Hong Kong Internet eXchange HKIX

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What is HKIX?

- HKIX is a public Internet Exchange Point (IXP) in Hong Kong
- HKIX is the main IXP in HK where various networks can interconnect with one another and exchange traffic
  - Not for connecting to the whole Internet
- HKIX was a project initiated by ITSC of CUHK and supported by CUHK in Apr 1995 as a community service
  - Still fully supported and operated by CUHK
- HKIX serves both commercial networks and R&E networks
- The original goal is to keep intra-HongKong traffic within Hong Kong

HKIX Today

- Supports both MLPA and BLPA over layer 2

- Supports IPv4/IPv6 dual-stack

- Accessible by all local loop providers

- Neutral among ISPs / telcos / local loop providers / data centers / content providers / cloud services providers

- More and more non-HK participants

- >240 ASNs connected

- >370 connections in total
  - ~130 10GE connections

- ~370Gbps (5-min) total traffic at peak

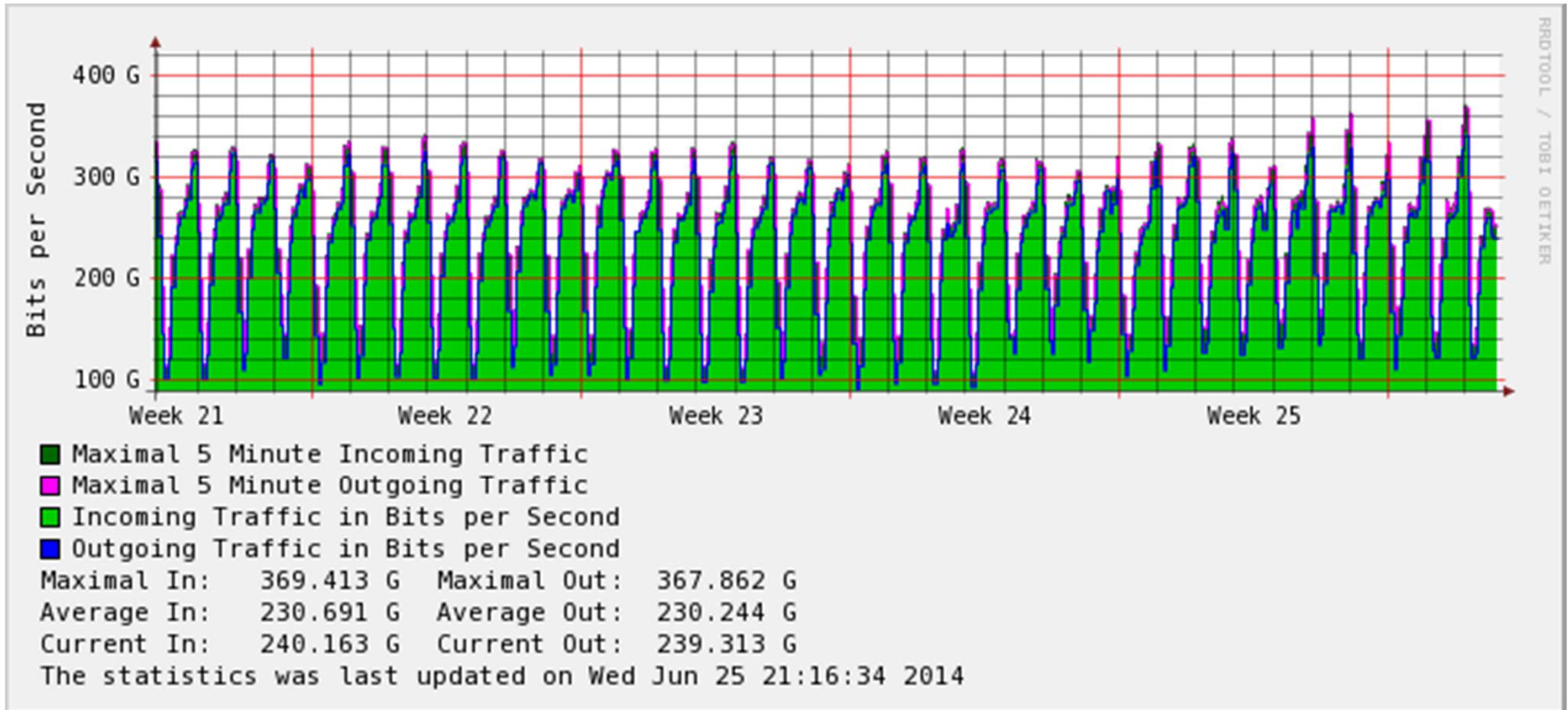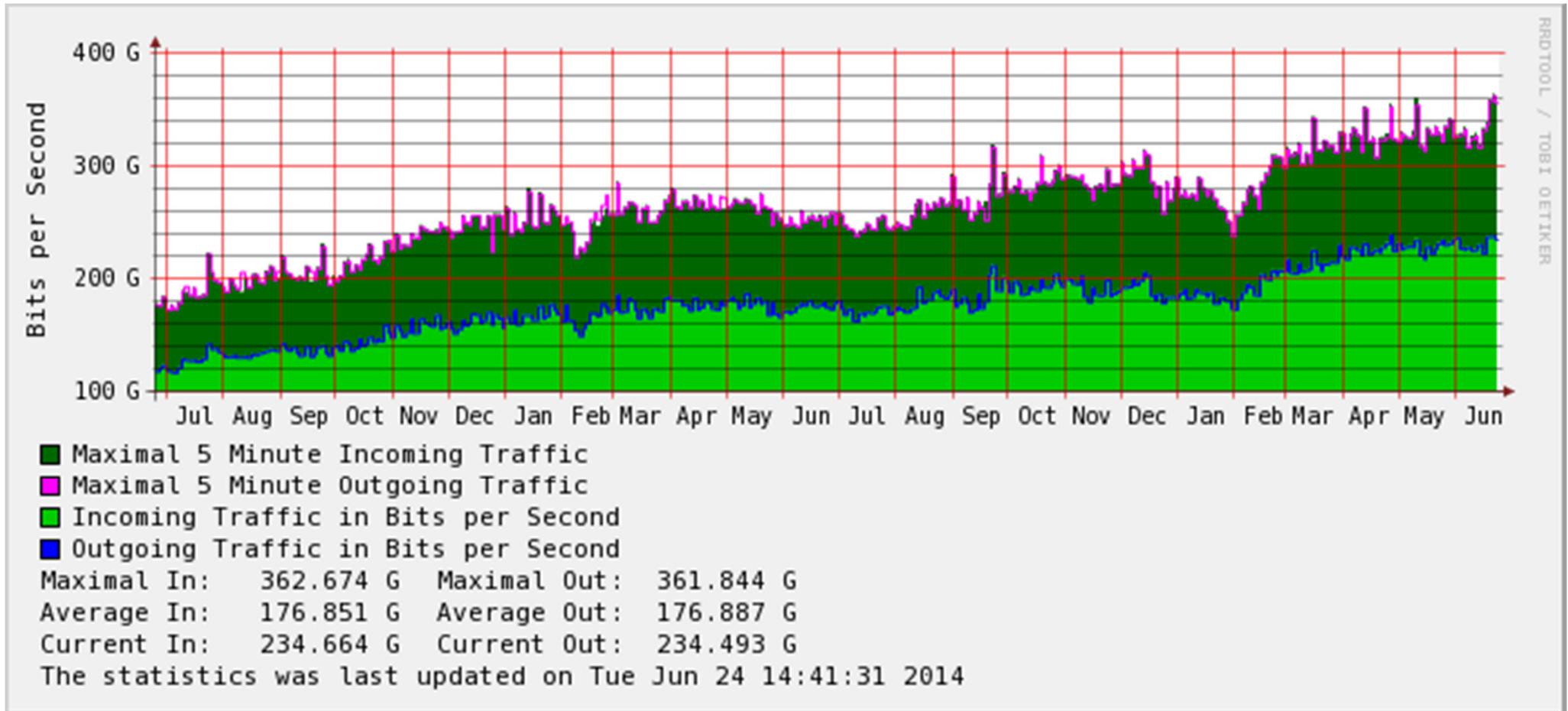- Annual Traffic Growth = 30% to 40%

Daily Traffic Statistics
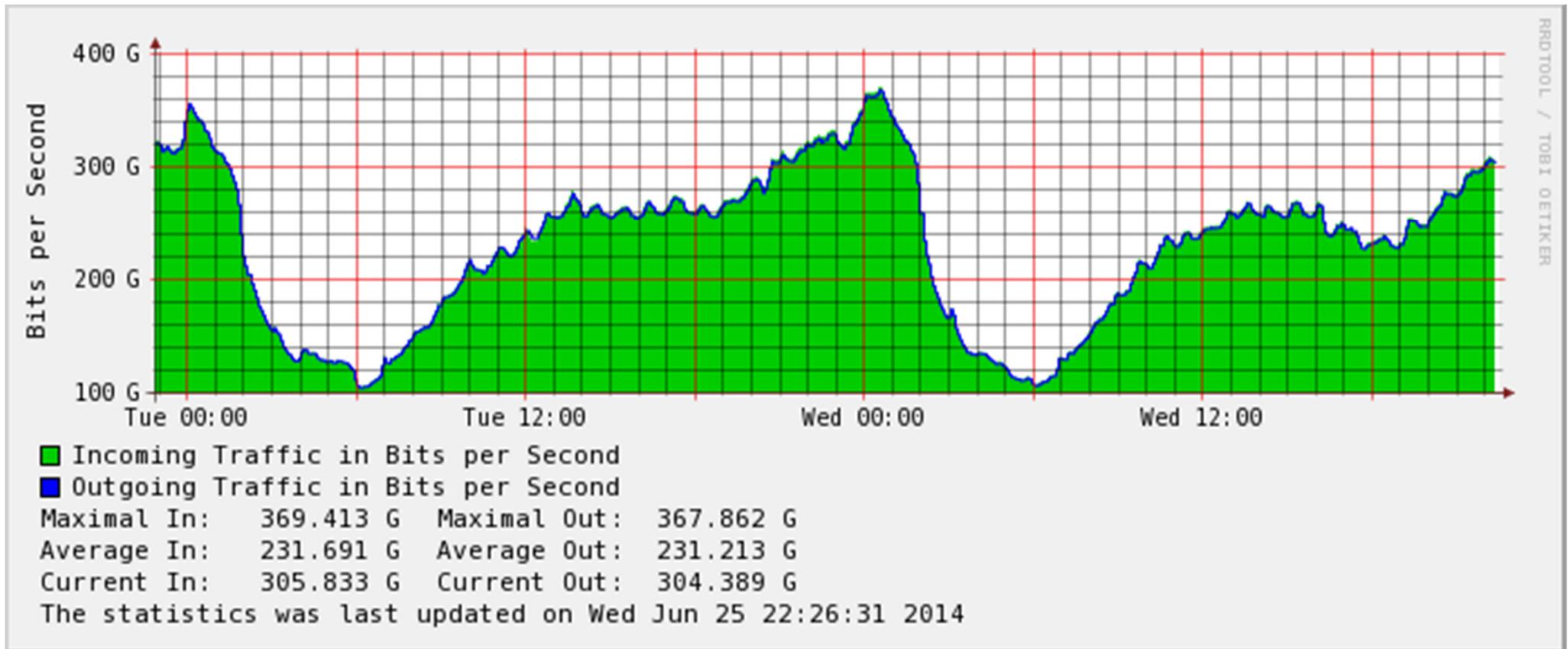
Monthly Traffic Statistics

Yearly Traffic Statistics

www.hkix.net

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, India, Bhutan, Qatar and other Asian countries
- We now have more non-HK routes than HK routes on our MLPA route servers
- Even more non-HK routes over BLPA
- So, we do help keep intra-Asia traffic within Asia
- In terms of network latency, Hong Kong is a good central location in Asia
  - ~50ms to Tokyo
  - ~30ms to Singapore
- So, HKIX is good for intra-Asia traffic

Values of HKIX to Hong Kong

- A key information infrastructure bringing faster and cheaper connectivity to Hong Kong citizens

- A key component for developing Hong Kong as an Internet hub in Asia

- A key component for helping Hong Kong's competitiveness in the cyber world

- A key component in facilitating competition in the telecommunication sector

- A successful business model for the liberalization

HKIX's Advantages

- Neutrality
  - Treat all partners equal, big or small
  - No settlement for exchange of traffic
  - Accessible to all local loop operators
  - Neutral among ISPs / telcos / local loop providers / data centers / content providers / cloud services providers
- Confidentiality
  - Respect business secrets of every partner / participant
- Not for Profit

CUHK's Vision

- CUHK has a strategic uniqueness in running HKIX in a long-term
- While CUHK does not have a service provider role, we are still obligated to continue managing it as a public service
- HKIX is very much like road infrastructure and airport in Hong Kong
- Support from HKSAR Government is needed to make it prosper, and to maintain it as an Asian internet hub

- *HKSAR Government has provided one-off funding for capital expenses of network equipment upgrade in 2013-14*

2013 and Beyond?

- A lot of new data centers will be in operations in Hong Kong starting 2013
- More and more cloud / content services providers to connect
- What will happen to the industry and the market?

- **HKIX must be well-prepared for the possibly higher growth**

HKIX in 2013-14

- Have started simple port charge model since Jan 2013
  - GE – US$120/port/month (with no one-time charge)
  - 10GE – US$1,000/port/month (plus one-time charge)
- Maintain as not-for-profit operations
  - Target for fully self-sustained operations for long-term sustainability
- Deploying new highly scalable 2-tier Dual Core architecture within CUHK by 4Q2014 taking advantage of the new data center inside CUHK campus
  - HKIX1 site + HKIX1b site (fiber distance: <2km)
  - Provide site/chassis/card resilience
  - Support 100GE connections
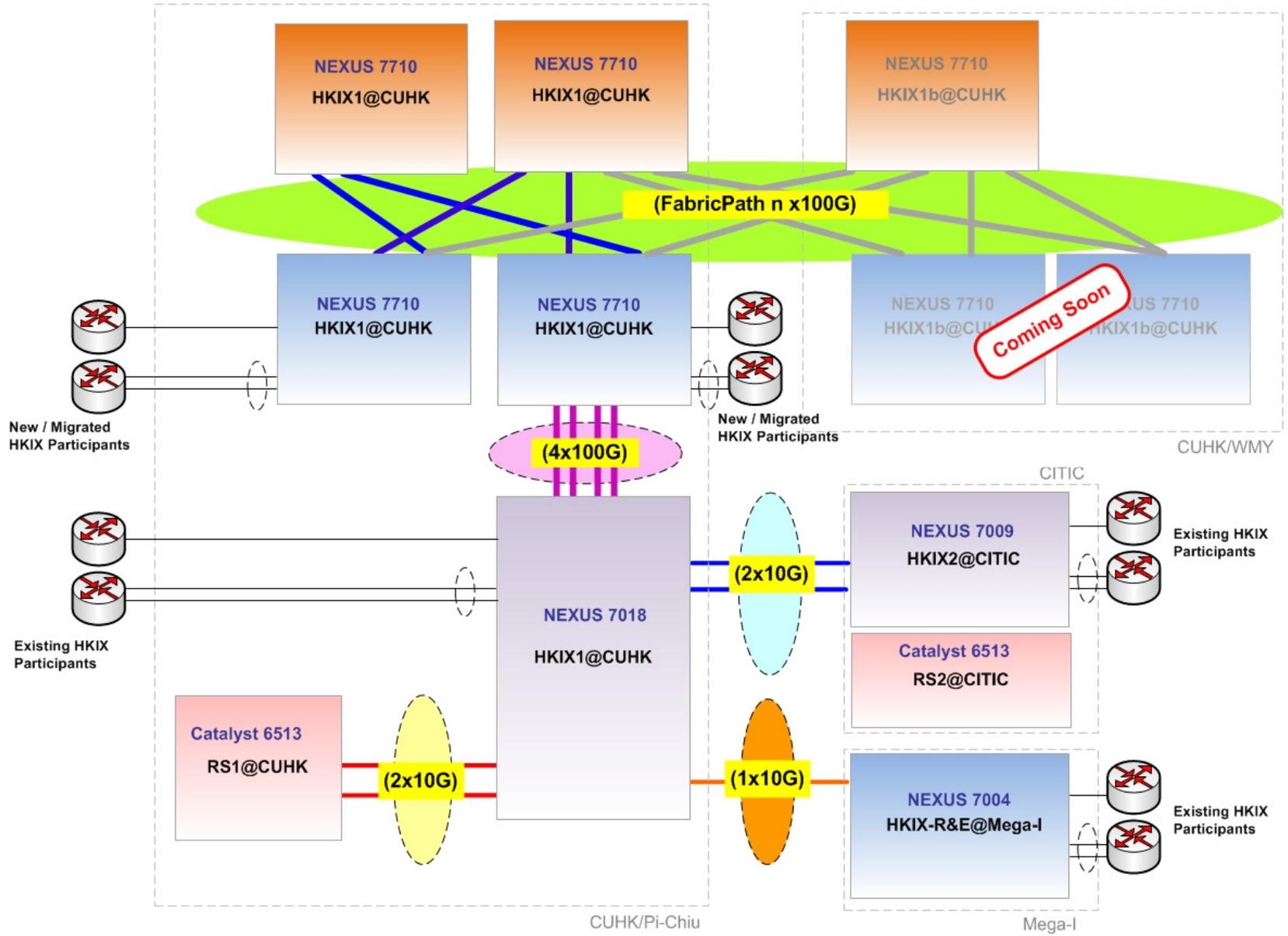 - Scalable to support >6.4Tbps total traffic
  - Ready to support HKIX3/4/5/6/…

The New HKIX Architecture
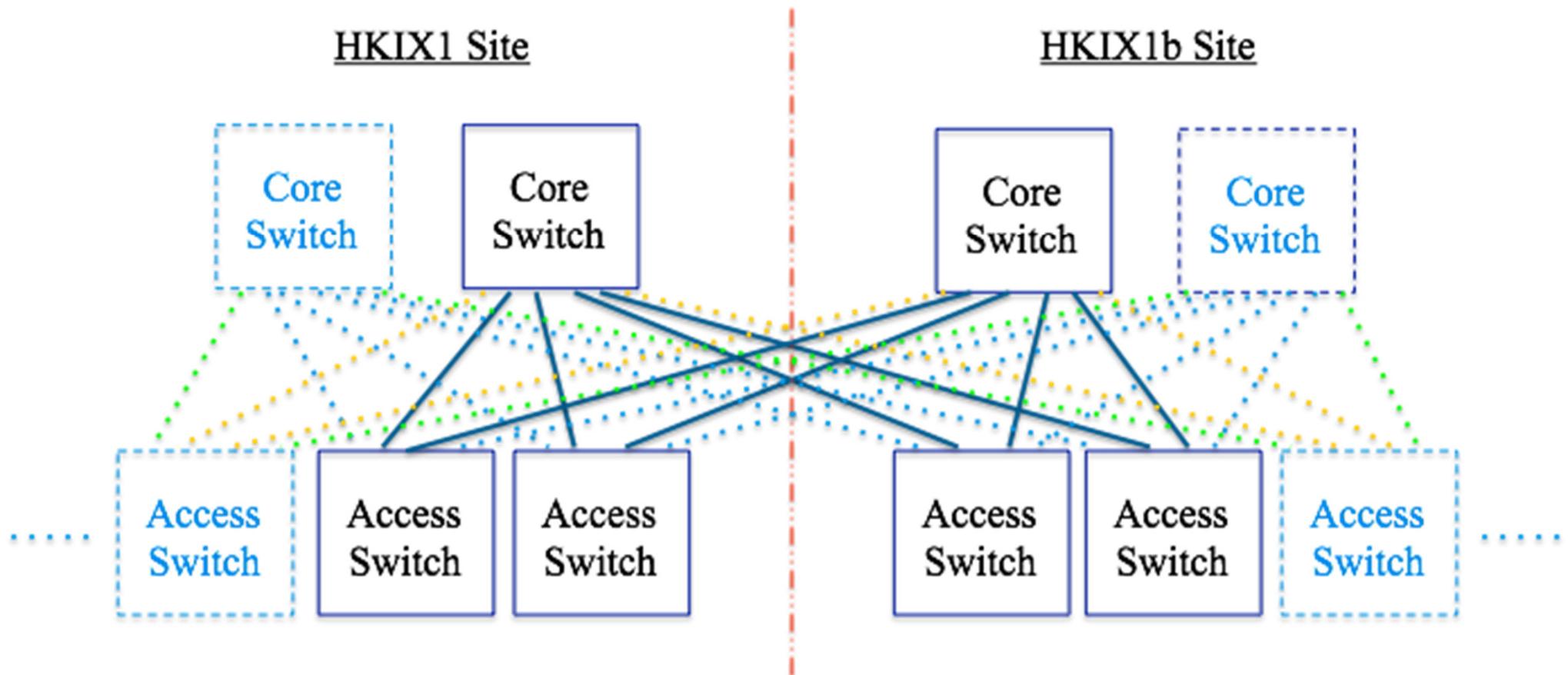
HKIX Network Diagram (July 2014)

Thank you!