

# Introduction to Asia Tier Center Forum

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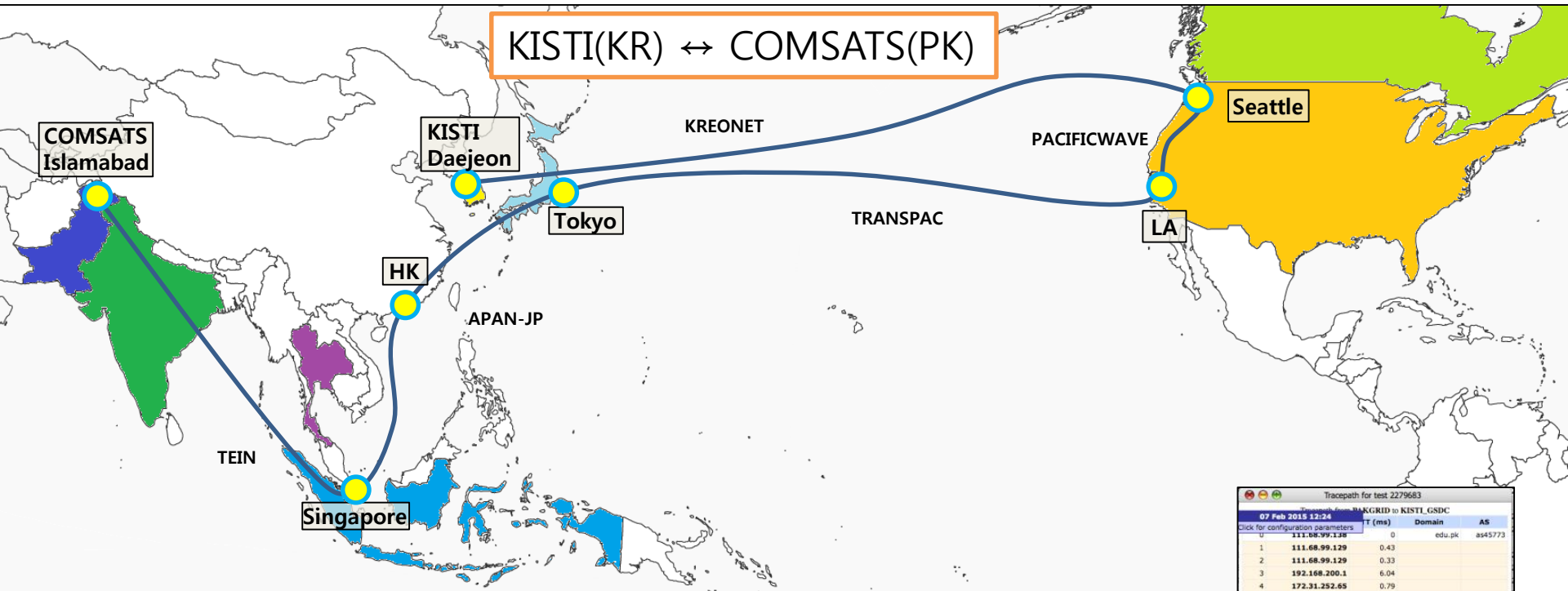
# Motivation

- Improving network environment among Asian Tier Centers
- At first, for only ALICE sites: KISTI T1 <-> ALICE T2 in Asia
- Note that T2s in Asia quite well connected via TEIN and APAN-JP
- KISTI T1 induced a kind of singularity to the stable field
- KISTI has its own backbone called KREONET, partner of GLORIAD

# Motivation

- Natural to think of taking the shortest route from T2 to T1 or vice versa
- No direct route to TEIN; possible through US & JP
  - Pacificwave (US) -> Transpac (US-JP) -> APAN-JP -> TEIN
- Geographically close but technically far
- Current situation: occasionally CERN or European site or US sites are effectively closer than KISTI T1 for ALICE T2 in Asia
- Inefficient routing paths
  - Best effort among possible paths instantaneously
  - Long distance -> more hops

# Example: Current Status



```
[root@vobox11 ~]# tracepath 111.68.99.138
17: [LOCALHOST] pmtu 1500
1: 134.75.125.2 (134.75.125.2) 9.817ms
1: 134.75.125.2 (134.75.125.2) 0.286ms
2: 203.250.102.5 (203.250.102.5) 0.308ms
3: rtr.seat.kreonet2.net (134.75.105.50) 120.033ms
4: abilene-1-lo-jmb-706.sttlwa.pacificwave.net (207.231.240.8) 120.118ms
5: et-10-0-0-114.rtr.losa.net.internet2.edu (198.71.45.26) 144.286ms
6: transpac-1-lo-jmb-702.lsanca.pacificwave.net (207.231.240.136) 150.037ms asymm 7
7: tokyo-losa-tp2.transpac.org (192.203.116.146) 149.931ms asymm 6
8: kote-dc-gm1-xe2-2-1-4005.jp.apan.net (203.181.248.249) 150.228ms asymm 7
9: sg-xe-01-v4.bb.tein3.net (202.179.249.77) 343.952ms asymm 13
10: 202.179.249.38 (202.179.249.38) 414.595ms asymm 24
11: no reply
12: no reply
13: no reply
14: no reply
15: no reply
16: no reply
17: no reply
18: no reply
19: pcncp25.ncp.edu.pk (111.68.99.138) 442.810ms reached
Resume: pmtu 1500 hops 19 back 37
```

Tracepath

30 hops

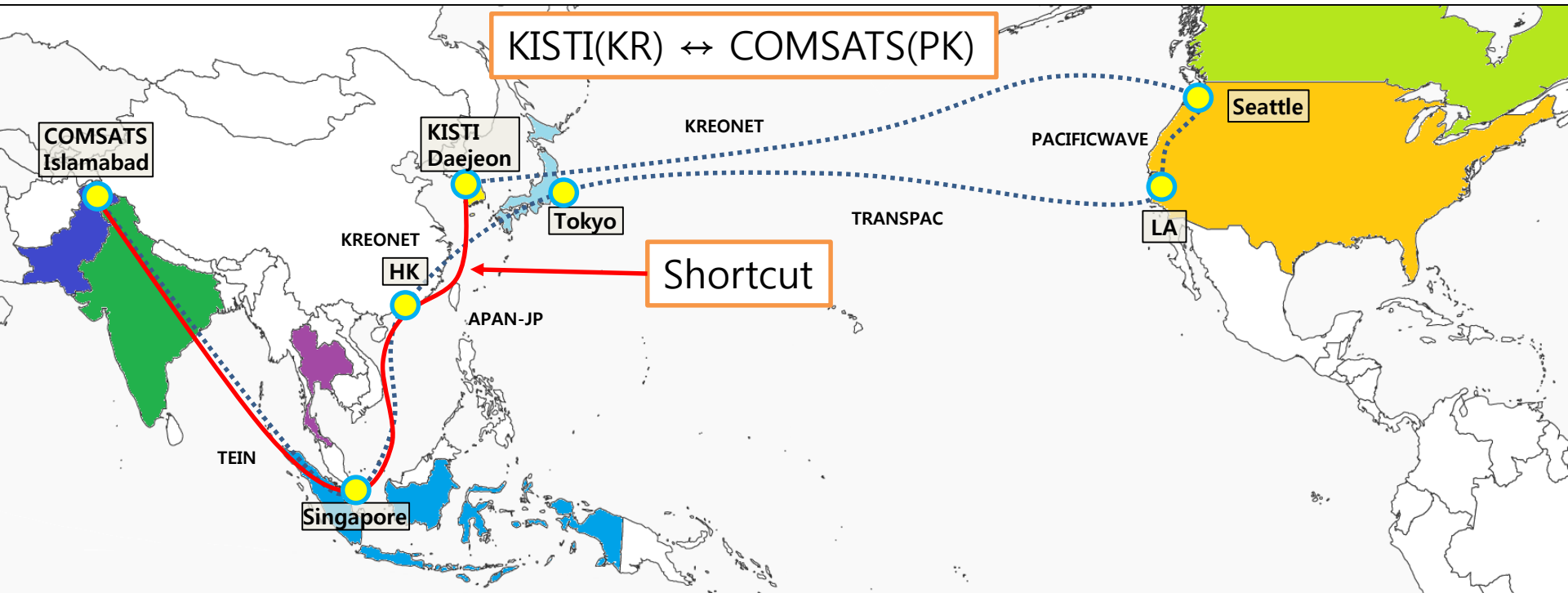
hops	IP	RT (ms)	Domain	AS
0	111.68.99.138	0	edu.pk	as45773
1	111.68.99.129	0.43		
2	111.68.99.129	0.33		
3	192.168.200.1	6.04		
4	172.31.252.65	0.79		
5	172.31.240.22	1.49		
6	172.31.240.13	2.04		
7	221.120.197.153	31.30		
8	221.120.251.29	34.44		
9	202.125.128.150	34.79		
10	149.6.155.25	146.42		
11	154.54.38.170	146.32		
12	154.54.38.173	146.83		
13	130.117.1.157	157.20		
14	154.54.29.117	227.96		
15	154.54.42.85	233.25		
16	154.54.31.125	239.56		
17	154.54.28.130	259.28		
18	154.54.28.70	264.92		
19	154.54.7.54	295.67		
20	38.104.84.190	317.27		
21	38.104.84.190	320.64		
22	112.174.87.233	423.92		
23	112.174.83.17	325.33		
24	203.234.255.166	443.79		
25	134.75.5.209	443.42		
26	134.75.5.209	448.22		
27	134.75.2.2	447.84		
28	134.75.105.114	448.33	kreonet2.net	as1237
29	203.250.102.2	452.02		
30	134.75.125.244	446.94	sdfarm.kr	as1237

Tracepath OK, target reached

# Simple thought

- Applying the most efficient paths to routers at T1 and T2s: the shortest paths (=less hops)
- Less hops -> low latencies -> larger TCP windows -> better performance with given bandwidth

# Shortest Path



# Think before act

- Is it really beneficial when we have the efficient(?) network environment?
- Even the situation can go worse: shortest path but what if the bandwidth is narrower?
- Requires exact diagnosis to each site
- Experts can help!

# Disclaimer

- Not imposing ALICE T2 in Asia to improve their network environment fitted into KISTI T1
- Responsibility of T1 as a regional center to seek out solutions providing better connected environment to T2s
- This forum could be just a start of the long journey to network consolidation in Asia



# Asia Tier Center Forum

- Unique place to discuss issues concerning network environment in Asia
- Plus, to have consultation from experts from CERN and ESnet concerning LHCONE
  - Note that there is a righteous workshop on LHCOPN/LHCONE taken place three times a year
- In addition, open to any topics common to Asia Tier Centers

# Agenda

- 10 Site reports with domestic/campus network status
  - T1: ASGC (TW), KISTI (KR)
  - T2: Tsukuba (new T2 for ALICE, JP), Wuhan (CN), Bandung (ID), TIFR (CMS T2, IN), Kolkata (IN), COMSATS (PK), SUT (TH), Hiroshima (JP)
- 3 LHCONE related talks
  - LHCONE Status (by Edoardo Martelli, CERN)
  - US implementation (by William Johnston, ESnet)
  - Guidelines for site configuration (by Michael O'Connor, ESnet)
- Joint session of TEIN & KREONET
  - Asia implementation (by Edoardo Martelli, CERN)
  - TEIN (by Patch Lee, TEIN\*CC) and KREONET (by Buseung Cho, KISTI) preparation for LHCONE
  - Current activity on TEIN-GLORIAD connection



# Next Actions

- Minutes and actions required (if any) will be documented and circulated
- Monitoring on site configuration and network environment through the forum
- Organizing the committee for ATCF to determine the agenda for the next forum
- All these are required to have an agreement among the participants
- Discussion has to be continued after the forum

# Organizers & Sponsors

Organizing Committee	General Chair	Sponsor
<p>Latchezar Betev (CERN)                      Edoardo Martelli (CERN)                      William Johnston (ESnet)                      Sunkun Oh (Konkuk University, Seoul)                      Heejun Yoon (KISTI, GSDC)                      Miyoung Yu (KISTI, GSDC)                      Jin Kim (KISTI, GSDC)                      Gungwon Gang (KISTI, GSDC)                      Sang-Un Ahn (KISTI, GSDC)</p>	<p>Pillwoo Lee (KISTI)                      Gwangjin Oh (KISTI)                      Seo-Young Noh (KISTI, GSDC)                      Haeng Jin Jang (KISTI, GSDC)                      Buseung Cho (KISTI, KREONET)</p>	<p>Ministry of Science, ICT and future Planning                      National Research Foundation</p>



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