



**Korea Institute of
Science and Technology Information**



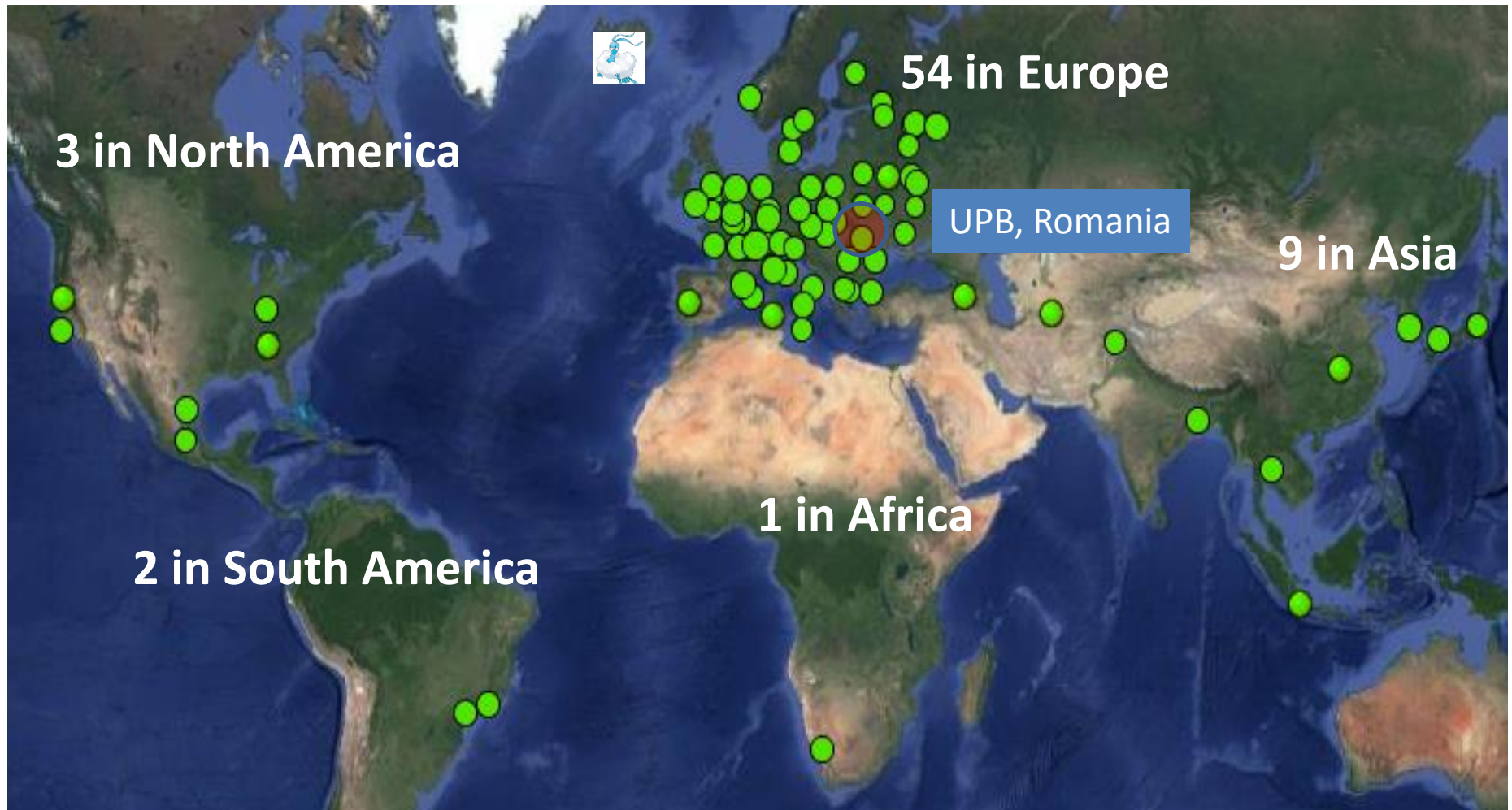
ALICE
A JOURNEY OF DISCOVERY

Asian sites in ALICE – progress on network

3-rd Asia Tier Center Forum
KISTI, Daejeon

12 October 2017
Latchezar Betev

The ALICE Grid today



New sites

- Basically unchanged since last year
- Additional T2 in Romania
- Commercial cloud resources are more prevalent
 - EU cloud, US (Oracle)

Job record – broken again

April 2016



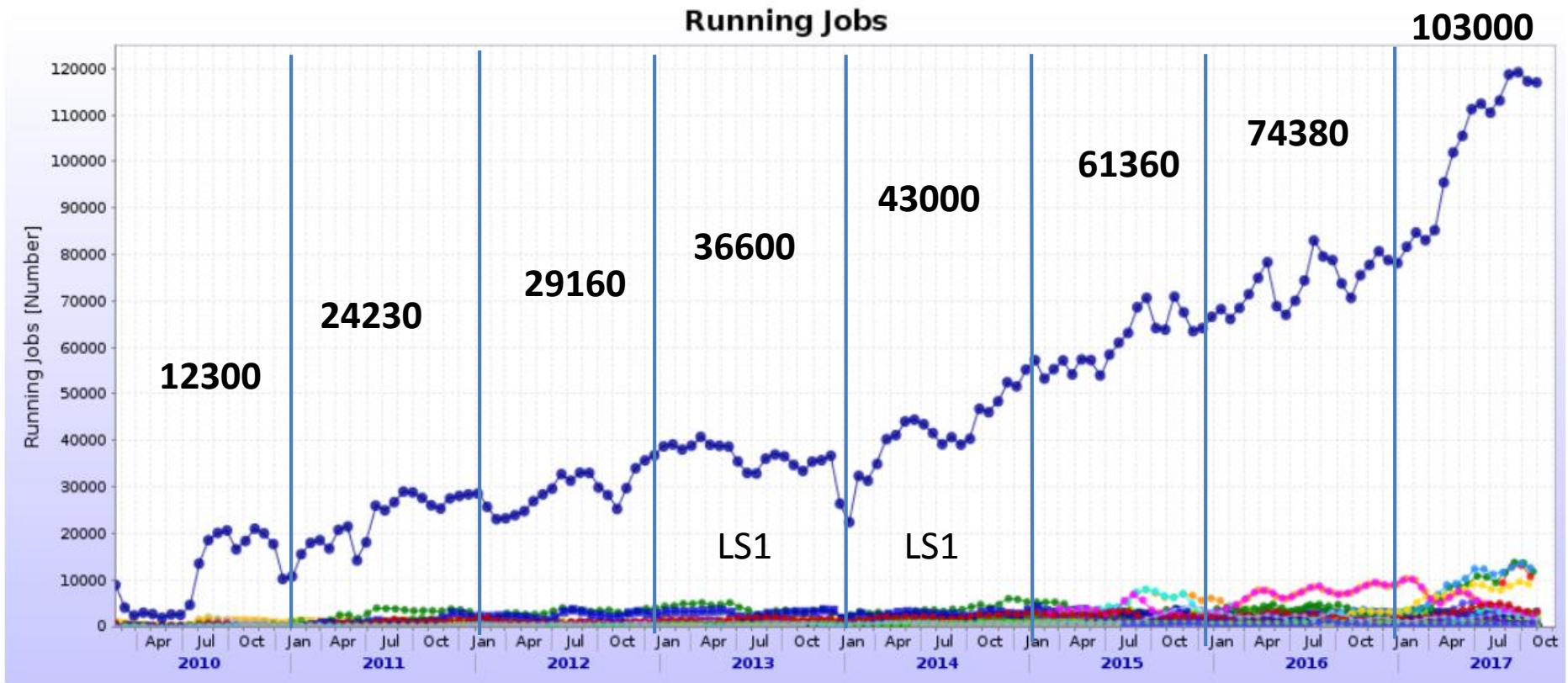
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April 2017



* This is not the highest we had, but you get the idea

CPU resources evolution



Year on year
increase



+97%



+20%



+26%



+17%



+43%



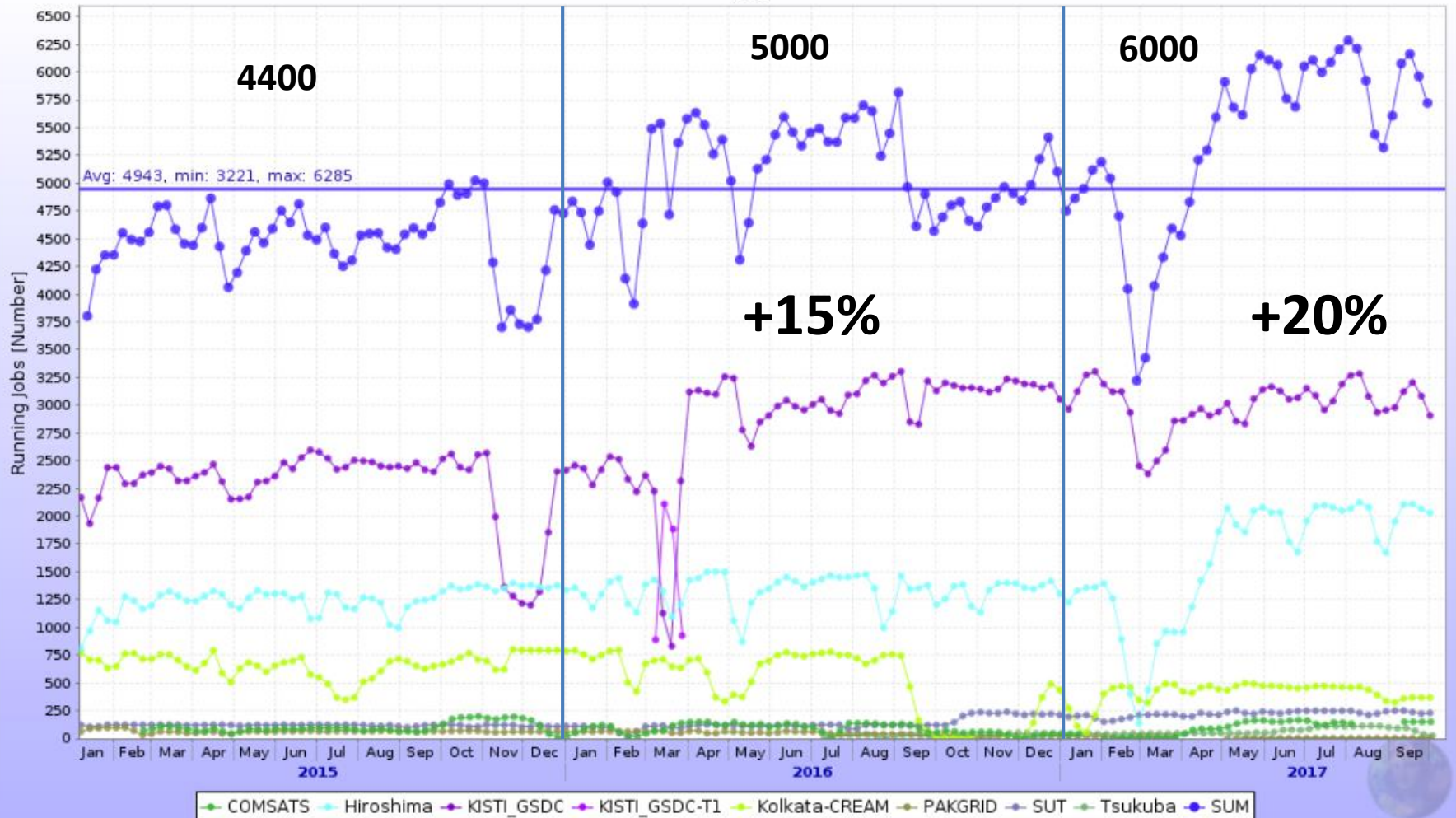
+21%



+38%

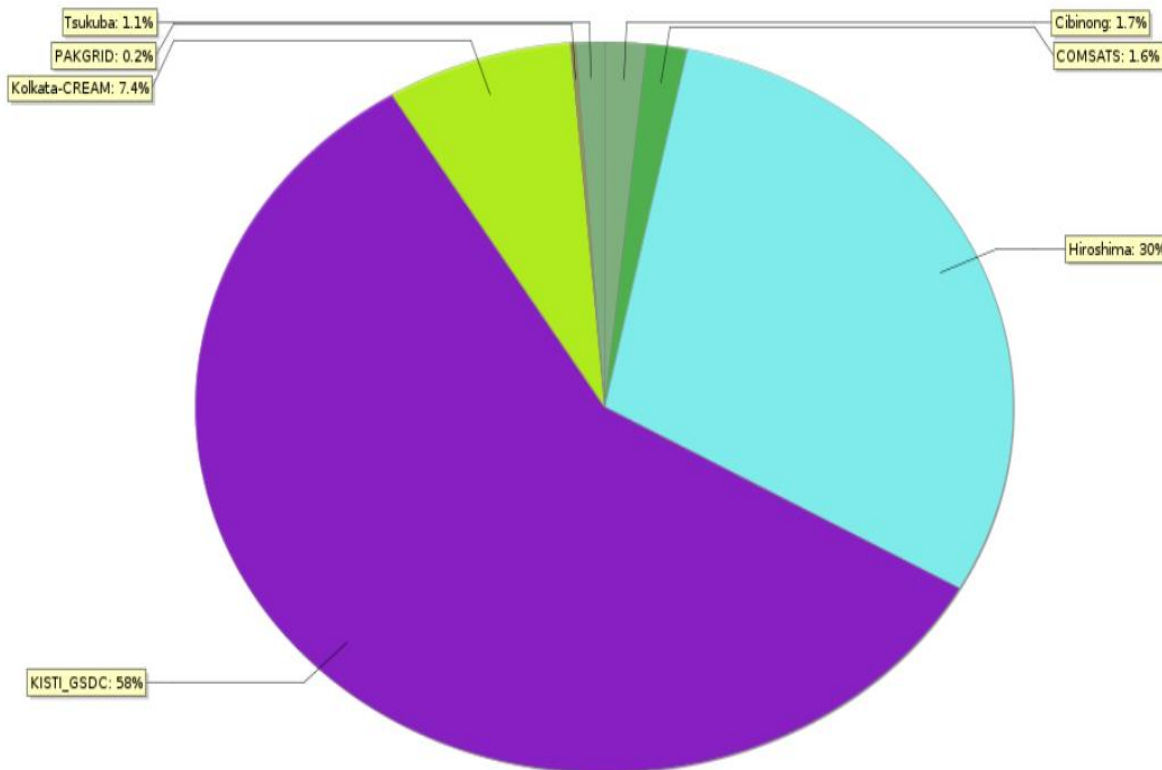
Resources evolution – Asia

Running Jobs

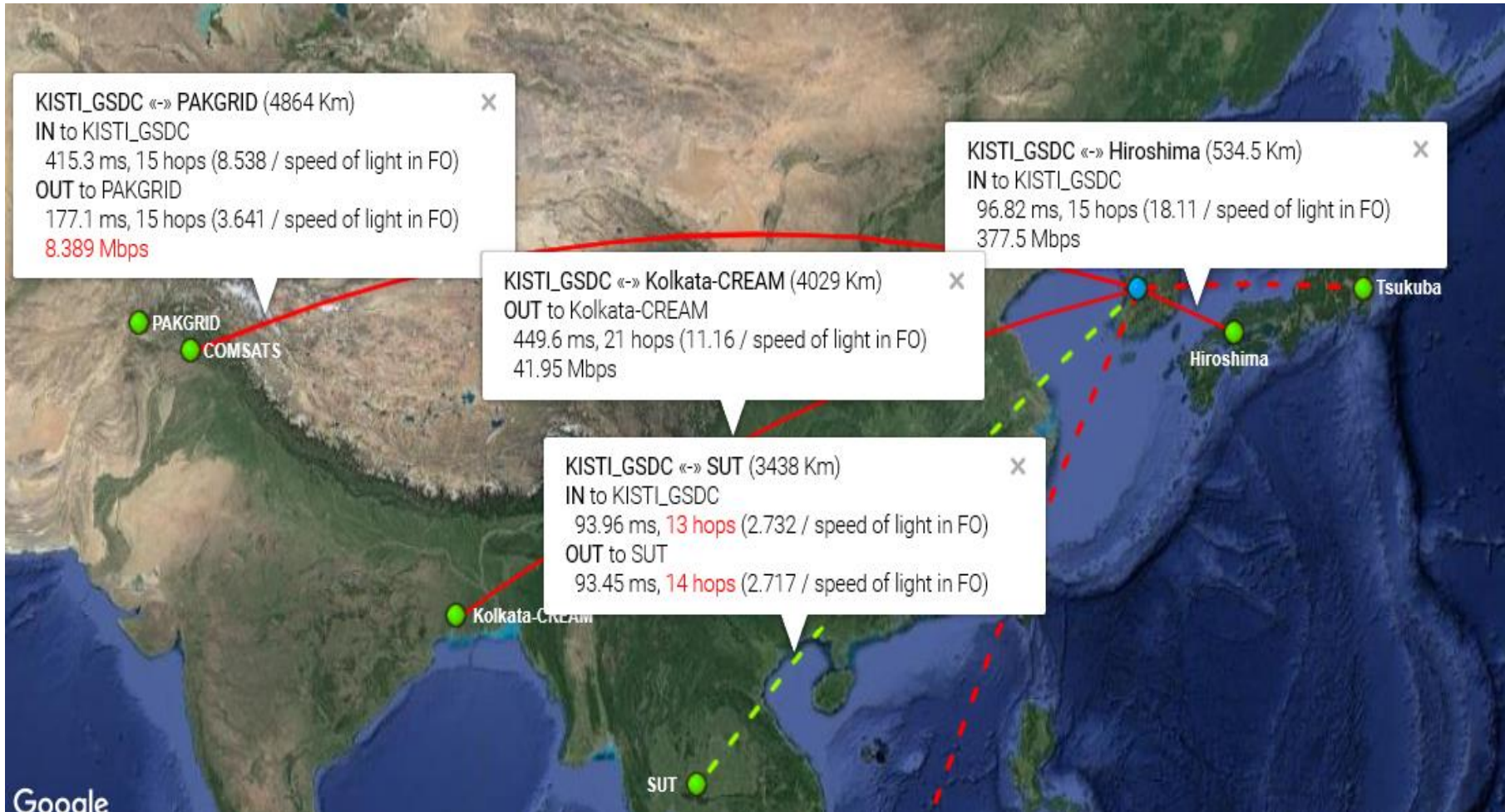


Resources evolution - Asia

- Robust growth of CPU and storage
- Relative contribution – 2 large sites contribute ~90% of total



Network KISTI-other Asian centres



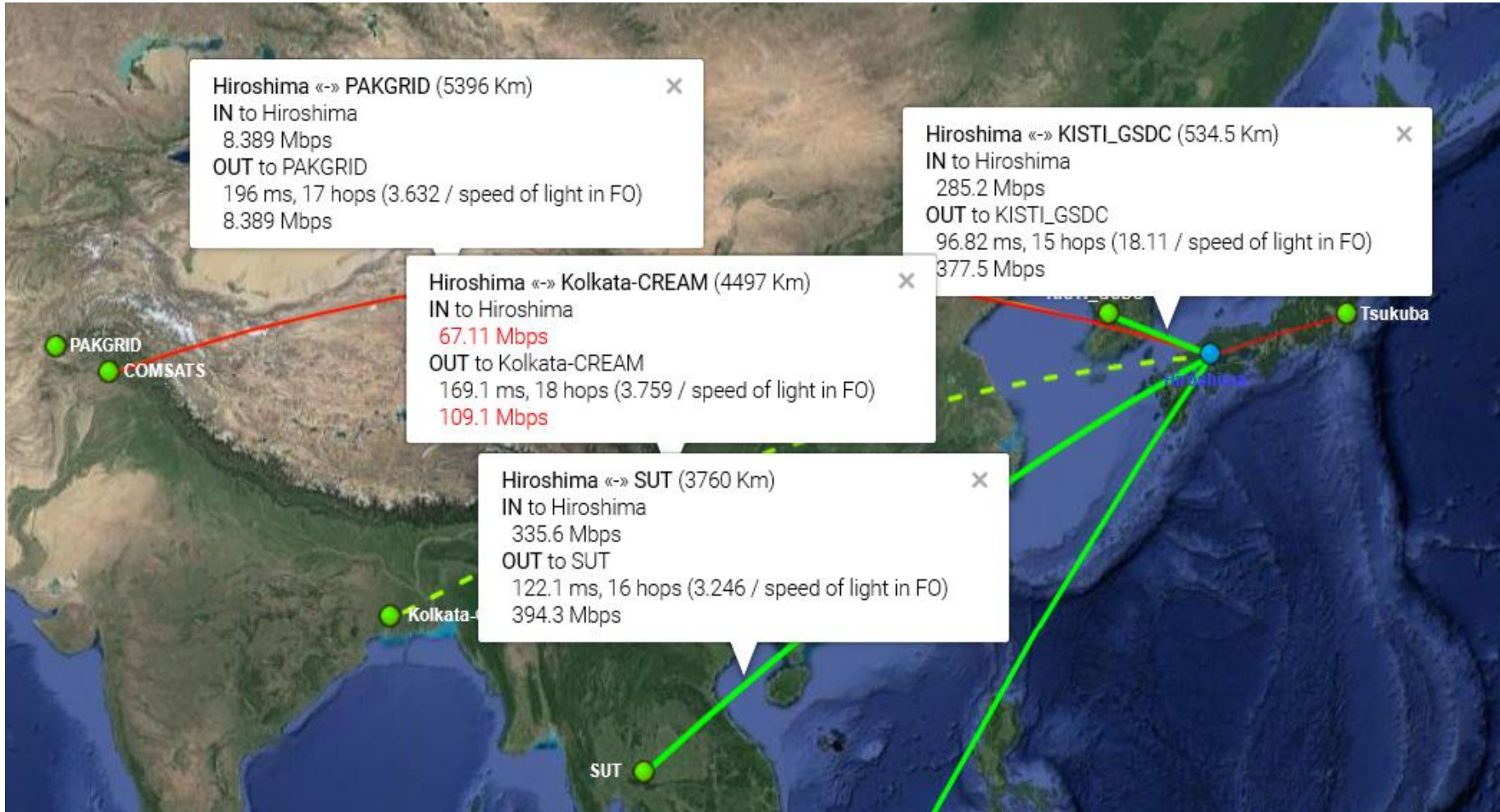
Status KISTI 2016



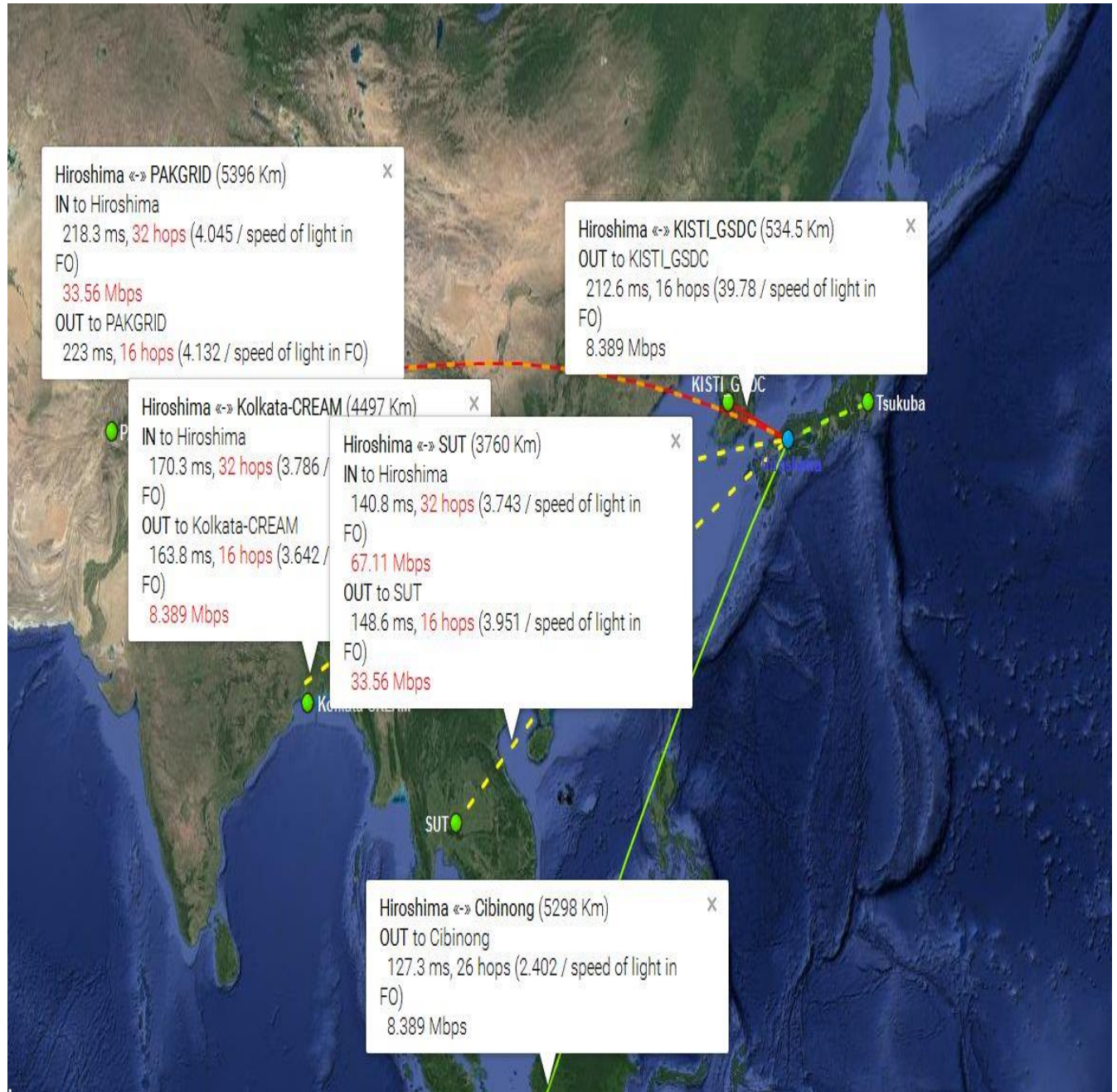
Evolution in 1 year for KISTI

- KISTI – Hiroshima (considerably better)
 - Now: RTT = 100ms, speed = 380Mbps
 - Was: RTT = 212ms, speed = 10Mbps
- KISTI – Kolkata (no change)
 - Now: RTT = 450ms, speed = 40Mbps
 - Was: RTT = 480ms, speed = 40Mbps
- KISTI – SUT (considerably better)
 - Now: RTT = 93ms, speed = 150Mbps
 - Was: RTT = 270ms, speed = 100Mbps
- KISTI – Pakistan and Indonesia – 10Mbps – no change

Network Hiroshima - other Asian centres



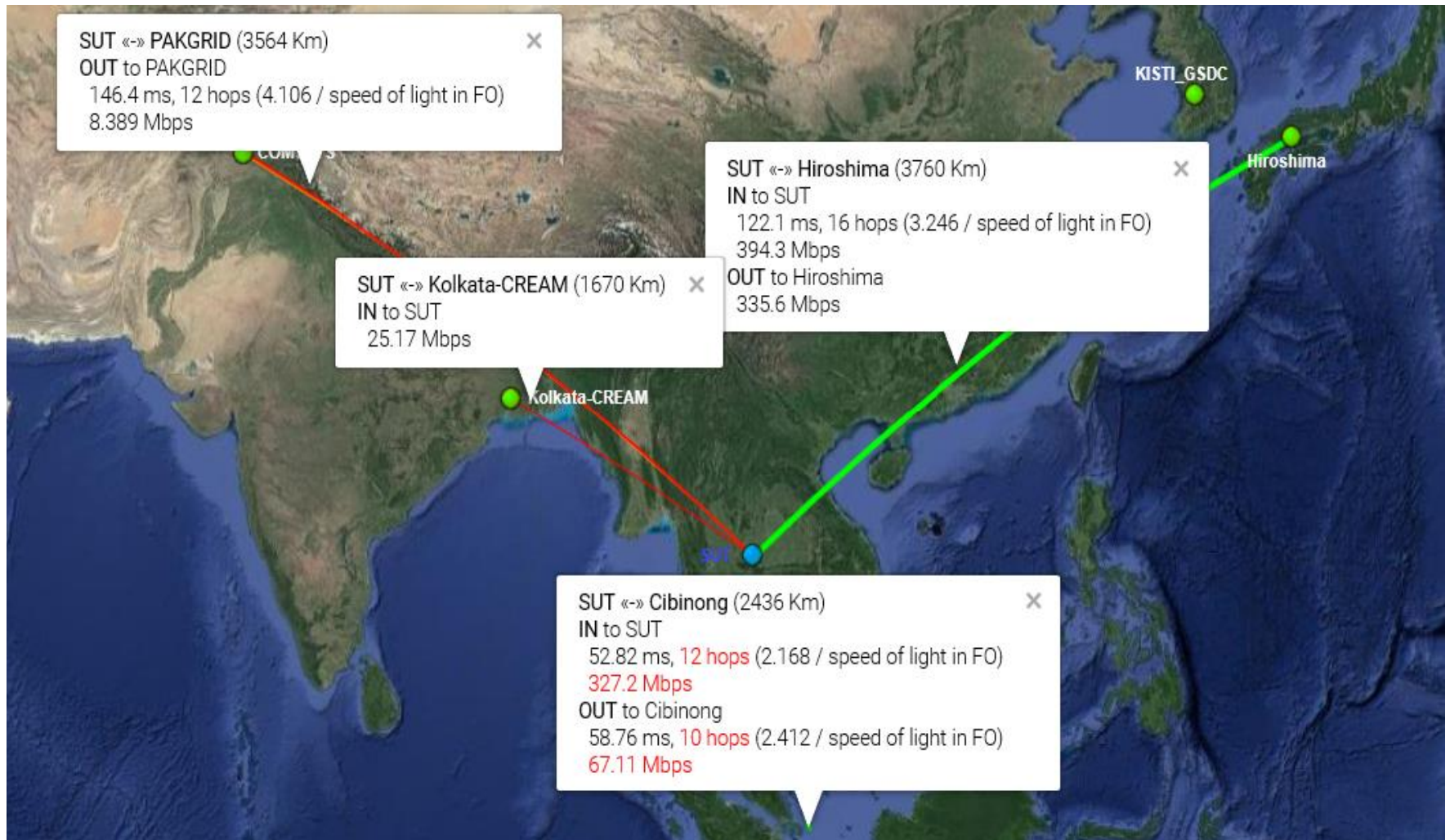
Status Hiroshima 2016



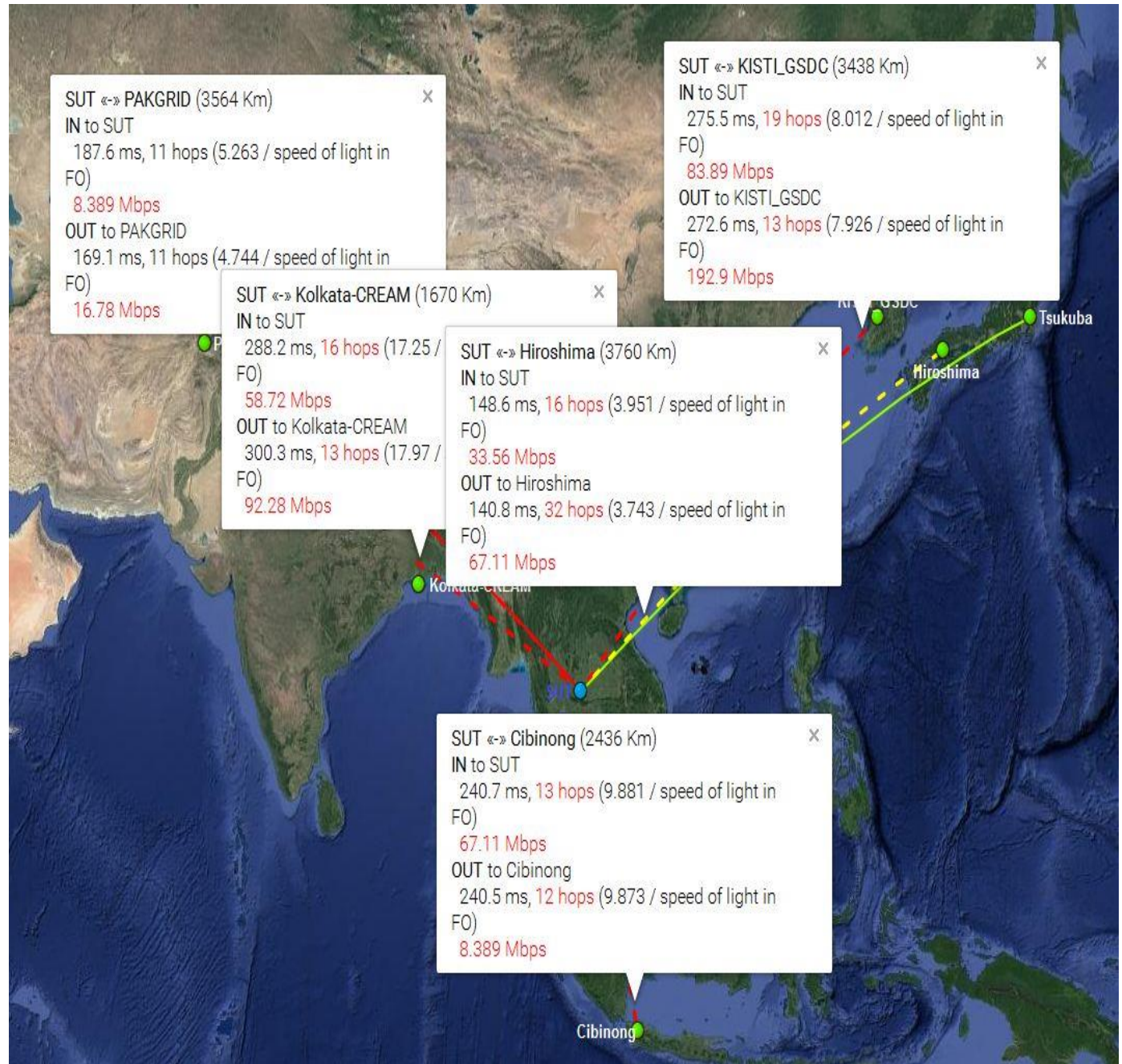
Evolution in 1 year for Hiroshima

- Hiroshima - KISTI (considerably better)
 - Now: RTT = 100ms, speed = 380 Mbps
 - Was: RTT = 212ms, speed = 10Mbps
- Hiroshima - Kolkata (considerably better)
 - Now: RTT = 170ms, speed = 80Mbps
 - Was: RTT = 170ms, speed = 10Mbps
- Hiroshima – SUT (considerably better)
 - Now: RTT = 120ms, speed = 400Mbps
 - Was: RTT = 140ms, speed = 40Mbps
- Hiroshima – Pakistan and Indonesia – 10 Mbps
- no change

Network SUT - other Asian centres



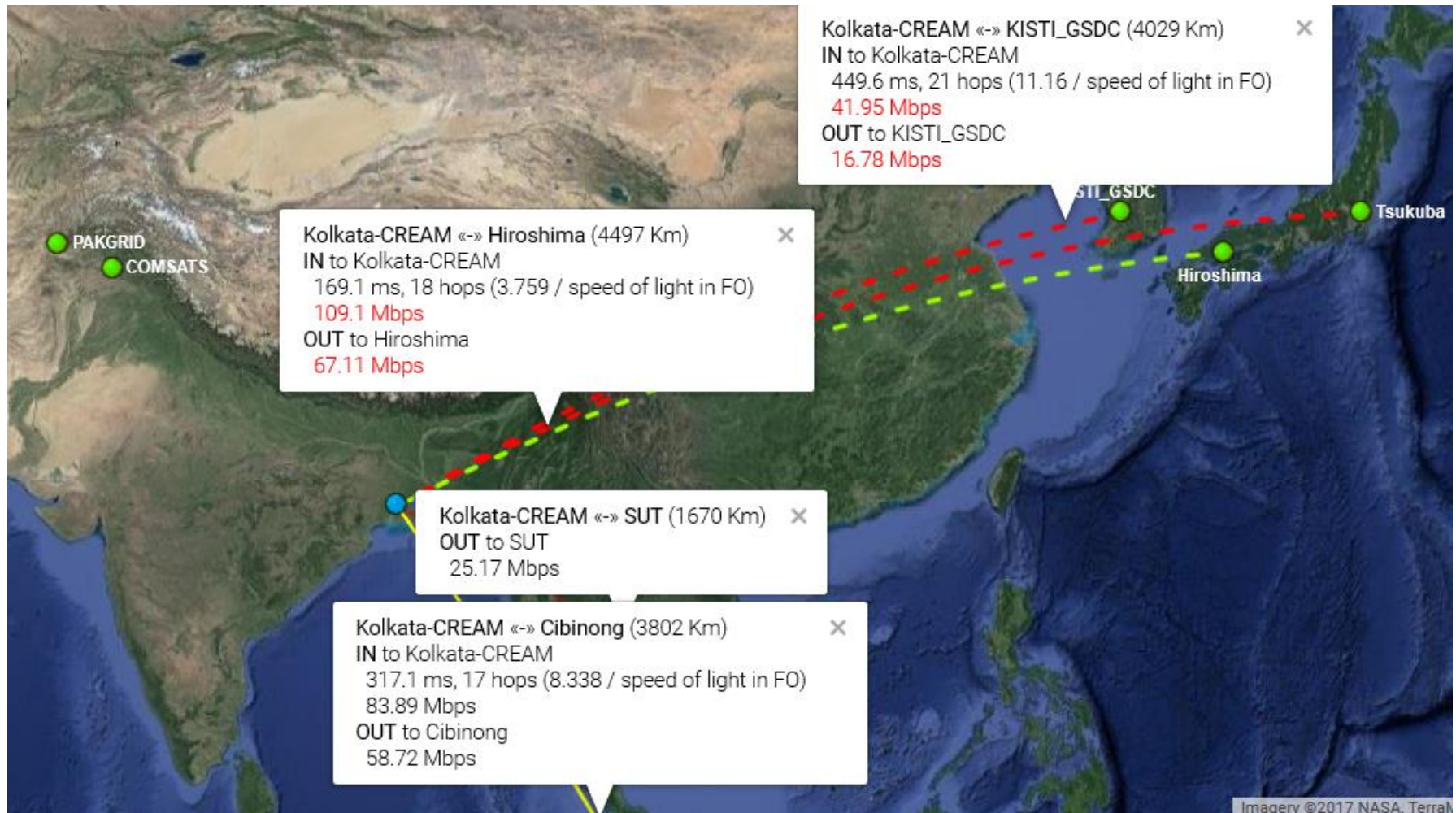
Status SUT 2016



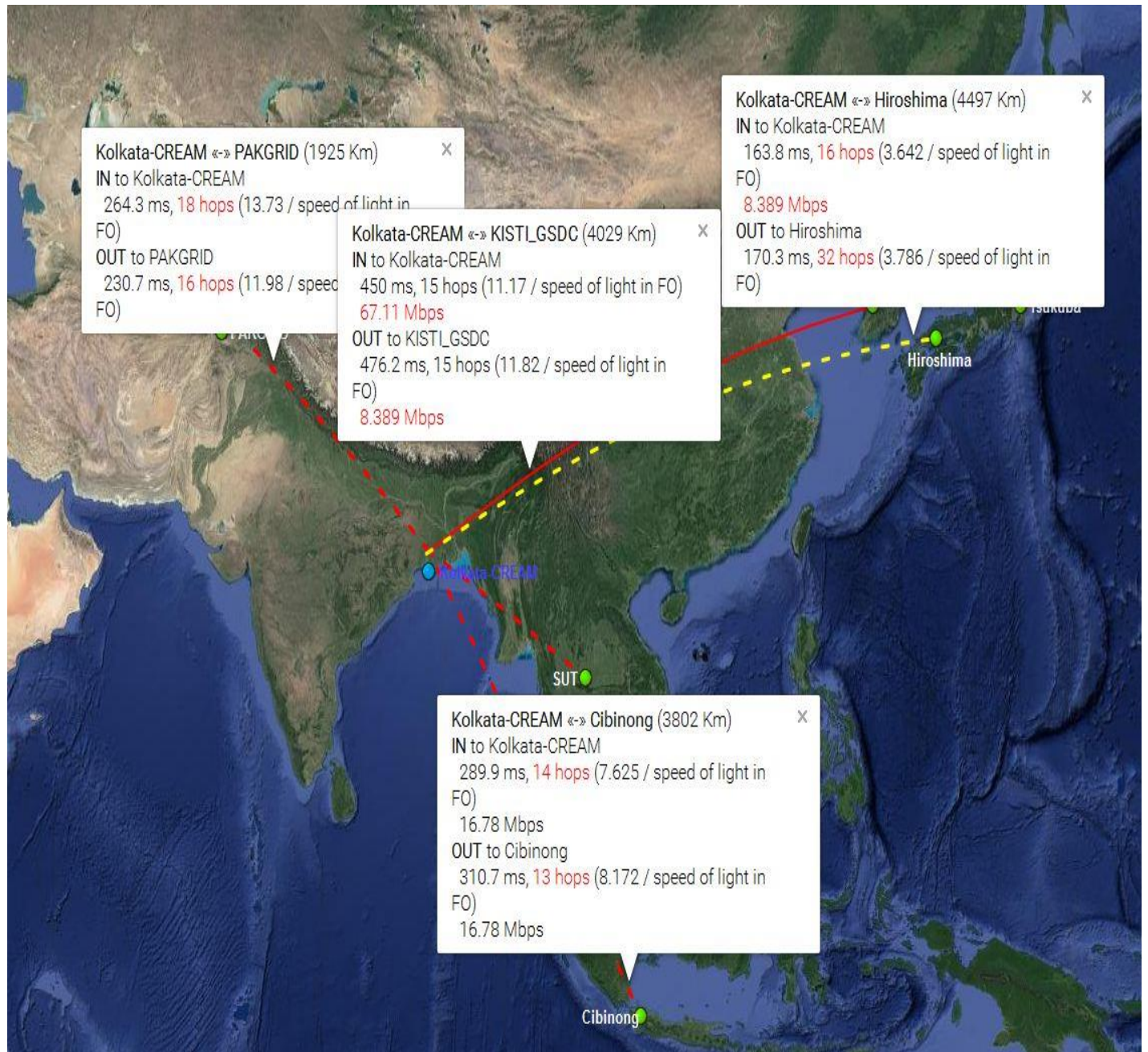
Evolution in 1 year for SUT

- SUT - KISTI (considerably better)
 - Now: RTT = 93ms, speed = 150Mbps
 - Was: RTT = 270ms, speed = 100Mbps
- SUT - Kolkata (congestion?)
 - Now: RTT = 300ms, speed = 25Mbps
 - Was: RTT = 300ms, speed = 80Mbps
- SUT – Hiroshima (considerably better)
 - Now: RTT = 120ms, speed = 400Mbps
 - Was: RTT = 140ms, speed = 40Mbps
- SUT – Pakistan – 10 Mbps, no change
- SUT – Cibinong
 - Now: RTT = 240ms, speed = 80-150Mbps OUT

Network Kolkata - other Asian centres



Status Kolkata 2016



Evolution in 1 year for Kolkata

- Kolkata - KISTI (no change)
 - Now: RTT = 450ms, speed = 50Mbps
 - Was: RTT = 480ms, speed = 50Mbps
- Kolkata - SUT (congestion?)
 - Now: RTT = 300ms, speed = 25Mbps
 - Was: RTT = 300ms, speed = 80Mbps
- Kolkata – Hiroshima (considerably better)
 - Now: RTT = 170ms, speed = 80Mbps
 - Was: RTT = 170ms, speed = 10Mbps
- Kolkata – Pakistan – 10 Mbps, no change
- Kolkata – Cibinong
 - Now: RTT = 300ms, speed = 10Mbps in, 80Mbps OUT

Summary evolutions

- Considerable improvement of the network connectivity between most of the Asian centres, especially the large entities
 - The network is not a limiting factor for efficient data movement between centres
- The smaller centres can still improve the peering to their neighbors
 - Not yet a bottleneck, limited amount of computing resources

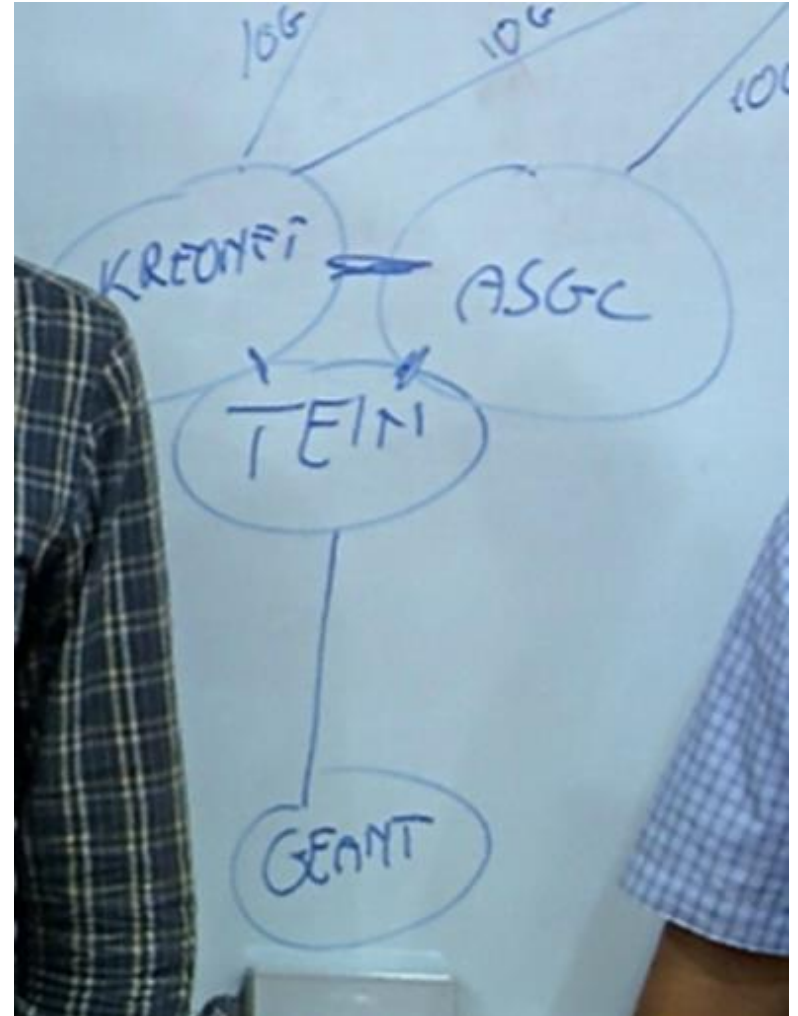
Summary resources

- Asian centres provide ~10% of the ALICE computing resources (+ a T1 site)
- This year we the growth is expected to be above average
 - Critical for the remaining 1 ½ years of Run2
 - Even more so for Run3 (ALICE is upgraded)
- The network connectivity between Asian sites is improving
 - Now to a point where it is fully adequate for the efficient data transfers between sites

**Many thanks to the KISTI team for
organizing the workshop**

**To all sites and experts for keeping the
pressure on the network providers – the
results are evident**

3 years ago



KISTI 2015 성과사례집



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