APAN Update

Yasuichi Kitamura (kita@jp.apan.net)

- Organization Update
- Meeting Update
- Circuit Update
- Fiber Cut

Organization Update

- Chair
  - Prof. Jianping Wu
- Secretariat
  - Singapore
  - sec@apan.net

Circuit Update

- TransPAC2 Pakistan link started.
- Tokyo-Honolulu link finished the service.
- JGN2plus started the new circuit topology such as Tokyo-Singapore-Bangkok.
- TEIN3 started.
  - ID is now connected with Hong Kong.

Meeting Update

Year	Winter	Summer
2008	Honolulu	Queenstown
2009	Kaohsiung	Kuala Lumpur
2010	Sydney	Hanoi
2011	Hong Kong	TBA
2012	Chiang Mai	TBA
2013	Honolulu	TBA

- Typhoon No. 8 (Japanese name), Morakot (English name) attacked Kaohsiung.

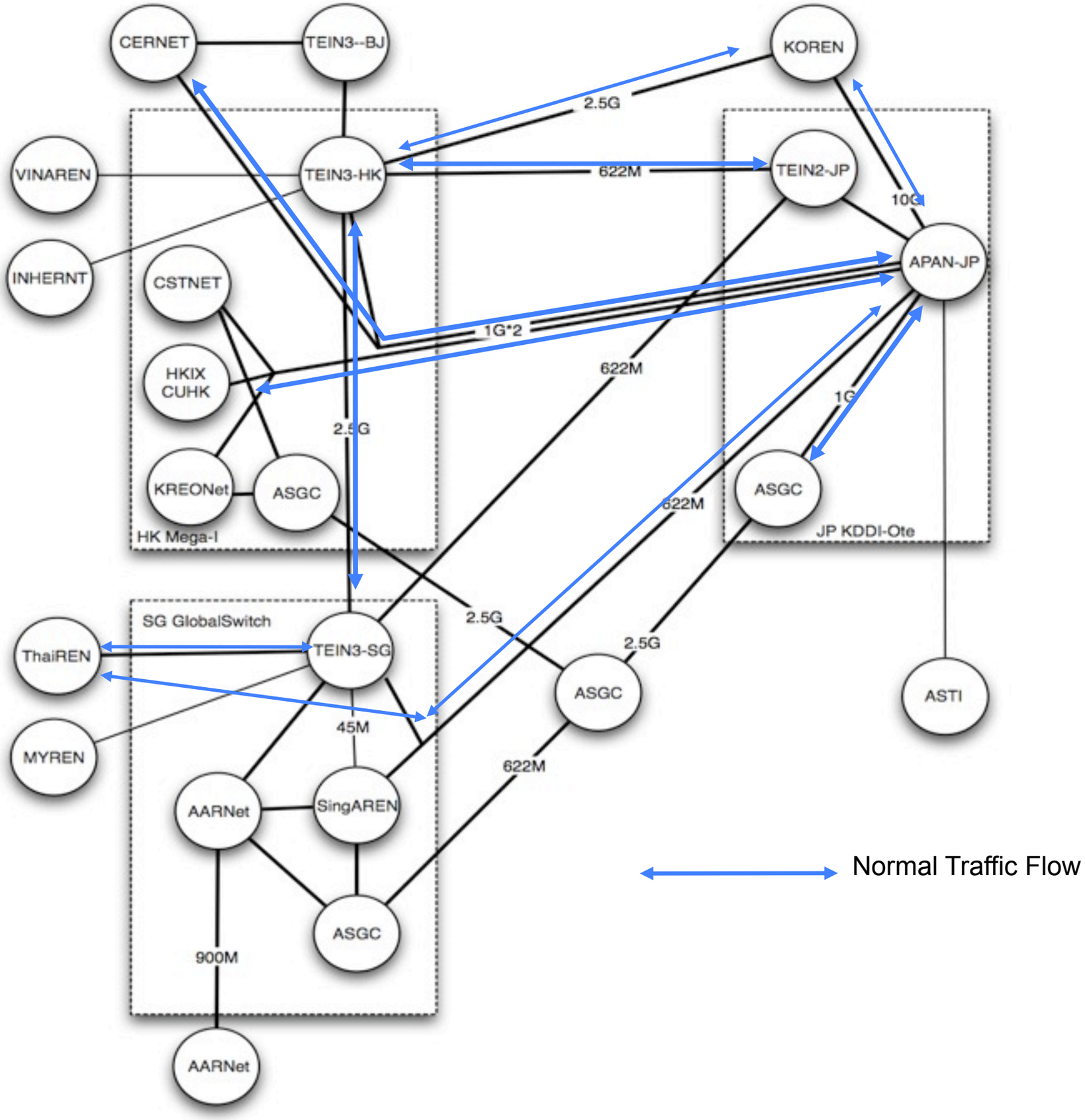
Prof. Kasahara's report

Temporal Routing in Asia during Undersea Cable Disruption

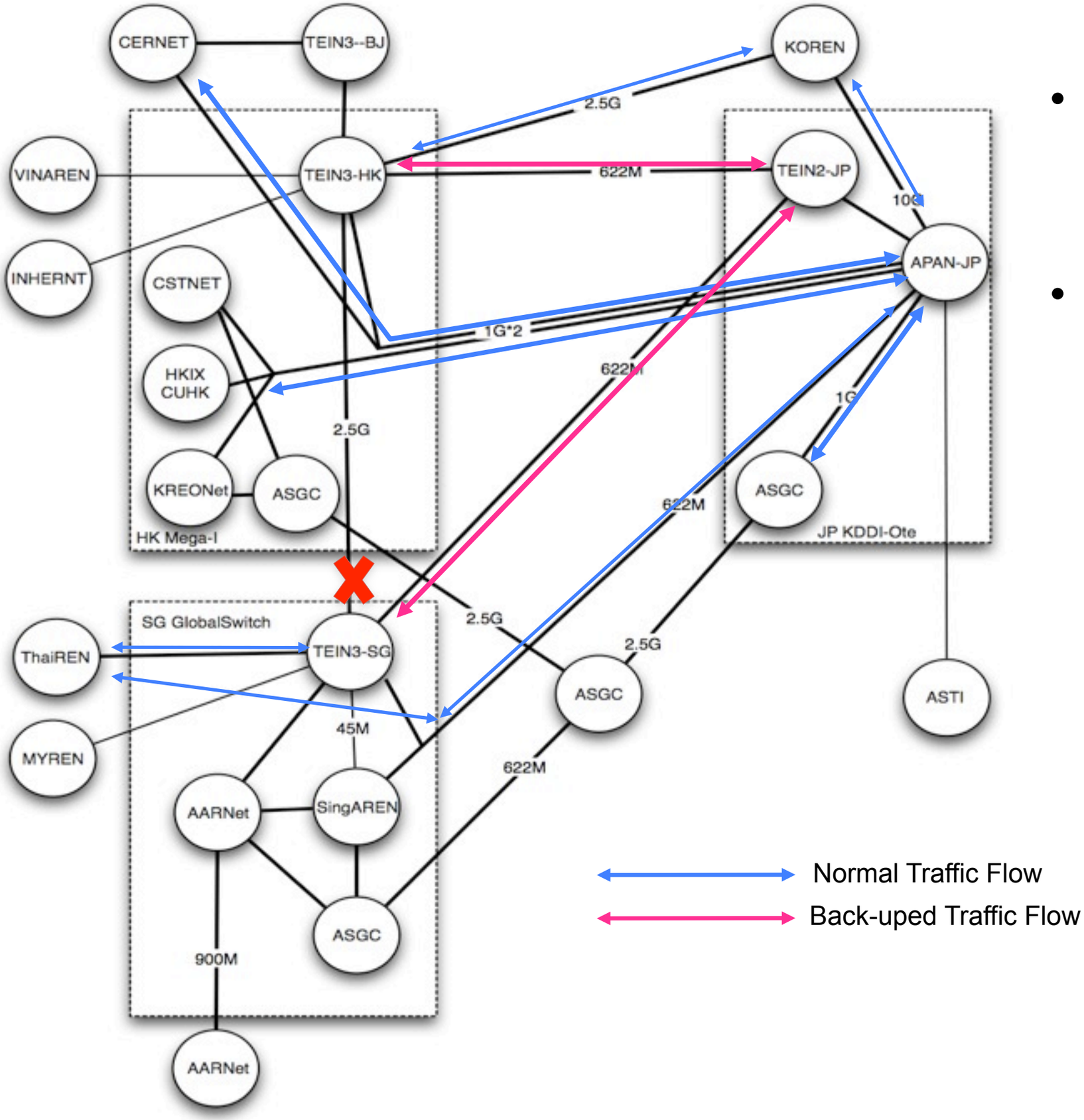
APAN-JP NOC

13th August 2009

Normal Layer3 Topology and Traffic of Asian NRENs

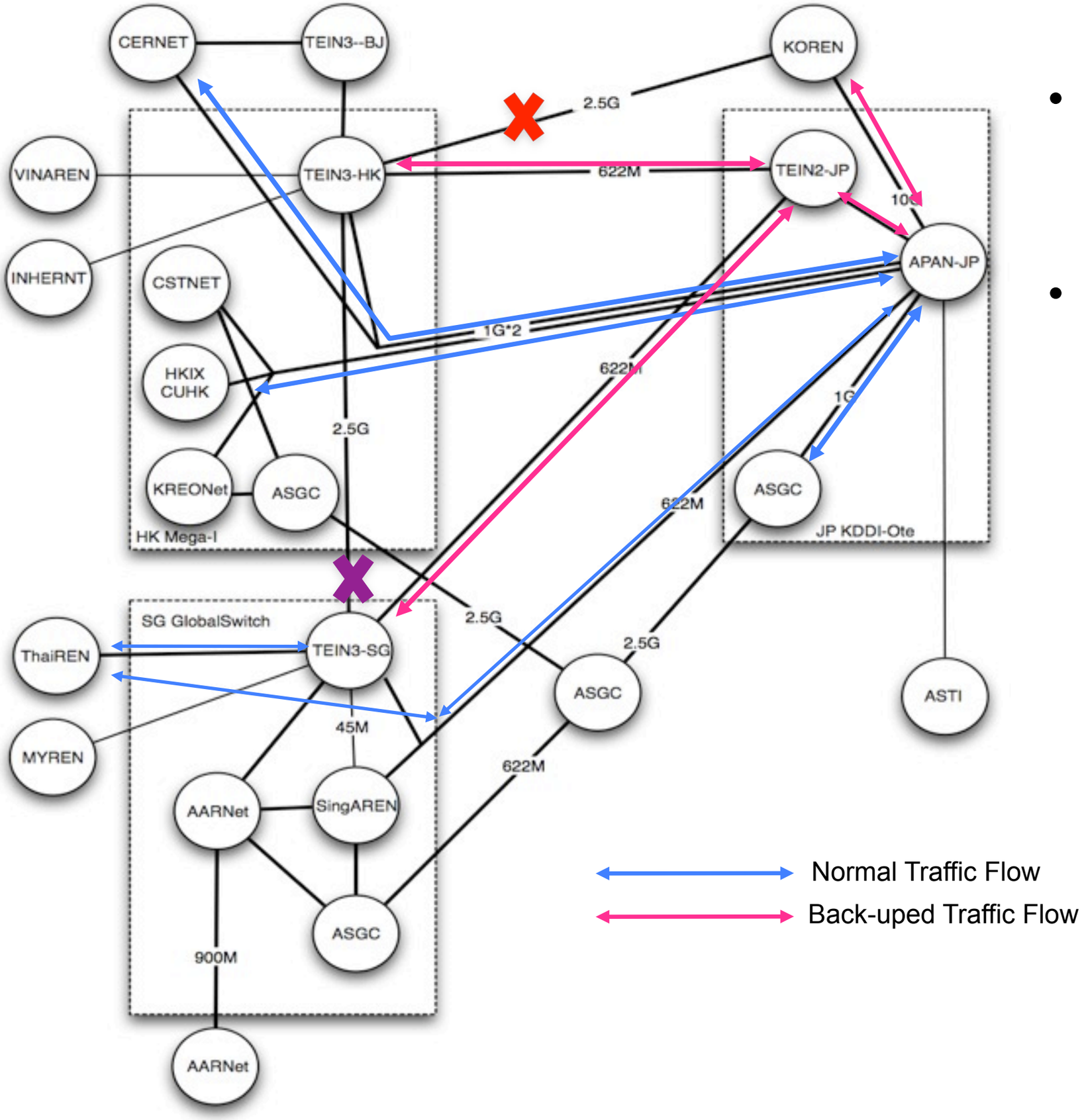


First impact on August 6th



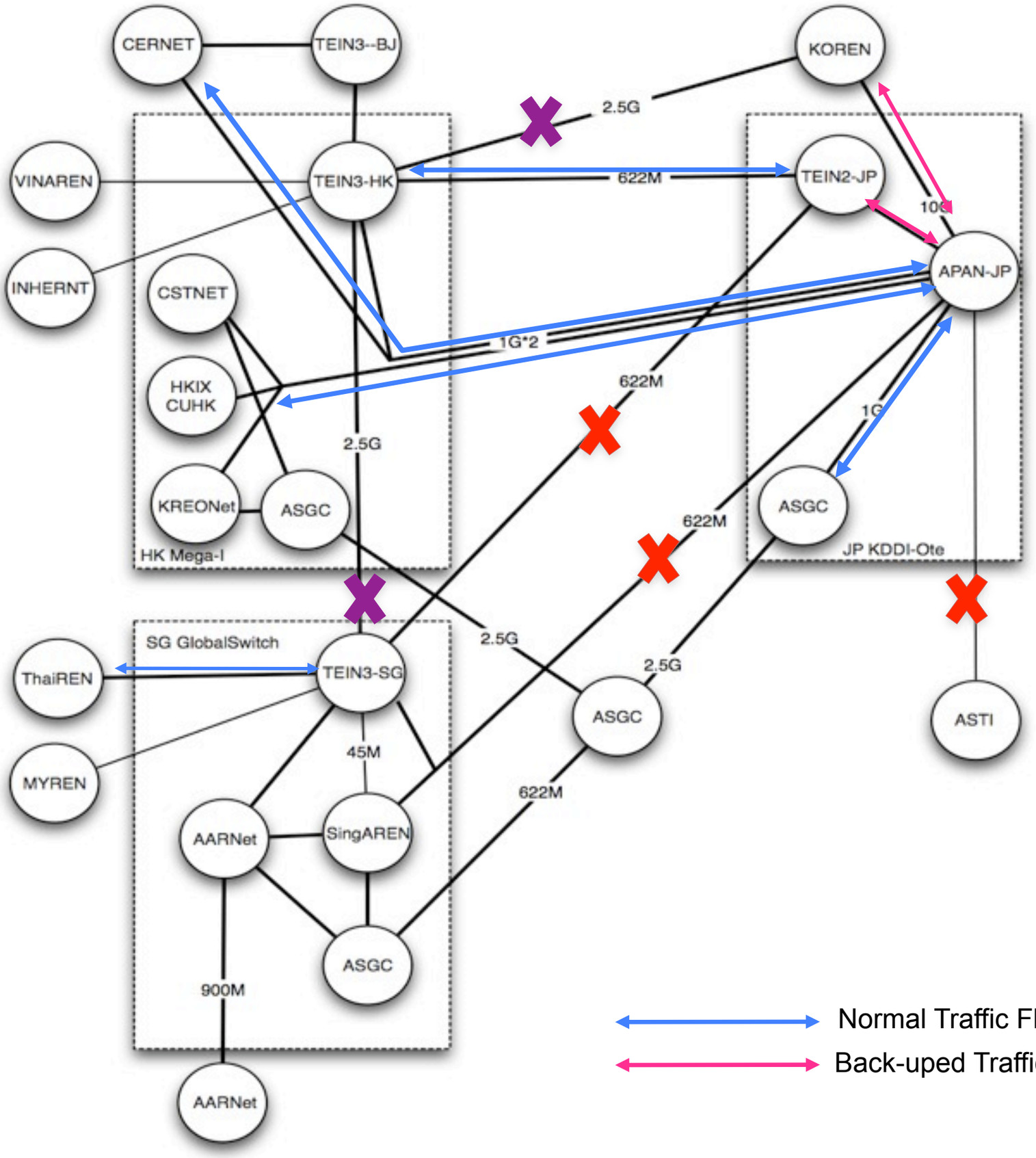
- TEIN3 HK-SG 2.5G circuit was interrupted due to EAC cable system frailer
- The traffic between TEIN3-HK and SG Pops shifted to NII's TEIN3-JP back up links

Second impact on August 9th



- TEIN3 SG-KR 2.5G circuit was interrupted due to “EAC cable system” frailer
- The traffic between KOREN and TEIN3 network shifted to APII/ JGN2plus 10G link

Third impact on August 12th (Current)



- The fault was detected on Segment 7 of APCN2
- Additionally, segment 1 of the APCN2 is also currently under repair
- Both NII and JGN2plus JP-SG 622 circuit were outage
- The connectivity of TEIN3 SG(and around NREN) and other Asian NREN was interrupted
- JP MAFF's JP-PH 155M circuit was also affected. ASTI has been disrupted the connectivity with R&E network

Routing affected as Undersea Cable Disruption

Source	Destination	AARNet (7575)	APAN-JP (7660)	ASCC (9264)	ASGC (24167)	ASTI (9821)	CERNET (4538)	CSTNET (7497)	KOREN (9270)	KREONET (17579)	SingAREN (23855)	TEIN3-HK (24489)	TEIN3-SG (24490)	ThaiSARN (3836)	TWAREN (7539)	UniNet (4621)	Internet2 (11537)	GEANT2 (20965)
	AARNet (7575)	-	I2 - TP2	I2 - TP2 AJP	direct	None	TEIN3 - GEA - TEINH	TEIN3 - GEA - TEINH - CERNET	I2 - TP2 - AJP	I2	direct	TEIN3 - GEA	direct	TEIN3 - TREN	direct	TEIN3 - TREN	direct	TEIN3
	APAN-JP (7660)	TP2-I2	-	direct	direct	None	direct	direct	direct	direct	TEINJ - TEINH - GEA - TEIN3	TEINJ	TEINJ - TEINH - GEA	TEINJ - TEINH - GEA - TEIN3 - TREN	ASCC	TEINJ - TEINH - GEA - TEIN3 - TREN	TP2	TP2 - I2
	ASCC (9264)	AJP - TP2 I2	direct	-	direct	None	direct	direct	AJP	AJP	None	CERNET	None	None	direct	AJP - TP2 - I2	AJP - TP2	AJP - TP2 - I2
	ASGC (24167)	direct	direct	SINET	-	None	direct	direct	AJP	direct	direct	SINET - TEINJ TEINH - GEA	SINET - TEINJ TEINH - GEA	SINET - TEINJ TEINH - GEA TEIN3 - TREN	direct	I2	direct	I2
	ASTI (9821)	None	None	None	None	-	None	None	None	None	None	None	None	None	None	None	None	None
	CERNET (4538)																	
	CSTNET (7497)																	
	KOREN (9270)	AJP - TP2 I2	direct	AJP	AJP	None	AJP	AJP	-	None	AJP - TEINJ - TEINH - GEA - TEIN3	AJP - TEINJ	AJP - TEINJ - TEINH - GEA	AJP - TEINJ - TEINH - GEA - TEIN3 - TREN	AJP - ASCC	AJP - TEINJ - TEINH - GEA - TEIN3 - TREN	AJP - TP2	AJP - TP2 - I2
	KREONET (17579)	direct	direct	CSTNET	direct	None	direct	direct	None	-	None	I2 - TP2 AJP - TEINJ	I2 - AAR	I2 - AAR - TEIN3 - TREN	direct	I2	direct	I2
	SingAREN (23855)	direct	ASGC	ASGC - SINET	direct	None	TEIN3 - GEA - TEINH	TEIN3 - GEA - TEINH - CERNET - 9406	ASGC - AJP	ASGC	-	TEIN3 - GEA	direct	TEIN3 - TREN	ASGC	TEIN3 - TREN	ASGC	TEIN3
	TEIN3-HK (24489)	AJP - TP2 I2 - AAR	AJP	None	None	None	direct	CERNET - 9406	TEINJ - AJP	None	GEA - TEIN3	-	GEA	GEA - TEIN3 TREN	None	GEA - TEIN3 TREN	TEINJ-AJP	direct
	TEIN3-SG (24490)	direct	AAR - I2 - TP2	AAR - I2 - TP2 - AJP	AAR - I2	None	GEA - TEINH	GEA - TEINH - CERNET - 9406	AAR - I2 - TP2 - AJP	AAR - I2	direct	GEA	-	TREN	AAR - I2 - TP2 - AJP - ASCC	TREN	AAR - I2	direct
	ThaiSARN (3836)	TEIN3	TEIN3 - AAR	TEIN3 - AAR - I2 - TP2 - AJP	None	None	TEIN3 - GEA - TEINH	TEIN3 - GEA - TEINH - CERNET - 9406	TEIN3 - AAR - I2 - TP2 - AJP	TEIN3 - AAR - I2 - TP2 - AJP	TEIN3	TEIN3 - GEA - TEINH	direct	-	TEIN3 - AAR - I2 - TP2 - AJP	TREN	TEIN3 - AAR	TEIN3
	TWAREN (7539)	direct	ASCC	direct	direct	None	ASCC	ASCC	ASCC - AJP	ASCC - AJP	ASGC	ASCC - CER	I2 - AAR	I2 - AAR - TEIN - TREN	-	I2	direct	I2
	UniNet (4621)	TREN - TEIN3	I2 - TP2	I2 - TP2 - AJP	I2	None	TREN - TEIN3 - GEA - TEINH	TREN - TEIN3 - GEA - TEINH - CERNET - 9406	I2 - TP2 - AJP	I2	TREN - TEIN3	TREN - TEIN3 - GENAT	TREN - TEIN3	TREN	I2	-	direct	TREN - TEIN3

Connectivity Lost or Commodity

Intercontinental Loop Routes

Unknown (no peering with Compath Project)

Proposal for temporary backup routing

- According to our investigation by comPATH tool, currently there are many intercontinental loop / inefficient routes on Asian NRENs.
- It is important to restore the connection from APAN, TEIN3 to Singapore area.
- We have only one choice to get the connectivity to Singapore area by creating temporary TEIN3-SG - AARnet - ASGC - APAN-JP – TEIN3-HK path.
- The table on next slide shows the expected routing when we implement this temporal backup routing, and Intercontinental loop routes will be disappeared.

Temporal Routing in Asia during Undersea Cable Disruption

Source	Destination	AARNet (7575)	APAN-JP (7660)	ASCC (9264)	ASGC (24167)	ASTI (9821)	CERNET (4538)	CSTNET (7497)	KOREN (9270)	KREONET (17579)	SingAREN (23855)	TEIN3-HK (24489)	TEIN3-SG (24490)	ThaiSARN (3836)	TWAREN (7539)	UniNet (4621)	Internet2 (11537)	GEANT2 (20965)
AARNet (7575)	–	I2 – TP2	I2 – TP2 AJP	I2	None	ASGC– AJP	ASGC– AJP	2 – TP2 – AJP	2	direct	ASGC – AJP – TEINJ	direct	TEINS – TREN	direct	TEINS – TREN	direct	TEINS
APAN-JP (7660)	TP2–I2	–	direct	direct	None	direct	direct	direct	direct	ASGC– AAR – TEINS	TEINJ	ASGC– AAR – TEINS	ASGC – AAR – TEINS – TREN	ASCC	ASGC – AAR – TEINS– TREN	TP2	TP2 – I2
ASCC (9264)	AJP – TP2 I2	direct	–	direct	None	direct	direct	AJP	AJP	(*1) –TEINS	CERNET	None	(*1) – TREN	direct	AJP – TP2 – I2	AJP – TP2	AJP – TP2 – I2
ASGC (24167)	direct	direct	SINET	–	None	direct	direct	AJP	direct	direct	AJP	AAR	AAR – TEINS – TREN	direct	AAR – TEINS – TREN	direct	I2
ASTI (9821)	None	None	None	None	–	None	None	None	None	None	None	None	None	None	None	None	None
CERNET (4538)																	
CSTNET (7497)																	
KOREN (9270)	AJP – TP2 I2	direct	AJP	AJP	None	AJP	AJP	–	None	(*1) – TEINS	AJP – TEINJ	(*1) – TEINS	(*1) – TEINS – TREN	AJP – ASCC	(*1) – TEINS – TREN	AJP – TP2	AJP – TP2 – I2
KREONET (17579)	direct	direct	CSTNET	direct	None	direct	direct	None	–	(*1) – TEINS	I2 – TP2 AJP – TEINJ	I2 – AAR	I2 – AAR – TEINS – TREN	direct	2	direct	I2
SingAREN (23855)	direct	ASGC	ASGC – SINET	direct	None	TEINS – (*2)	TEINS – (*2) – CERNET – 9406	ASGC – AJP	ASGC	–	TEINS – (*2) – TEINJ	direct	TEINS – TREN	ASGC	TEINS – TREN	ASGC	TEINS
TEIN3-HK (24489)	TEINJ – AJP – ASGC	AJP	None	None	None	direct	CERNET – 9406	TEINJ – AJP	None	TEINJ – (*2) – TEINS	–	TEINJ – (*2)	TEINJ – (*2) – TEINS – TREN	None	TEINJ – (*2) – TEINS – TREN	TEINJ–AJP	direct
TEIN3-SG (24490)	direct	AAR – ASGC	AAR – I2 – TP2 – AJP	AAR	None	(*2)	(*2) – CERNET	(*2)	AAR – I2	direct	(*2)	–	TREN	AAR – I2 – TP2 – AJP – ASCC	TREN	AAR – I2	direct
ThaiSARN (3836)	TEINS	TEINS – AAR	TEINS – AAR – I2 – TP2 – AJP	TEINS – (*2)	None	TEINS – (*2)	TEINS – (*2)	TEINS – (*2)	TEINS – (*2)	TEINS	TEINS – (*2) – TEINJ	direct	–	TEINS – AAR – I2 – TP2 – AJP	TREN	TEINS – AAR	TEINS
TWAREN (7539)	direct	ASCC	direct	direct	None	ASCC	ASCC	ASCC –AJP	ASCC – AJP	AGGC	ASCC – CER	ASGC – AAR – TEINS – TREN	ASGC – AAR – TEINS – TREN	–	2	direct	I2
UniNet (4621)	TREN – TEINS	TREN – TEINS – AAR – ASGC	I2 – TP2 – AJP	TREN – TEINS – AAR	None	TREN – TEINS – (*2)	TREN – TEINS – (*2)	TREN – TEINS – (*2)	2	TREN – TEINS	TREN – TEINS – (*2) – TEINJ	TREN –TEINS	TREN	I2	–	direct	TREN – TEINS

Connectivity Lost or Commodity

Intercontinental Loop Routes

Unknown (no peering with Compath Project)

improved routes

*(*1)* AJP – ASGC – AAR

*(*2)* AAR – ASGC – AJP