

NREN update

NREN: HARNET

Country: HKSAR China

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The 3rd Asi@Connect Project Meeting/ March 26 2018
Matrix Building, Biopolis, Singapore



Organization

- ❖ **NREN : HARNET (Hong Kong Academic and Research Network)**



- ❖ **Number of member institutions : 16 (10 connected to HARNET)**
- ❖ **Backbone : Multiple 10G with 2 x Optical DWDM Rings**

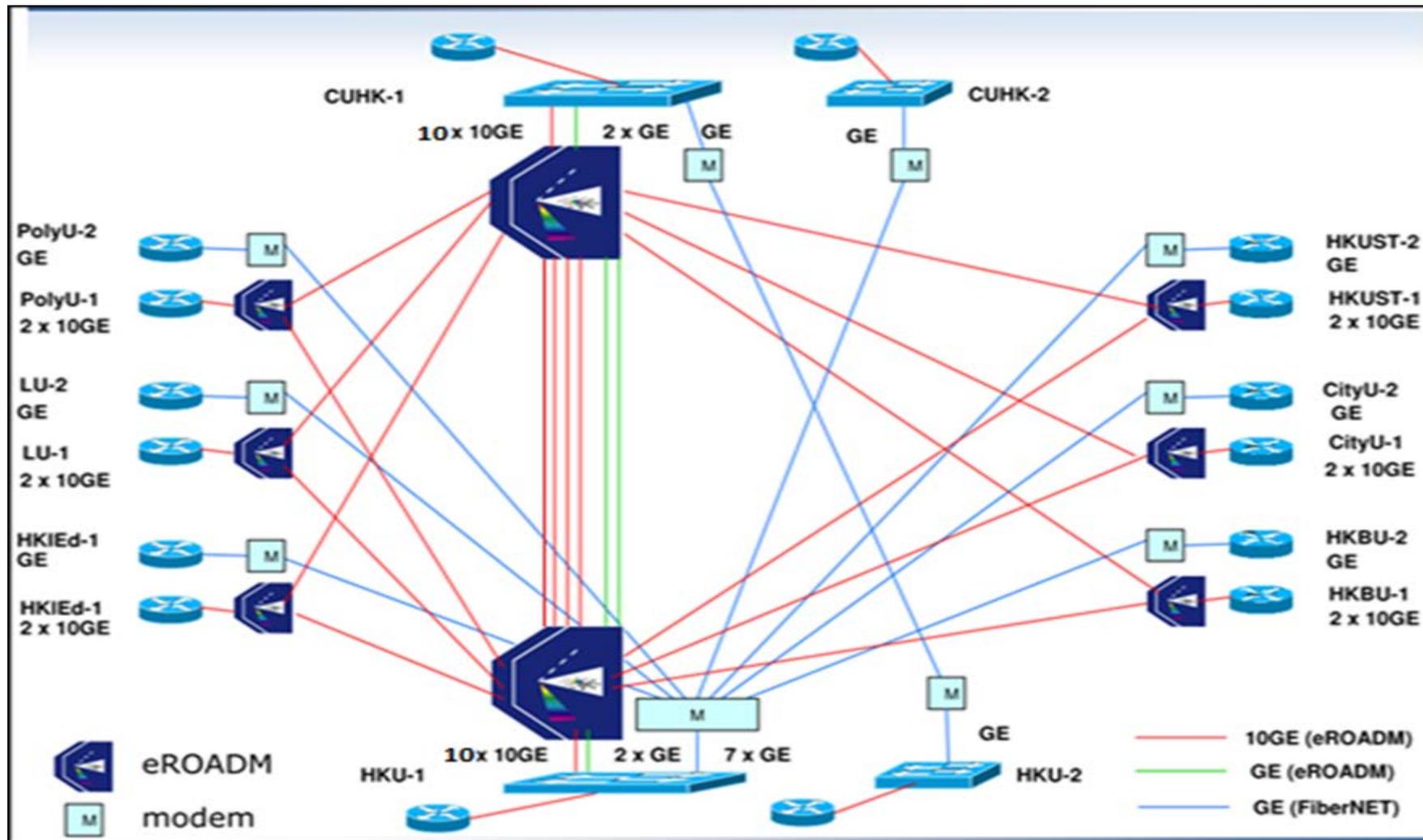


Network update

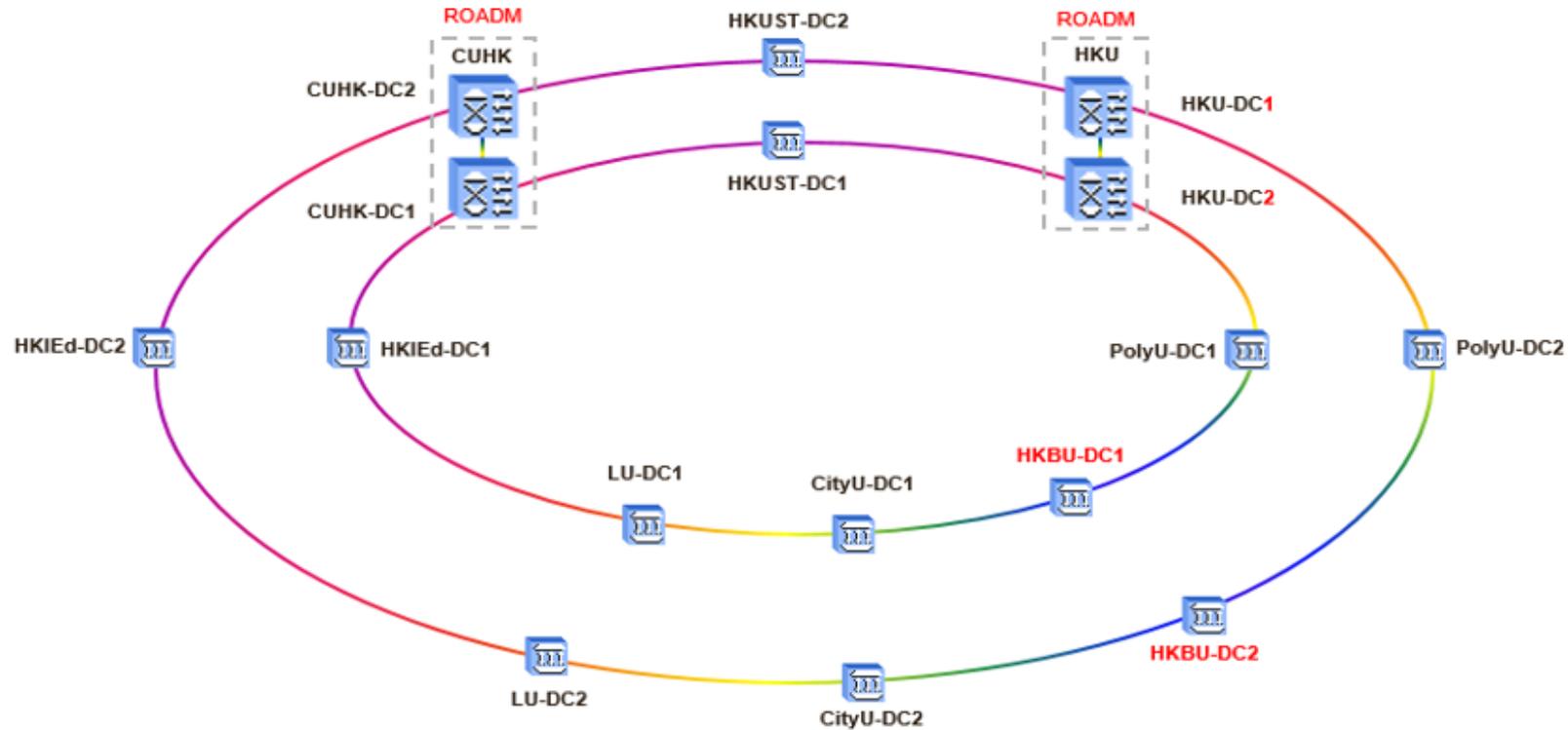
- ❖ **Network connection (National) :**
 - ❖ **Optical Network upgraded to 2 x DWDM Rings with Multiple 10Gs**
- ❖ **Network connection (International) :**
 - ❖ **Commodity Internet 5.6Gbps -> 8Gbps,**
 - ❖ **TEIN 120M -> 1G**
- ❖ **DDoS Mitigation Services Subscription – experience sharing**
- ❖ **HARNET – R&E Node**



Network update - from single DWDM node



Network update - to dual DWDM nodes with 2 x DWDM Rings



Legend:



Activity update - DDoS Mitigation Services

JUCC Attack Alerts (12/2016 to 09/2017)

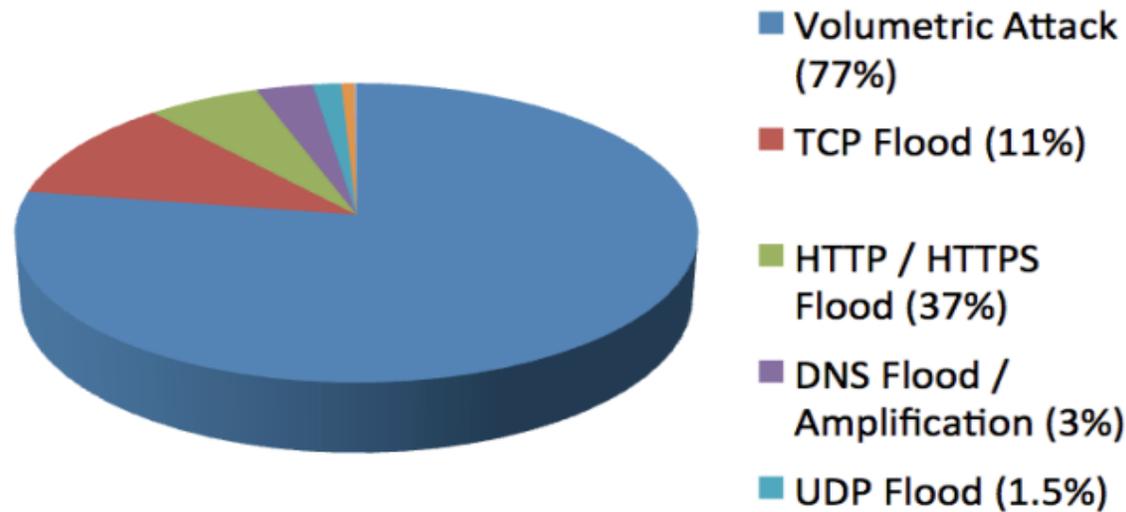


Figure 1. Attack types breakdown for JUCC between 12/2016 and 09/2017.

Volume	TCP Flood	HTTP/S Flood	DNS Flood	UDP Flood	ICMP Flood	NTP Amp
800	117	62	34	15	7	1

Table 1. Total alerts (including informative) reported for JUCC between 12/2016 and 09/2017.

Attack Volume (12/2016 to 09/2017)

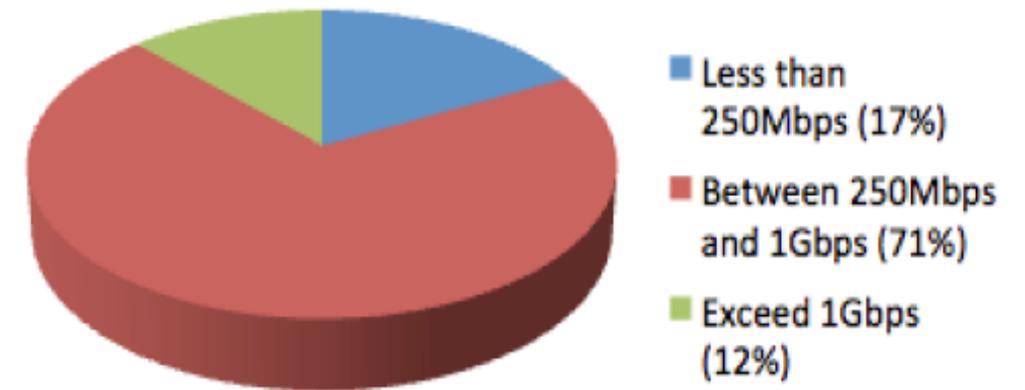


Figure 2. Volume (Mbps/Gbps).

Less than 250Mbps	250Mbps ~ 1 Gbps	Exceed 1Gbps
20	82	14

Table 2. Volume (Mbps/Gbps) based on high alerts (excluding informative alerts).



Activity update - DDoS Mitigation Services

Packet Per Second (12/2016 to 09/2017)

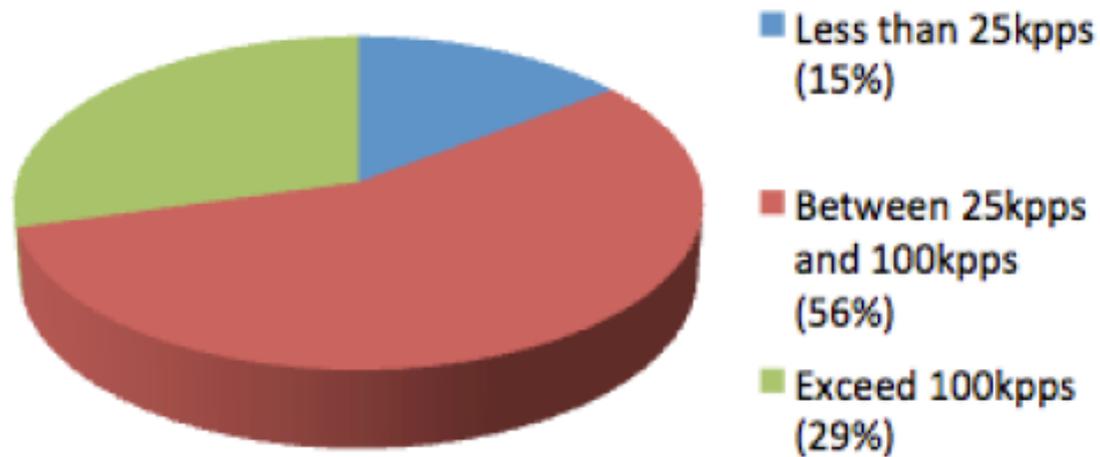


Figure 3. Packet Rate (kpps).

Less than 25kpps	25kpps ~ 100kpps	Exceed than 100kpps
17	65	34

Table 3. Packet rate (kpps) based on high alerts (excluding informative).

Duration (12/2016 to 09/2017)

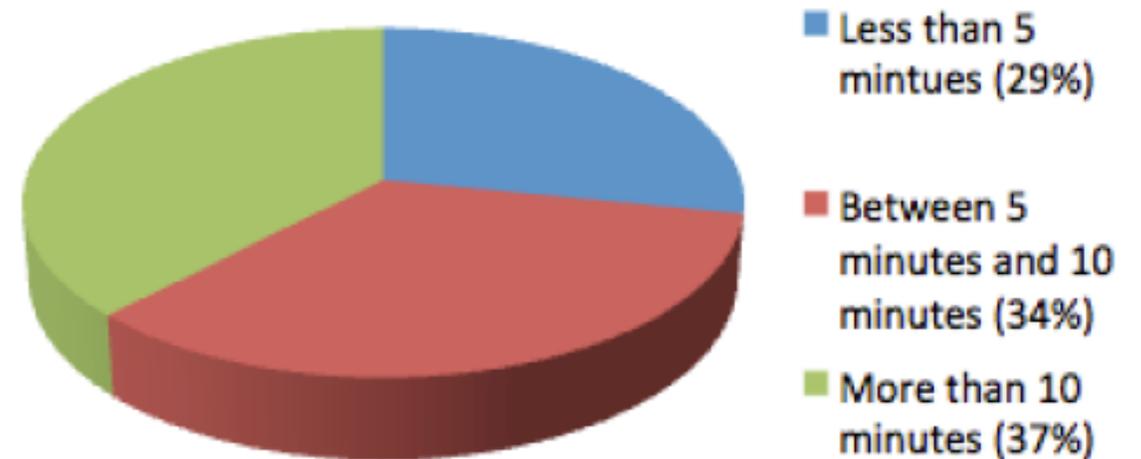
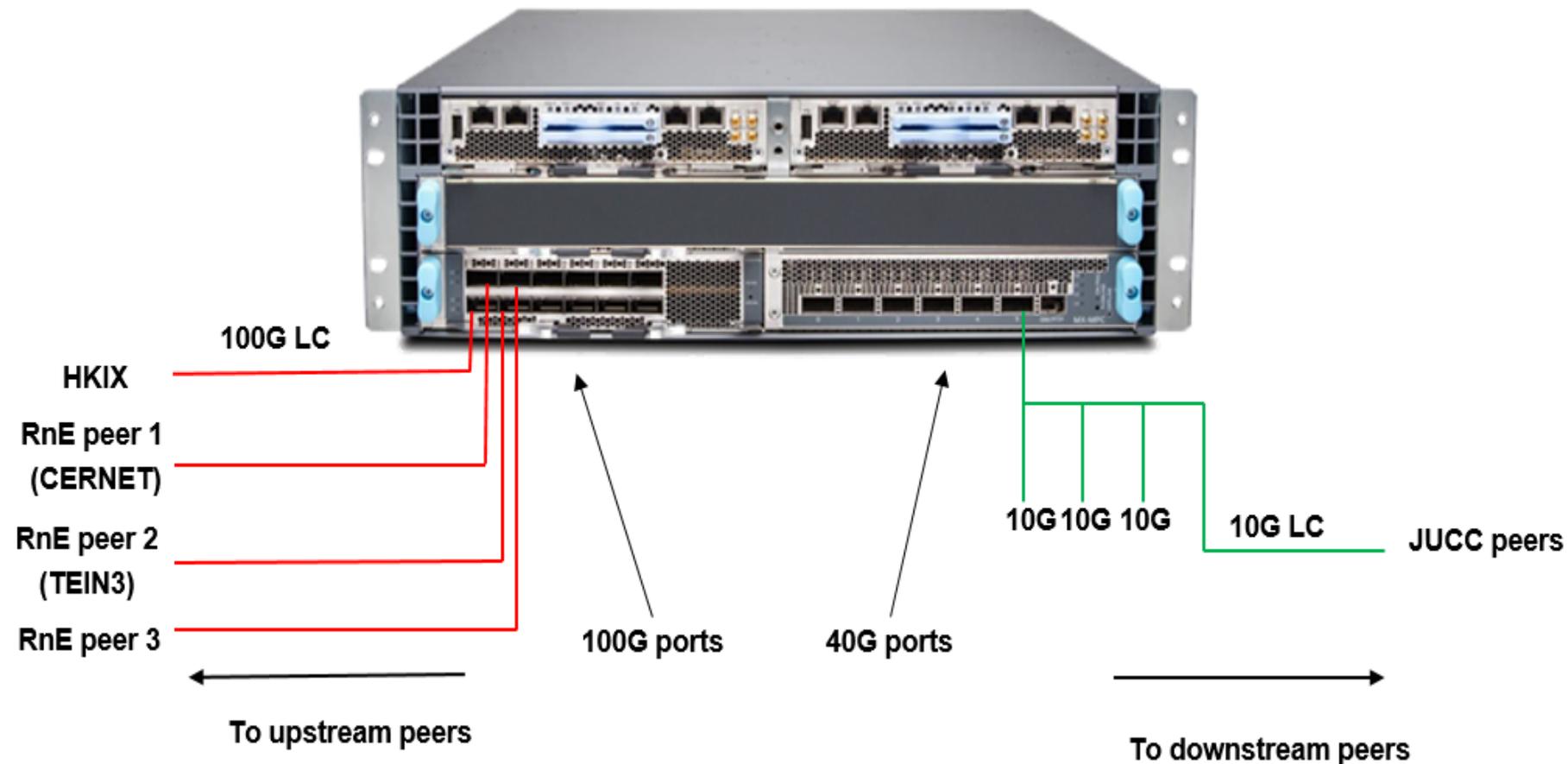


Figure 4. Duration (minutes)

Less than 5 minute	Between 5 and 10 minute	More than 10 minute
34	39	43

Table 4. Duration (minute) based on high alerts (excluding informative).

Activity update - New R&E Node



Activity update - New R&E Node Schedule

