



ATCF9 report

(on network matters)

LHCONE meeting #55 – KIT, Karlsruhe DE

9 October 2025

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Event

9th edition of the **Asian Tier Centre Forum**

Agenda at <https://indico.cern.ch/event/1566166/>

Hosted by University of Tsukuba, Japan

~ 45 people in presence

~ 10 people on Zoom

ATCF 9
The 9th Asian Tier Center Forum

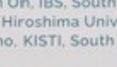
September 24-26, 2025
University of Tsukuba,
Center for Computational Sciences, Japan

Agenda:

- Network Connection
- Asian Tier Site Report
- Additional Resources (SC, etc.)
- Cooperation agenda in Asia (Whole node setting, VM, etc.)

ATCF Steering Committee:
Chinorat Kobdaj, SUT, Thailand
Kajari Mazumdar, TIFR, India
Sun Kun Oh, IBS, South Korea
Toru Sugitate, Hiroshima University, Japan
Kujin Cho, KISTI, South Korea

ATCF Local Organizing Committee:
Byungyun Kong, KISTI, South Korea
Tatsuya Chujo, University of Tsukuba, QGP Int. Research Center, Japan

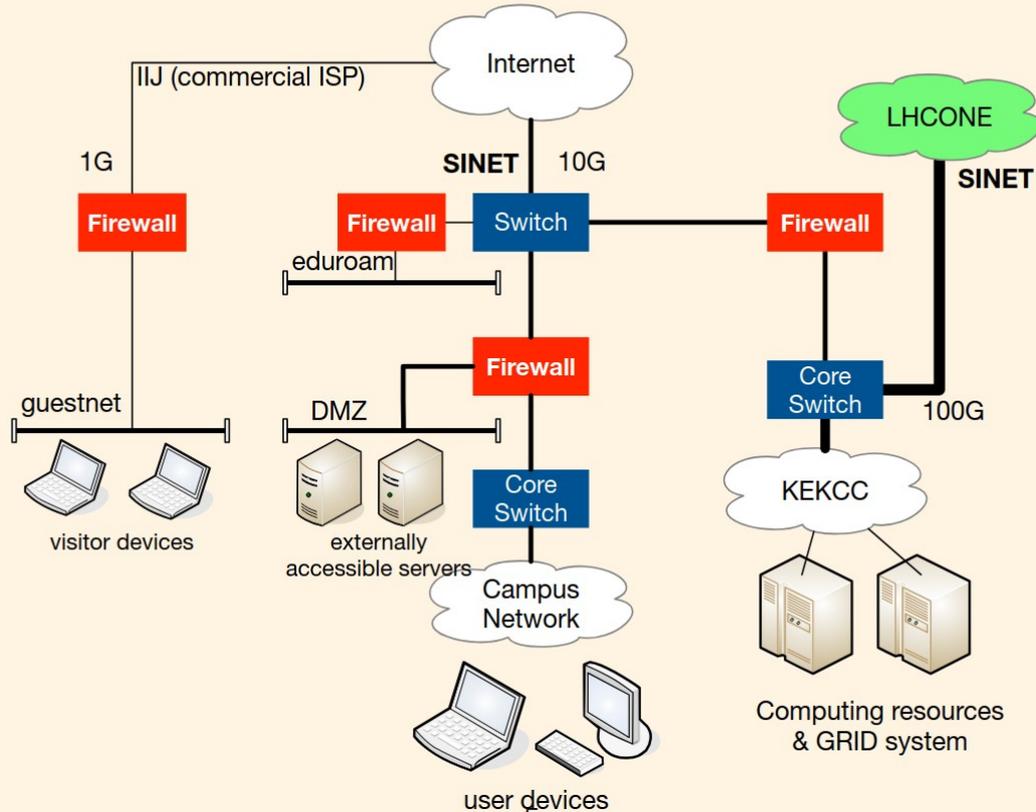
   

WLCG sites in Asia



Status and Evolution of KEK's Computing

Logical map of KEK network



KEK Networking - LHCONE

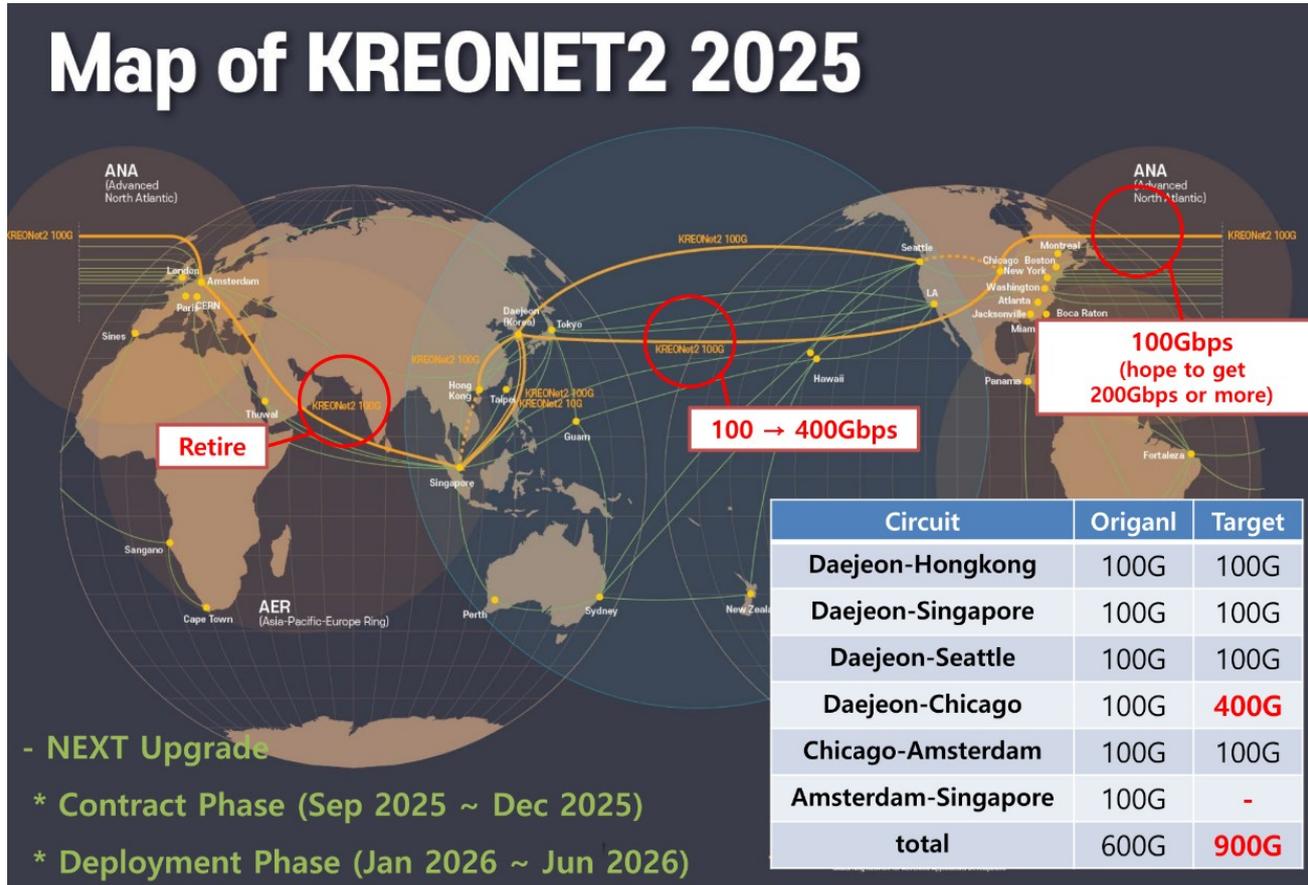
JGN will stop providing LHCONE on its link
Tokyo to Hong Kong

APAN-JP (AS7660) will support the
connectivity of JP-HK provided by
JUCC/SingAREN



KREONET status and evolution

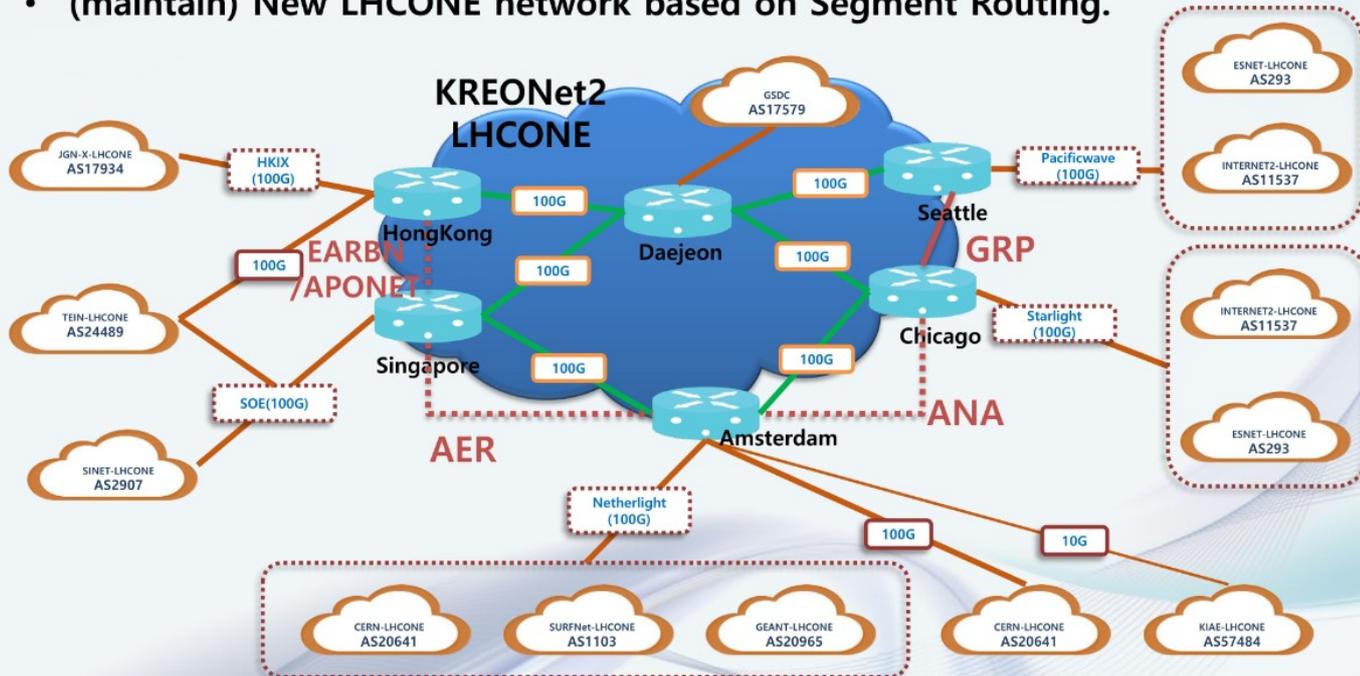
- Phased out 100Gbps link to Amsterdam
- Increased bandwidth to Chicago: now 400Gbps



KREONET - LHCONE

LHCONE on KREONet2(2025)

- (2025) Added LHCONE peer(SINET, TEIN) on Singapore
- (2025) Added LHCONE Backup Path between Seattle and Chicago.
- Incomplete backup paths sometimes create problems in LHCONE
- (maintain) New LHCONE network based on Segment Routing.



IHEP/CAS Tier1 and Tier2

Network for BEIJING-T1



• LHCOPN@IHEP

- 20Gbps bandwidth ensured
 - ◆ Exceeding the original number of 10Gbps
- 3 links redundancy

• LHCONE@IHEP

- 100Gbps bandwidth Shared
- WLCG is the largest user of the links



ATLAS Tier2 at Tokyo/ICEPP

Network Connectivity

Tokyo Tier2 Regional Center (RC) ↔ SINET6

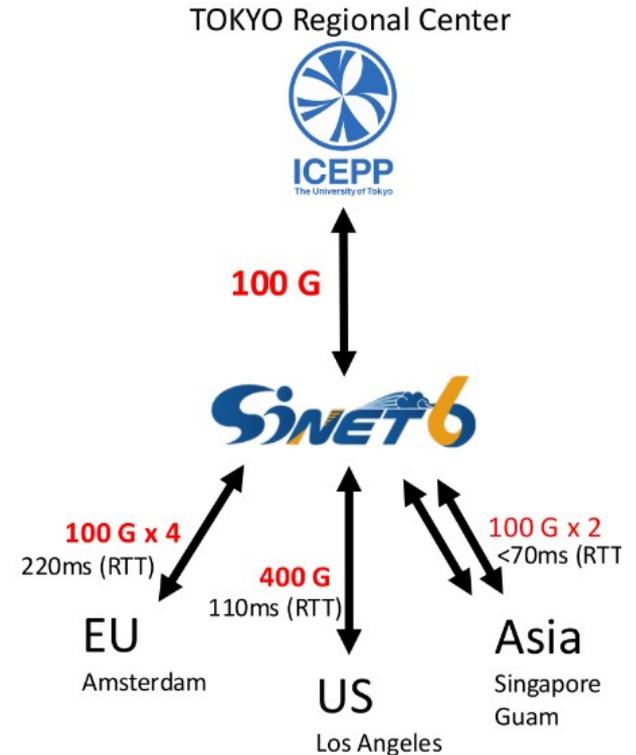
- Tokyo regional center is connected to SINET6.
- Bandwidth is 100 Gbps (since January 2024).

SINET international connections

- Connected to major global hubs via multiple 100+ Gbps
 - Amsterdam, Los Angeles, Singapore, Guam

Record

- Data transfer volume:
 - 50 PB (inbound) + 32 PB (outbound) per year → **~220 TB / day**
- Dominant transfer region is Europe, followed by North America.

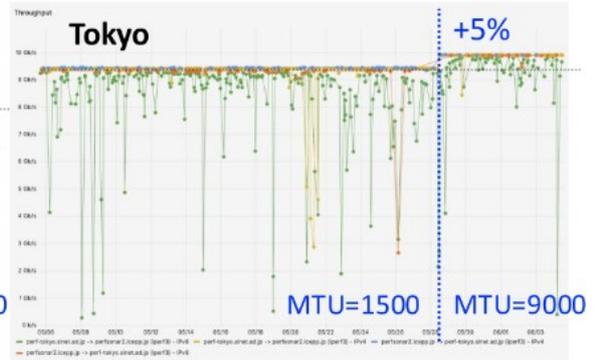
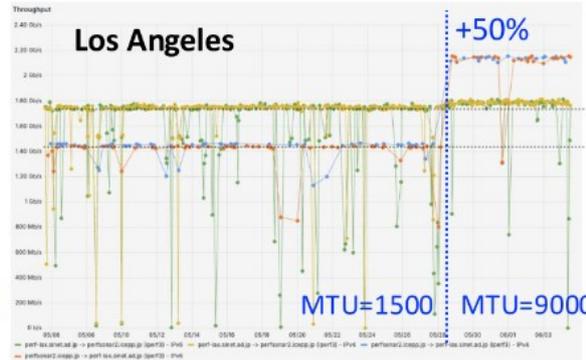
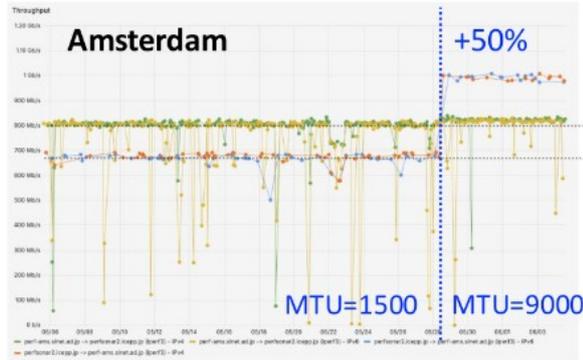


ATLAS Tier2 at Tokyo/ICEPP

Network R&D: Jumbo Frame

TOKYO-LCG2 Perfsonar ↔ SINET Perfsonar

Tokyo → Others (IPv4) Others → Tokyo (IPv4)
Tokyo → Others (IPv6) Others → Tokyo (IPv6)



After changes MTU to 9000

- Outbound(● ●): Significant improvement, especially to distant sites
- Inbound(● ●): little improvement → Under investigation
 - Likely due to TCP window auto-tuning issues

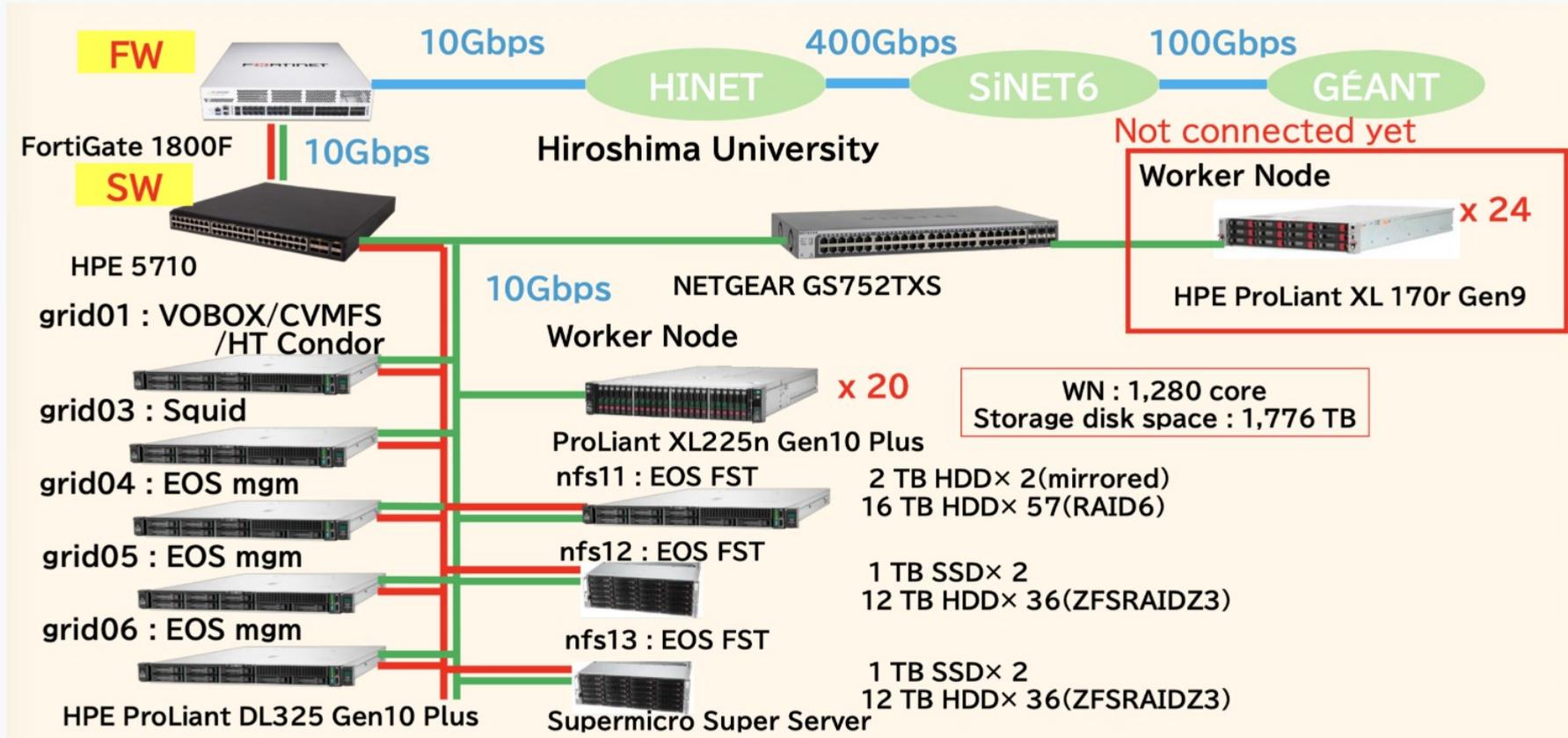
Dedicated test with Amsterdam PerfSONAR

- Fixing window size improved throughput by ~7-9% for both in/out-bound.



Hiroshima ALICE Tier2

Hiroshima Site: Networking



BRIN Indonesia

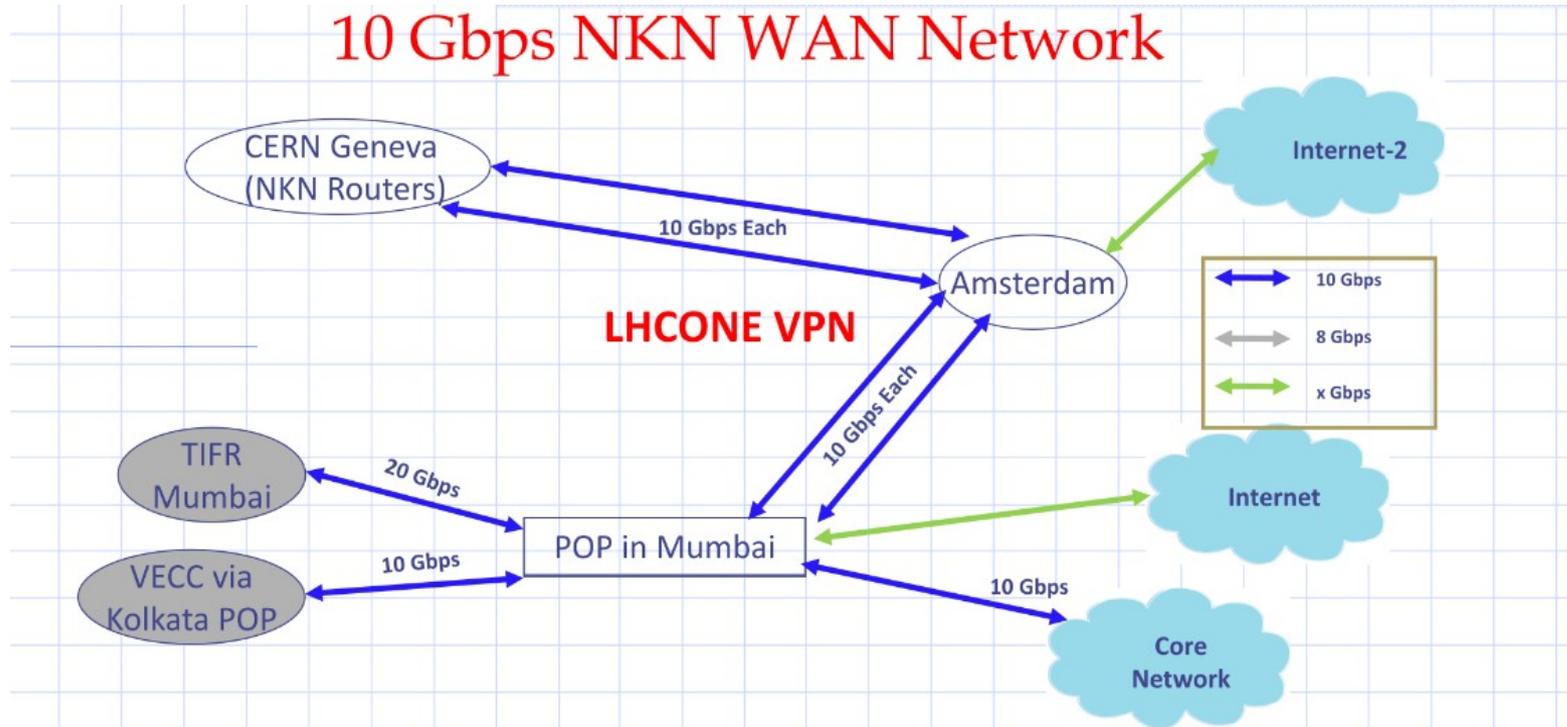
Disconnected from TEIN

Got a 100Gbps link to Guam, but not from the capital. Looking for connectivity to the landing citu

IdREN: Indonesian Research and Education Network



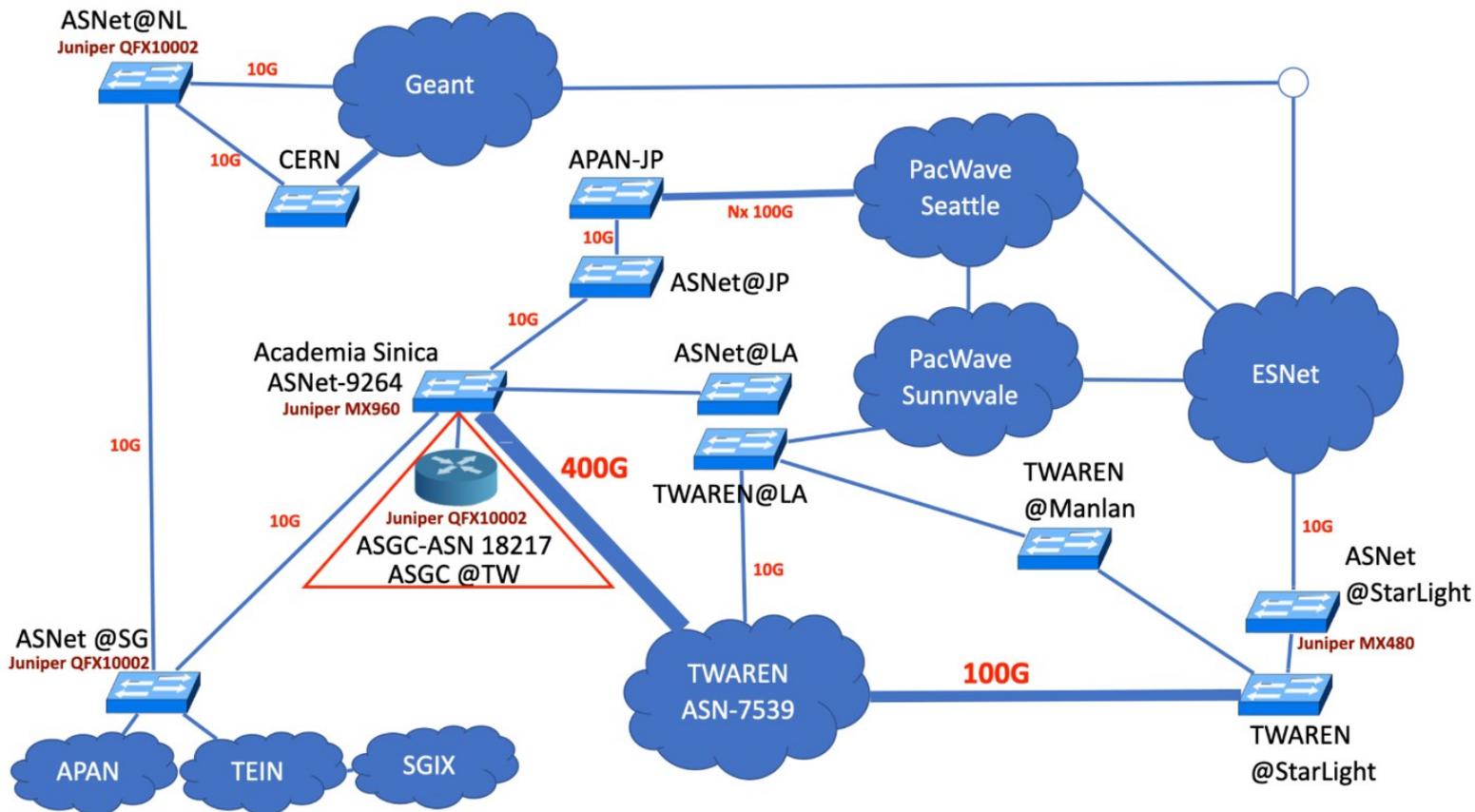
ALICE Tier2 at VECC Kolkata



- NKN Routers are hosted at CERN Geneva.

Consistent support from NKN, India for End to End Network provisioning.

TWAREN (TW-StarLight) Will Be Upgraded to 100Gbps From 1 Jan 2026



ASGC

- **Status**

- **Connecting with LHCONE through ESnet**
 - 3Gb bandwidth upgraded to 5 Gb from May 2025
 - Will be upgraded to (\geq 10Gb) in early 2026, after the 100Gb link between Taiwan and US is operational (est. 1 Jan 2026)
- **Changes of JGN support in Asia (replaced by SINET and HARNet)**

- **Issues**

- **Alternative routes with ESnet in Asia (e.g. JP or SG) or AMS, in order to make better use of available bandwidth for ASGC**
 - Useful especially when the submarine cable(s) across the Pacific is not working
- **Able to make use of all non-LHCONE bandwidth at the same time ?**
 - VRF supports at multiple PoPs
 - Non-jumbo frame supported in general Internet routes
- **Asymmetric routes**
 - Might trigger errors such as CA problem, transfer failure, job efficiency problem, etc.
 - How to monitor and fix the problem ?
 - Able to take advantage of the asymmetric route (in order not to be link broken ?)
- **IPv6**
 - On the rise for the WLCG traffic, but for Internet it's still low (according to the weather map NRENs)
 - How to monitor the IPv6/IPv4 traffic from the application side so that further efforts could be carried out accordingly ?

Conclusions

Summary

- Connectivity to Europe moving (back) to transit via US
- Connectivity to developing countries not increasing as developed ones
- Still some asymmetry issues when some LHCONE link breaks



Questions?

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