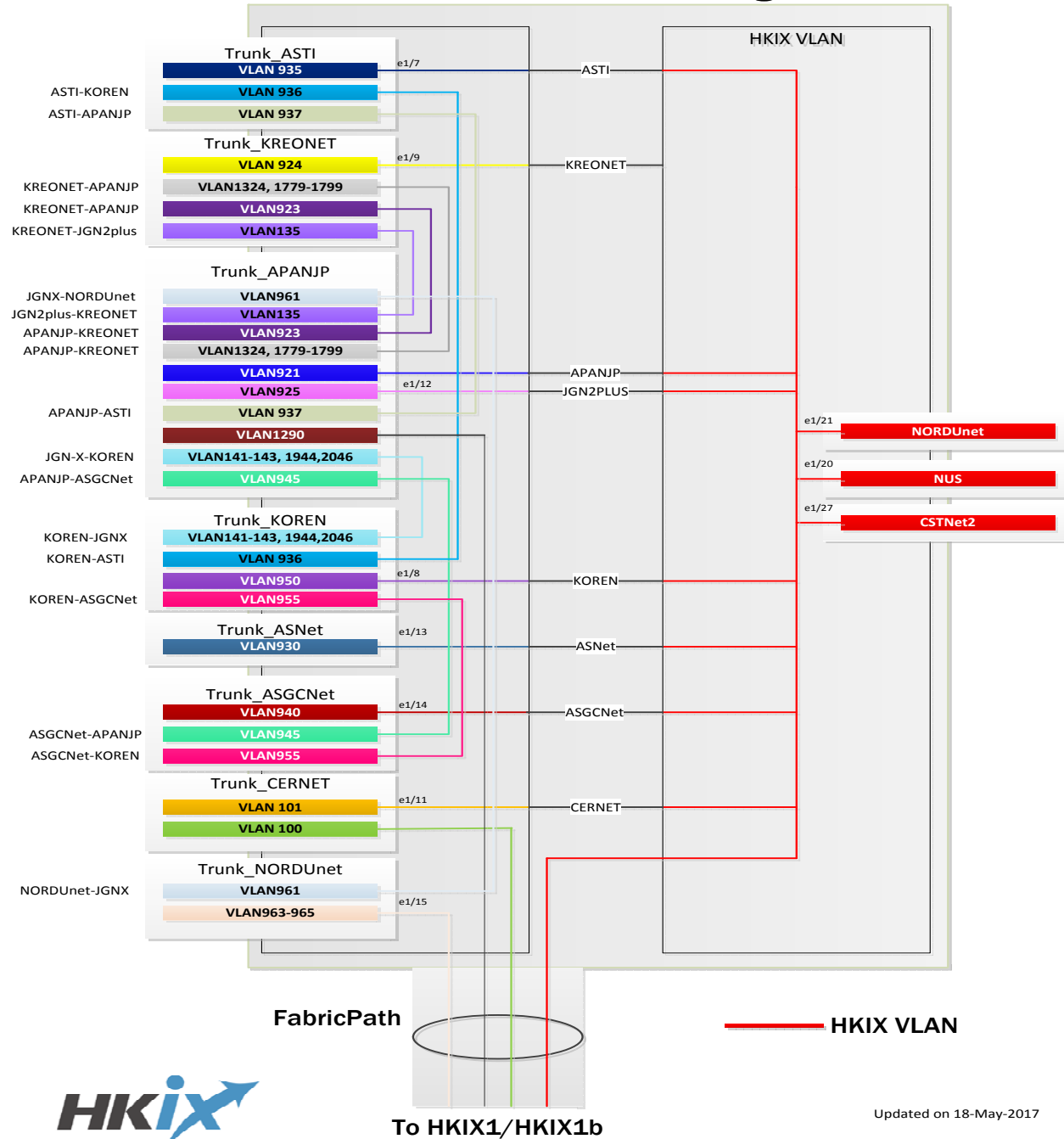
HKIX-R&E Node at MEGA-i



270+ Commercial Networks (i.e. Amazon, Azure, Google, Facebook, Akamai)



HKIX-R&E Network Diagram



Planned Works in 2017

- Improved Stability
 - *Better Control of Proxy ARP*
 - *More L2 ACL on HKIX peering LAN*
- Improved Services
 - *Set up Satellite Sites in multiple commercial Data Centre*
 - *Set up portal for HKIX participants*
 - *True 24x7 NOC*
 - *Improve after-hour support*
 - *Introduce advanced Route Server functions*
- Improved Security
 - *ISO27001*
 - *Better support for DDoS Mitigation*



Thank You!

For enquiries, please contact us at
info@hkix.net