The 2nd Asia Tier Center Forum

มหาวิทยาลัยเทคโนโลยีสุรนารี

Wrap-up

L.Betev

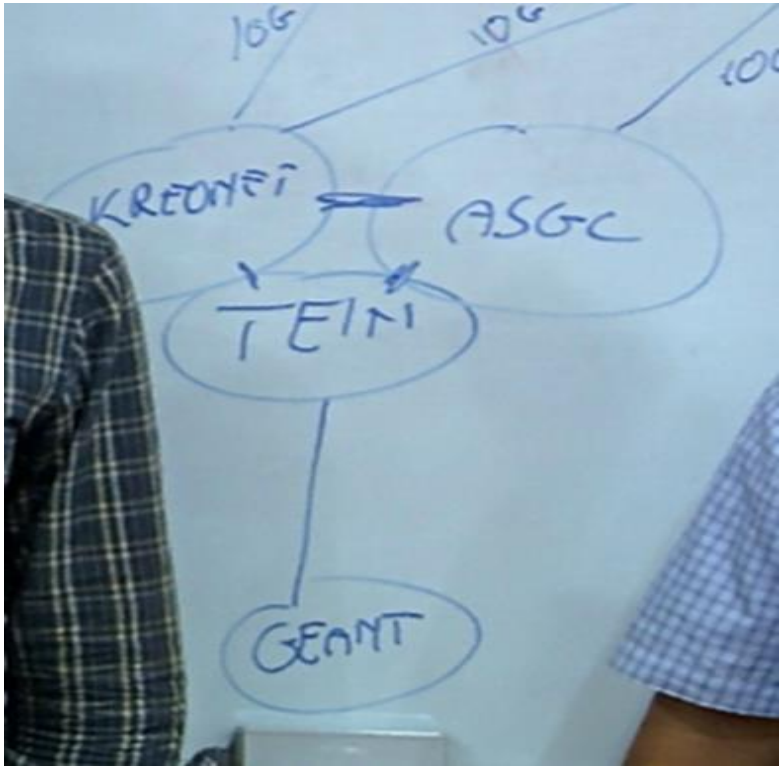
Status

- Asian sites are fast increasing their capacity
- Experiments programmes – current data taking + upgrade plans – foresee doubling up to 50x time more data

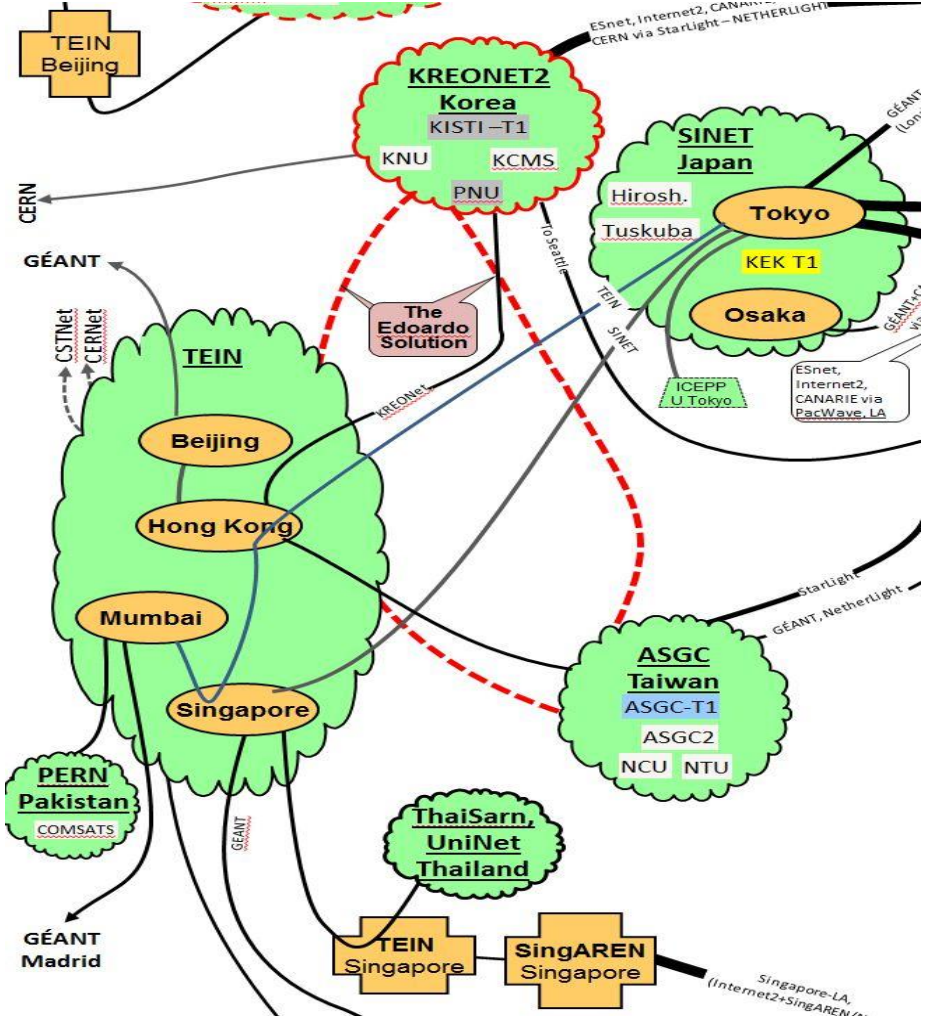
The two above combined together:

- Much higher use of network now and in the future
- Local (Aisan) connectivity is not yet optimal

The breakthrough of the 1st Asian Tier Centre forum

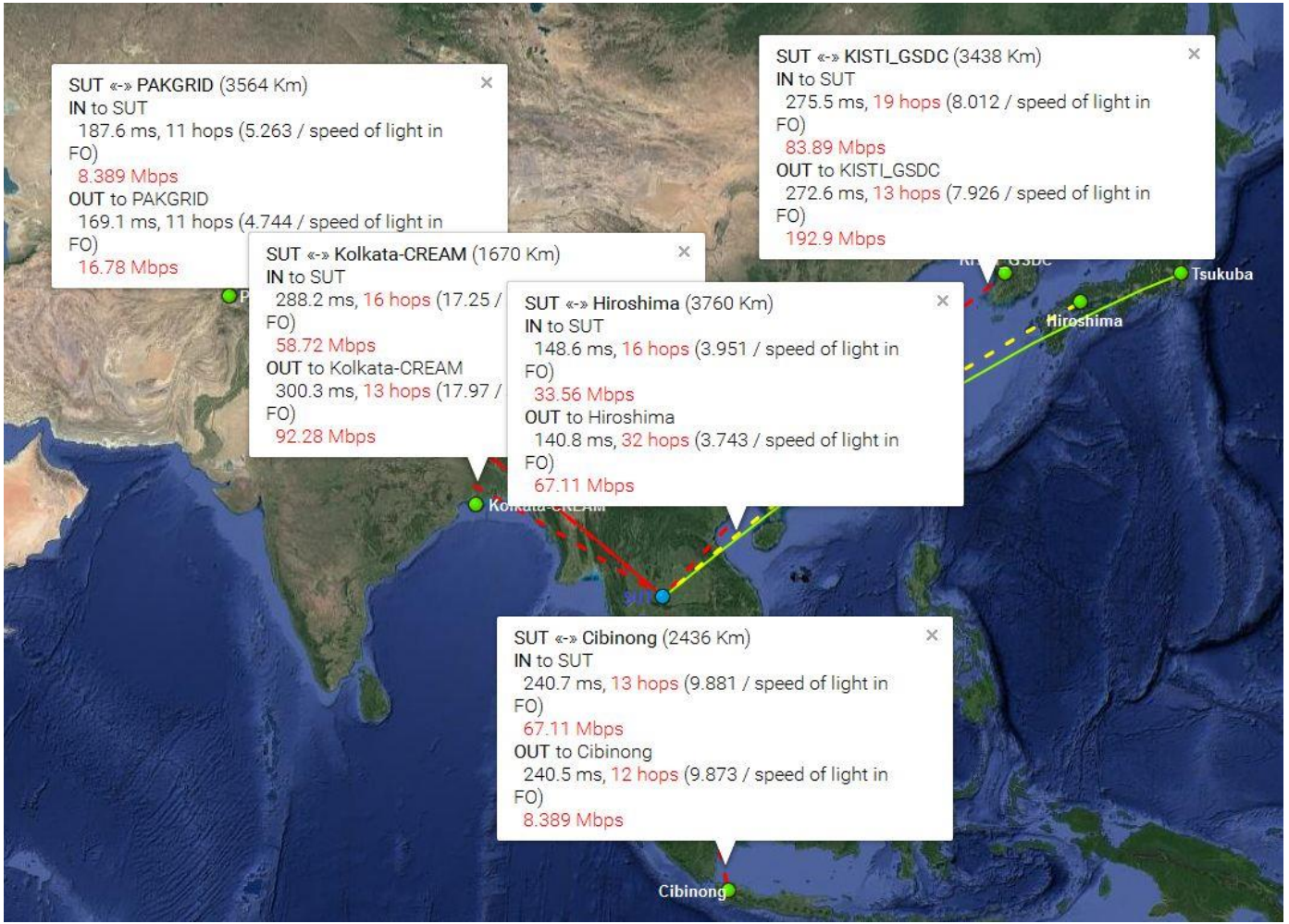


Now known as ‘The Edoardo Solution’

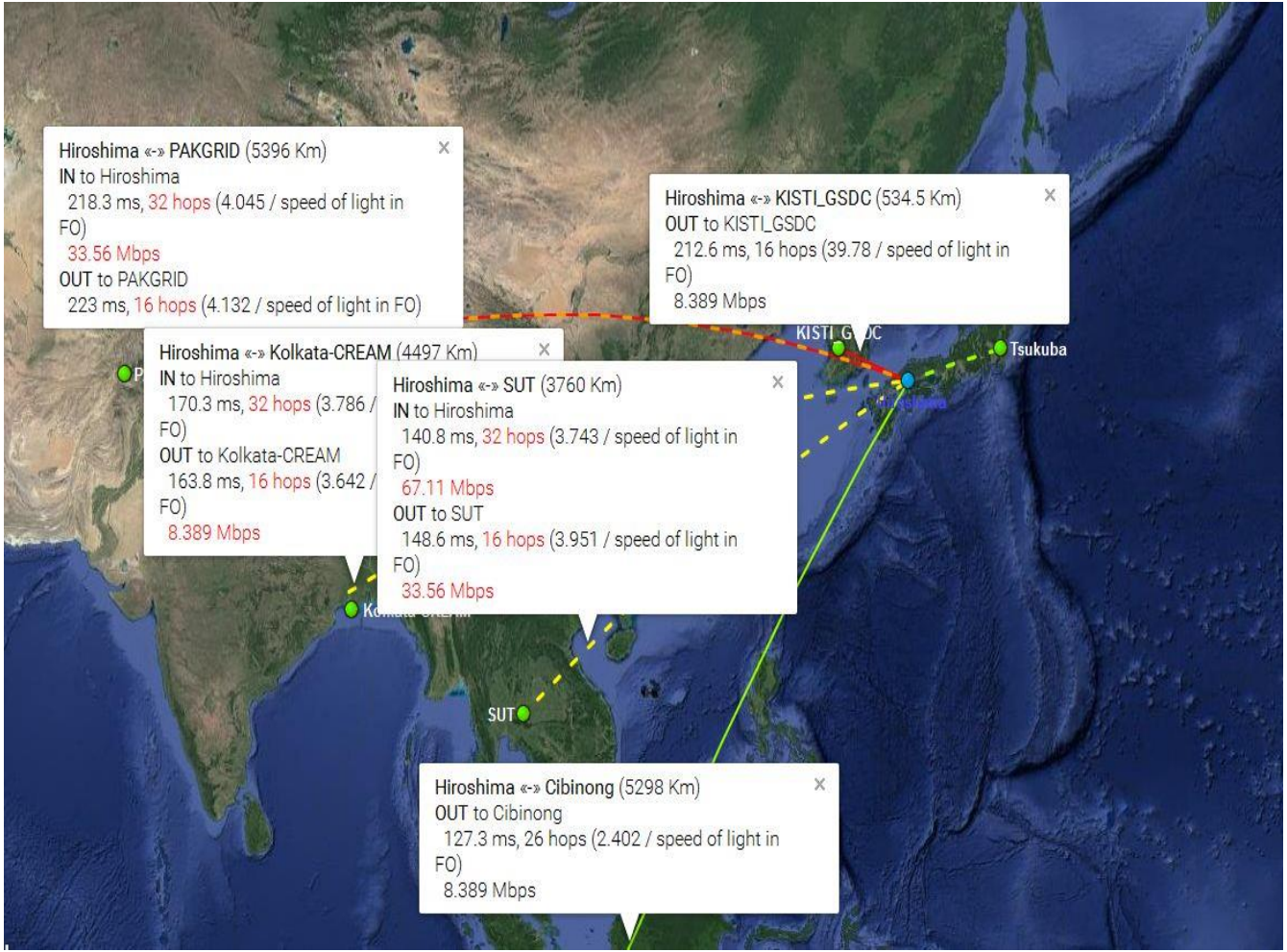


Source: LHCONE_v.3.4, William Johnston, ESNET

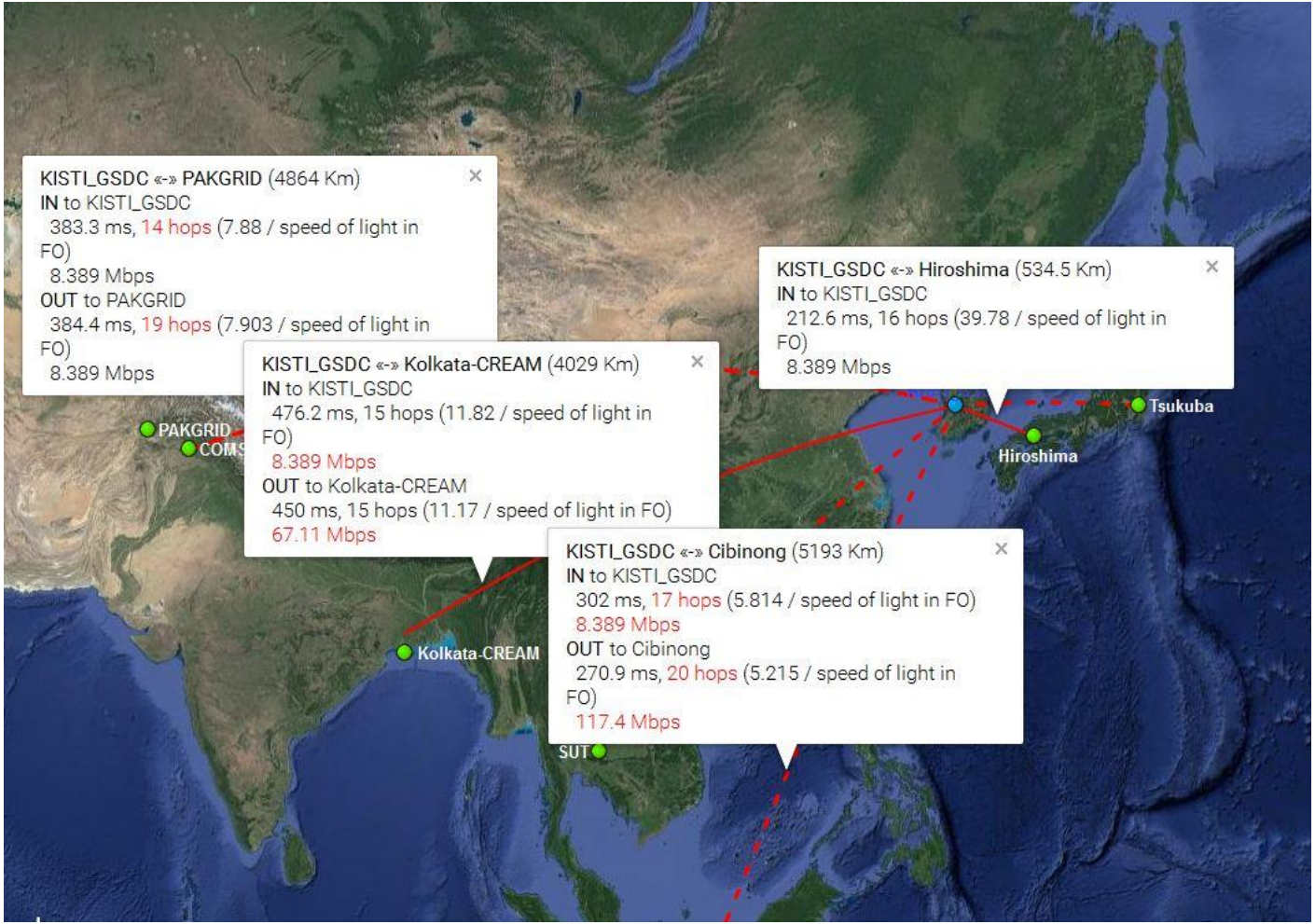
Status SUT


SUT «-» PAKGRID (3564 Km)
IN to SUT
187.6 ms, 11 hops (5.263 / speed of light in FO)
8.389 Mbps
OUT to PAKGRID
169.1 ms, 11 hops (4.744 / speed of light in FO)
16.78 Mbps
SUT «-» KISTI_GSDC (3438 Km)
IN to SUT
275.5 ms, 19 hops (8.012 / speed of light in FO)
83.89 Mbps
OUT to KISTI_GSDC
272.6 ms, 13 hops (7.926 / speed of light in FO)
192.9 Mbps
SUT «-» Kolkata-CREAM (1670 Km)
IN to SUT
288.2 ms, 16 hops (17.25 / FO)
58.72 Mbps
OUT to Kolkata-CREAM
300.3 ms, 13 hops (17.97 / FO)
92.28 Mbps
SUT «-» Hiroshima (3760 Km)
IN to SUT
148.6 ms, 16 hops (3.951 / speed of light in FO)
33.56 Mbps
OUT to Hiroshima
140.8 ms, 32 hops (3.743 / speed of light in FO)
67.11 Mbps
SUT «-» Cibinong (2436 Km)
IN to SUT
240.7 ms, 13 hops (9.881 / speed of light in FO)
67.11 Mbps
OUT to Cibinong
240.5 ms, 12 hops (9.873 / speed of light in FO)
8.389 Mbps
Tsukuba
Hiroshima
Cibinong

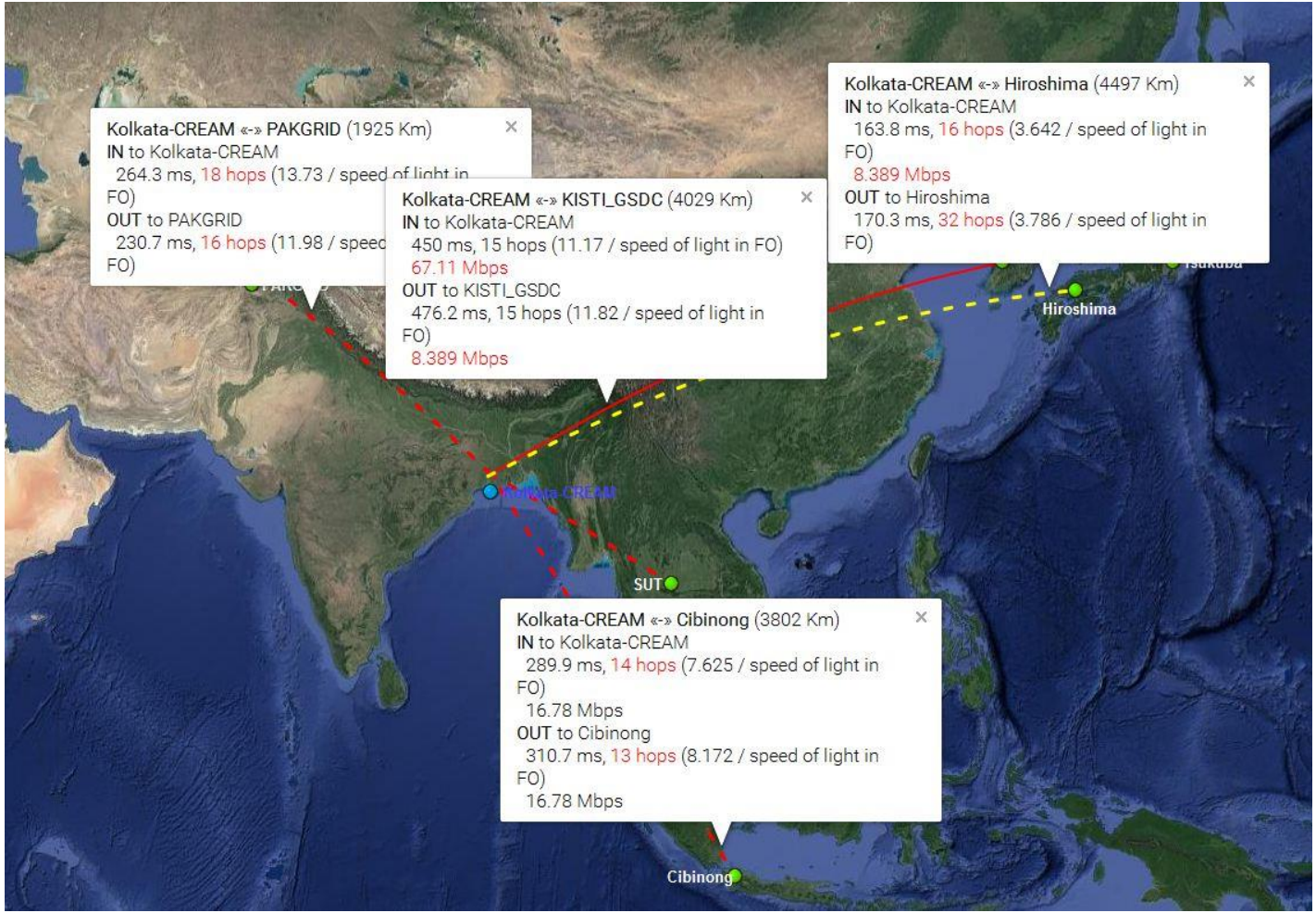
Status Hiroshima



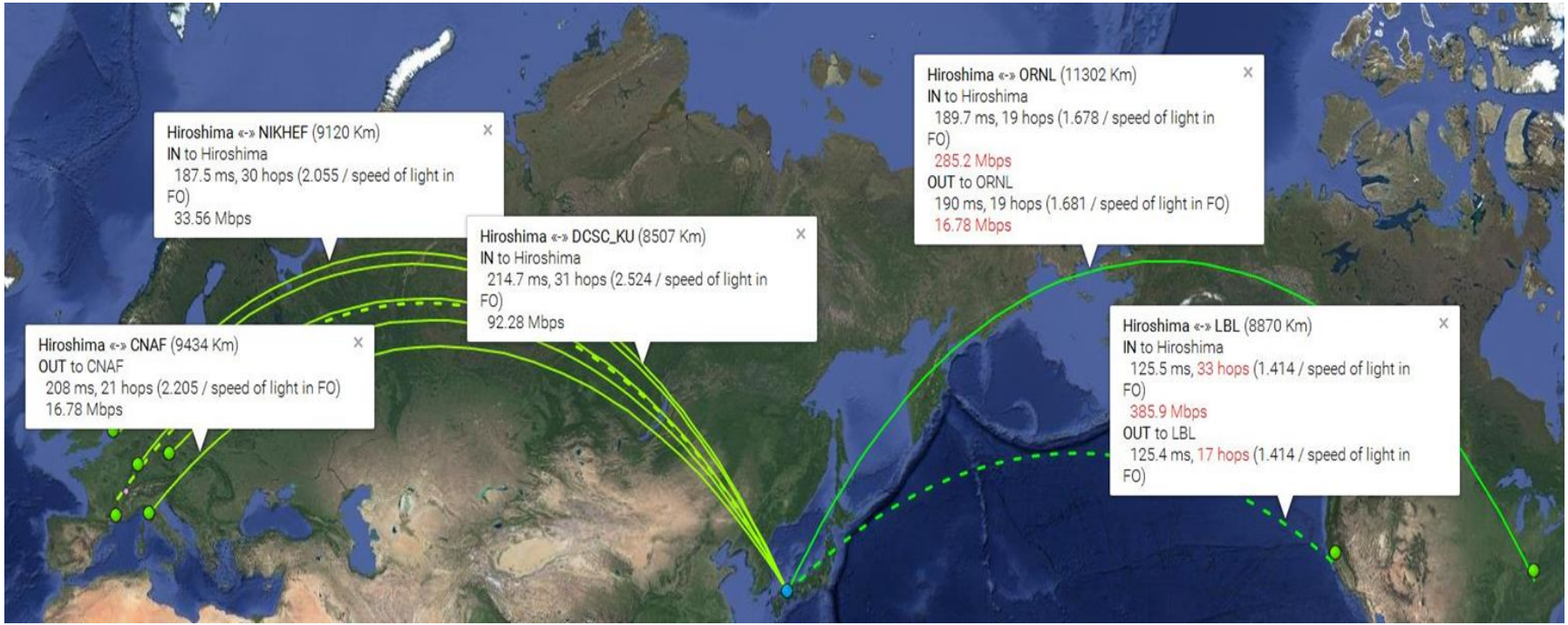
Status KISTI



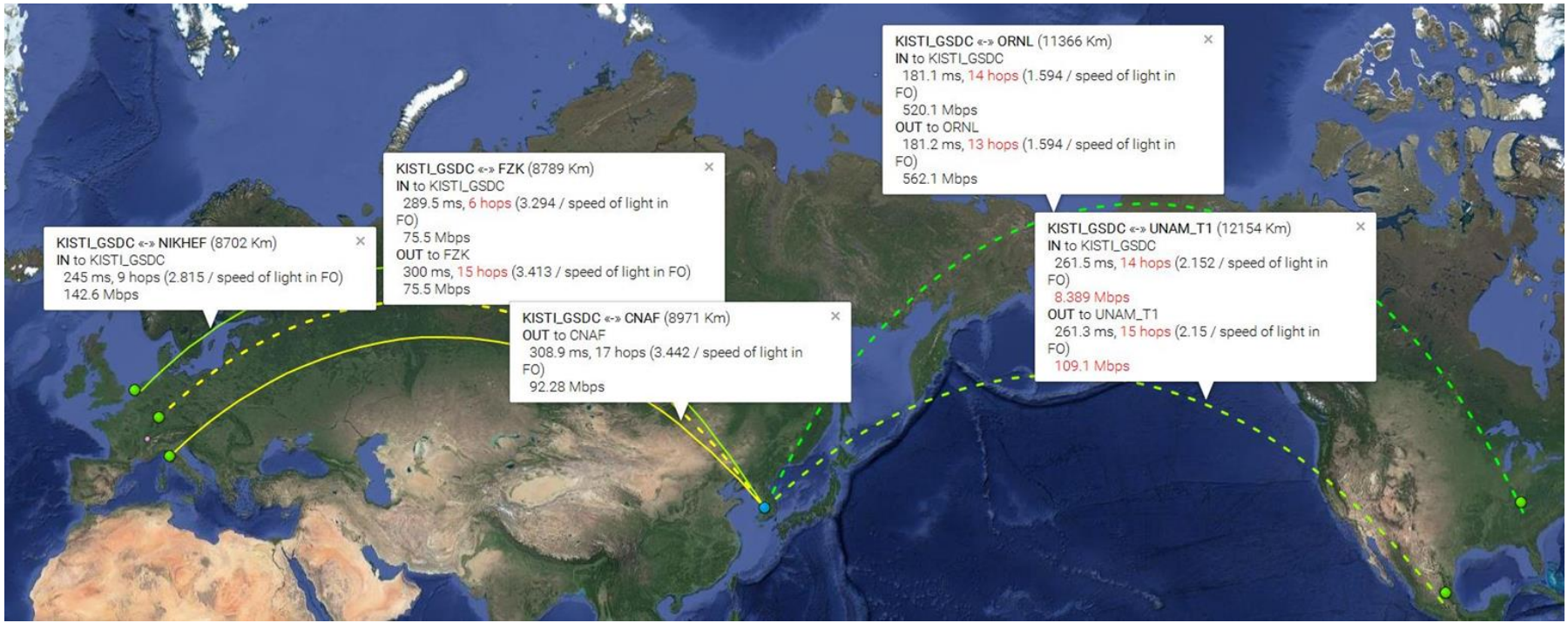
Status Kolkata



What about the others



What about the others



The long way around

Traffic between Asian countries must be routed within Asia (avoid transit to another continent or around the world)

Source: LHCONE update, Edorado Martelli, CERN

IT Information Technology Department

What is there

- Extensive know-how
- Sophisticated tools
- Experts ready to do the job and to consult
- Experiences and recipes from highly integrated, high-throughput networks (Europe, USA)
- **Generally well-developed Asian national networks with multi Gb internal bandwidth**
- Progress is being made through hard work of LHCONE experts and regional networks

Possible solutions

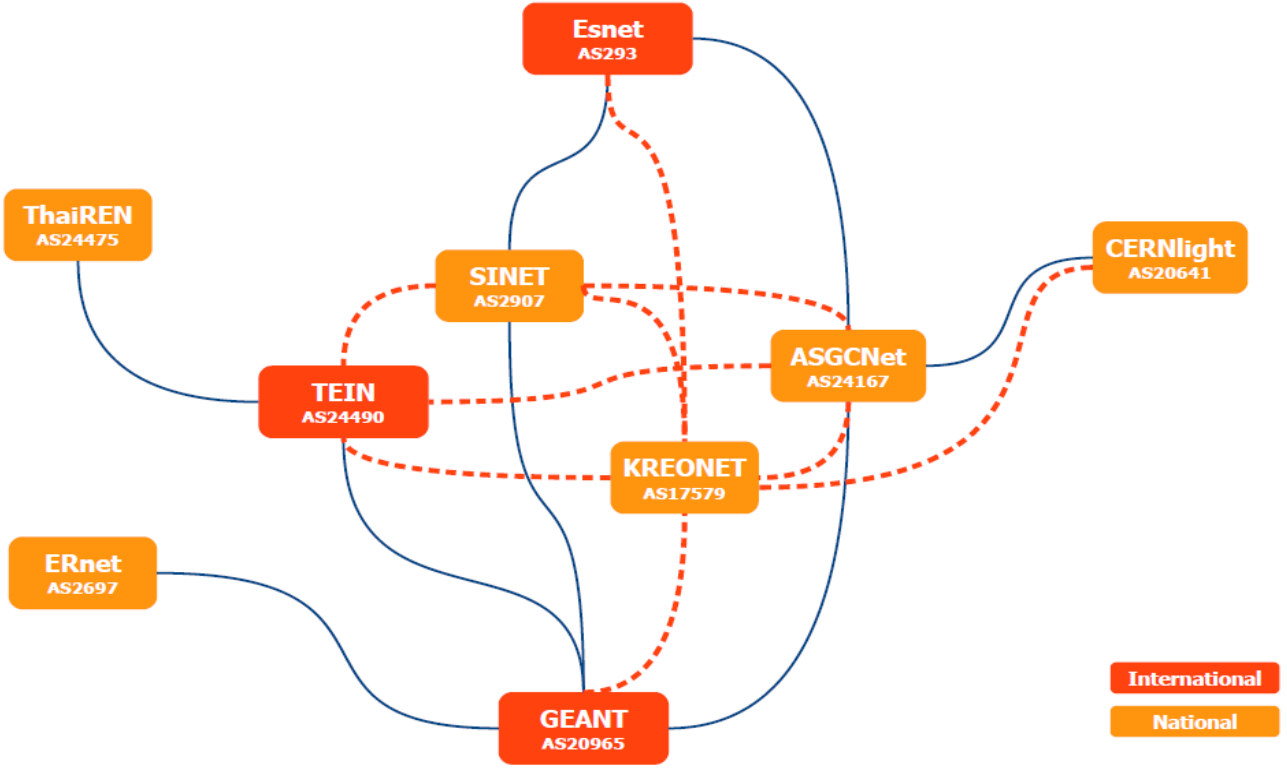
Low delay:

- Asian countries mesh networks together
- Asian countries get interconnected by common regional backbone

Full reachability:

- full mesh
- small VRFs get full transit from major operators

What is needed (The Edoardo+ solution)



Source: LHCONE update,
Edorado Martelli, CERN

Next step

- Asia-centric network meeting – extension of the ASIA-TIER workshop – **NREN experts + sites**
- Critical mass of representatives from both is essential

Thank you

- Chinorat Kobdaj for the perfect local organisation and hospitality!
    * and to the local support team
- Saung-Un Ahn for the programme preparation
- All presenters for the involving presentations
- It will be difficult to leave…

THE 2nd ASIA TIER CENTER FORUM
30 NOV - 2 DEC 2016
SURANAREE UNIVERSITY OF TECHNOLOGY
NAKHON RATCHASIMA , THAILAND