



**Connections within South and East Asia,
Oceania**

and

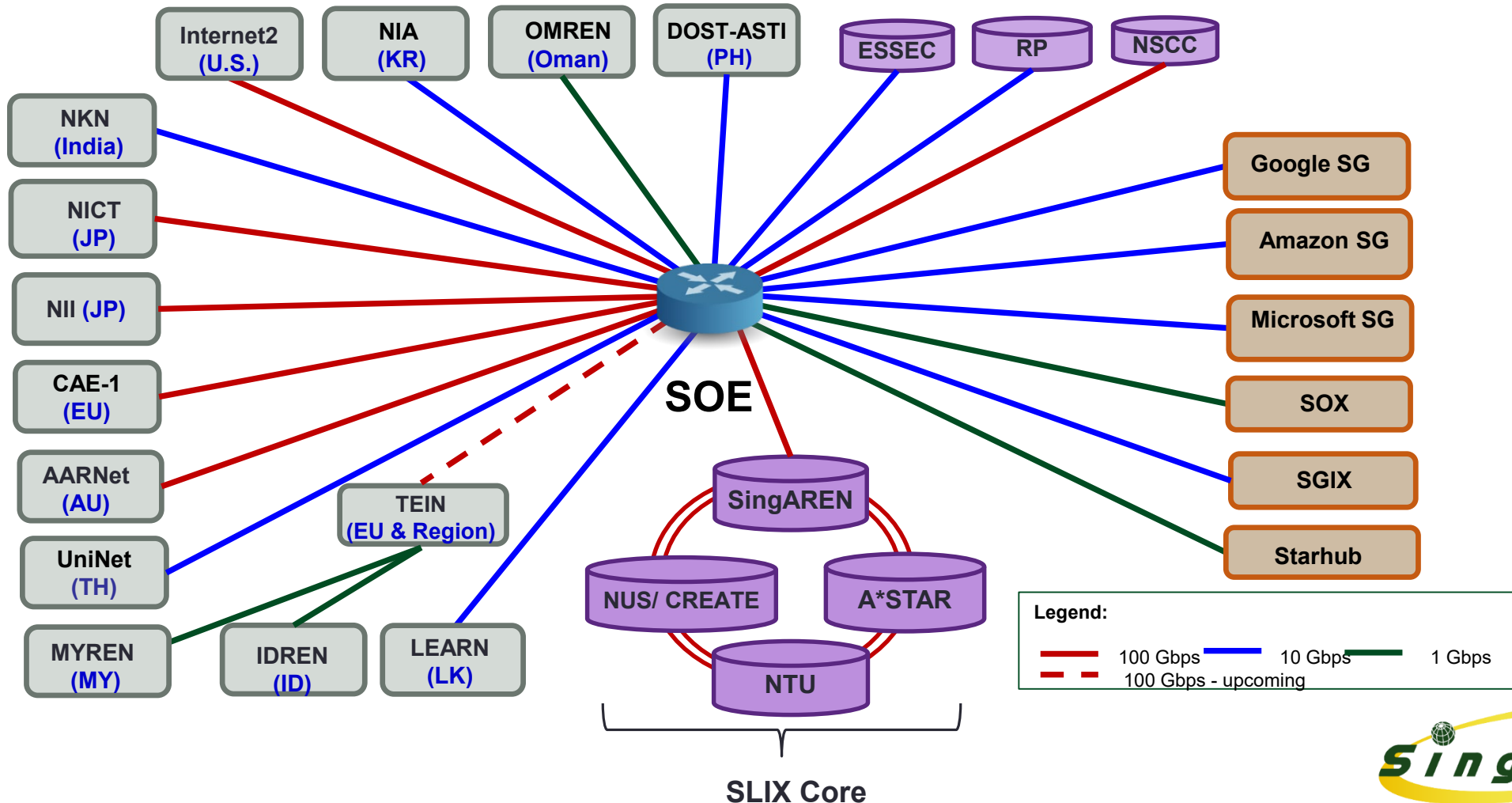
Across regions to US and Europe

By

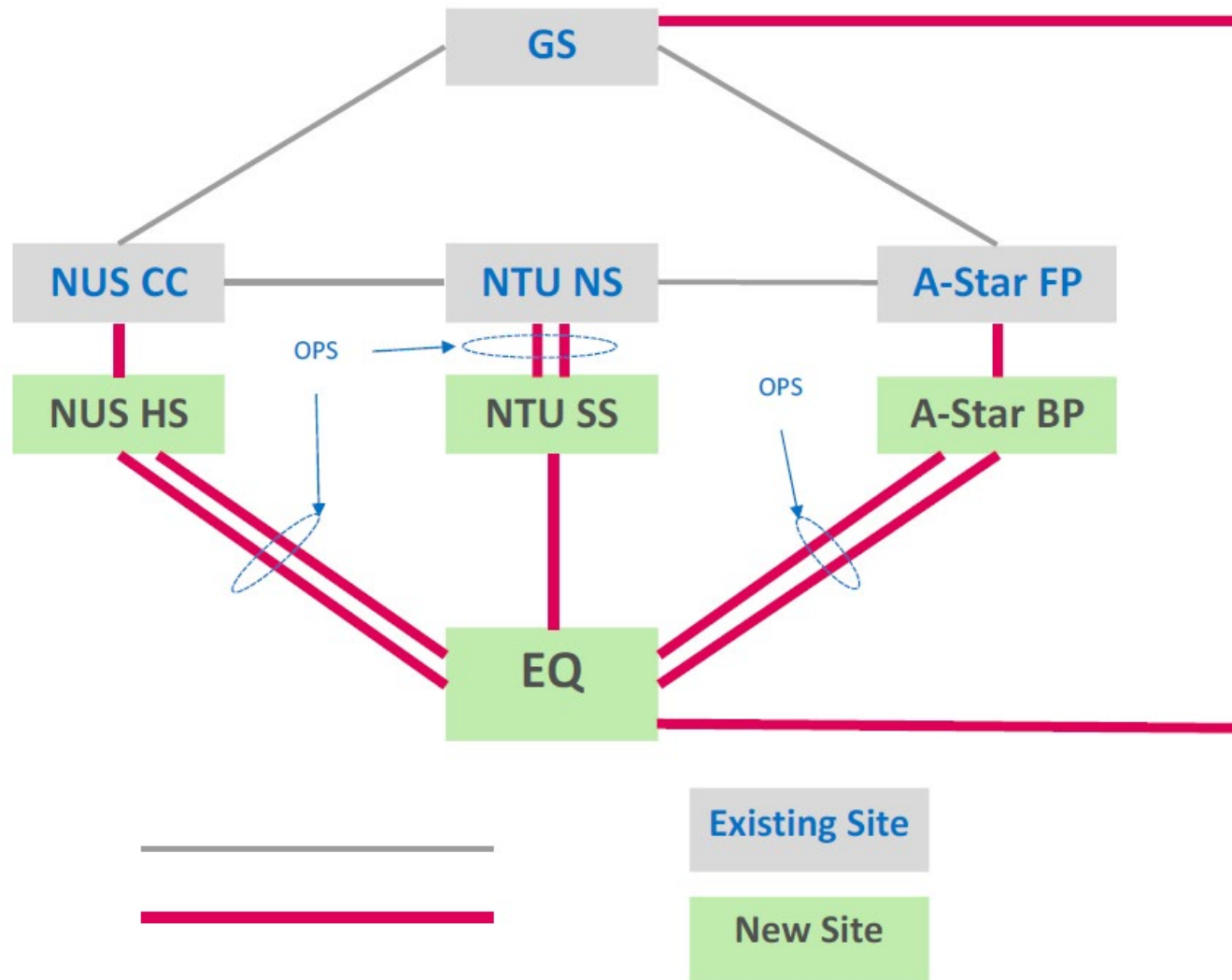
A/ Prof. Francis Lee Bu Sung

SingAREN

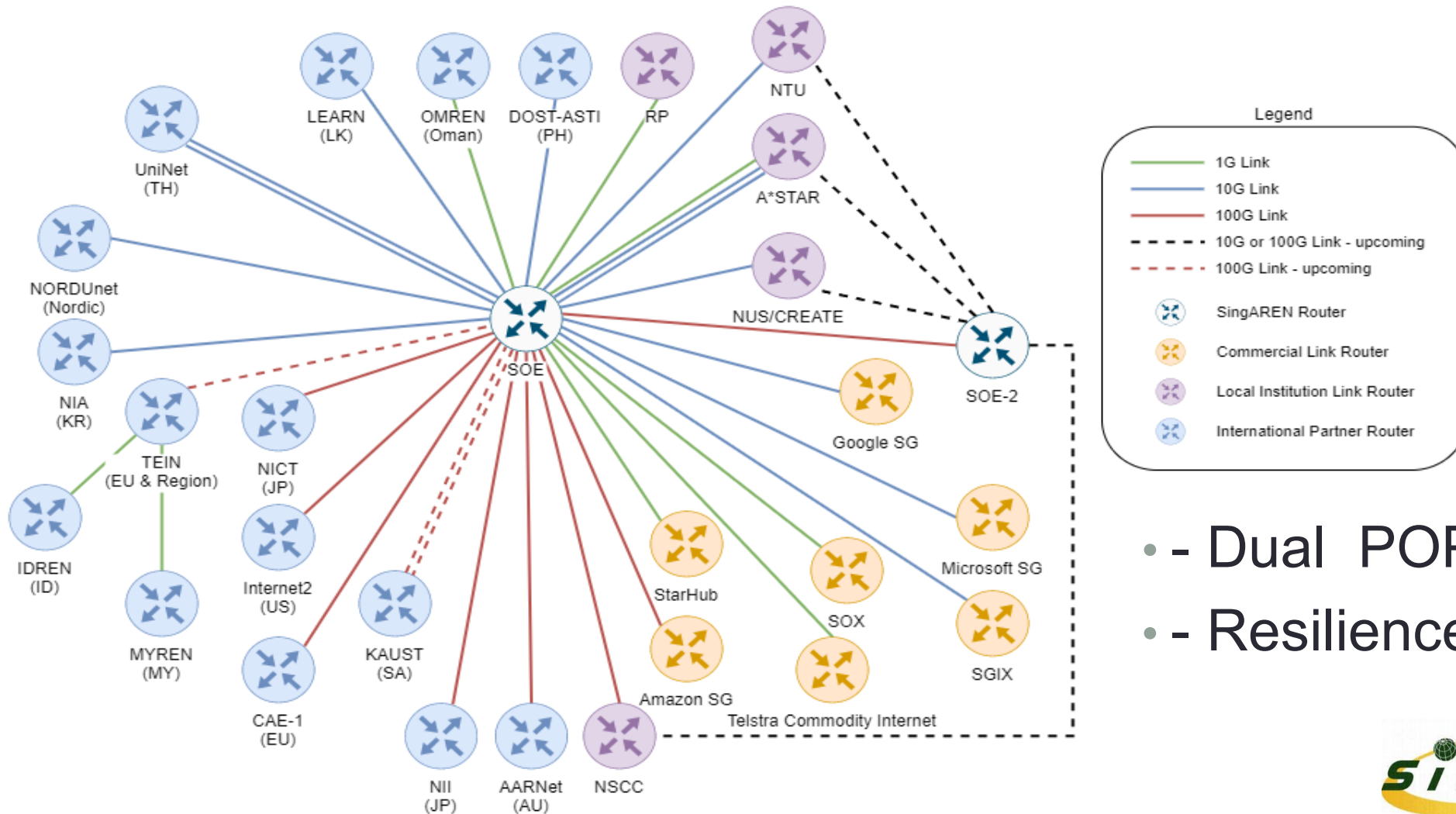
SingAREN Network Infrastructure (Nov - 2020)



SLIX 2.0 fiber footprint - 2020



SingAREN Open Exchange (Dec 2020)



- - Dual POP
- - Resilience network



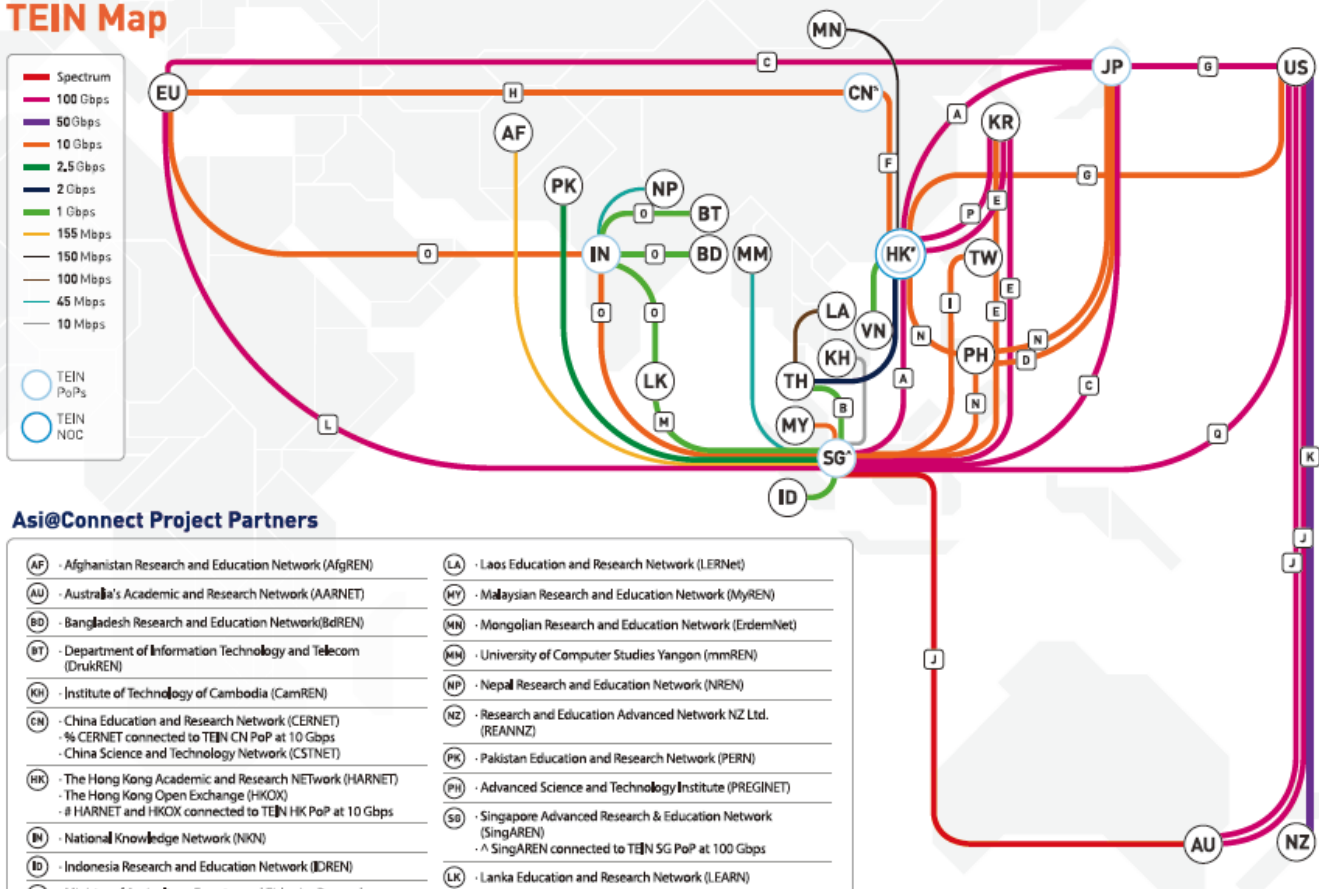
Summary of upgrade in 2020

- 100% increase in SingAREN local dark fiber footprint.
- Resilience through diverse fiber path to NTU, NUS, A*STAR, Global switch, and Equinix.
- Fast recovery and resilient to multiple link breaks. Using CIENA 6500.
- Set-up new POP at Equinix, for resilience as well diverse international connectivity. International links can connect to either Equinix or Globalswitch. SingAREN will carry the traffic between the POPs.



INTRA AND INTER-REGION CONNECTIVITY

TEIN Map



The following links are fully financed/co-financed by the link owners whose support is gratefully acknowledged

A	 National Institute of Information and Communications Technology  National Supercomputing Centre  Singapore Advanced Research & Education Network
B	 National Institute of Information and Communications Technology  Thailand Research and Education Network
C	 National Institute of Informatics
D	 Ministry of Agriculture, Forestry and Fisheries Research Network
E	 National Information Society Agency
F	 China Education and Research Network  TEIN Cooperation Center
G	 TransPAC/Pacific Wave
H	Co-funded by China and EU
I	 Academia Sinica Grid Computing
J	 Australia's Academic and Research Network
K	 Research and Education Advanced Network New Zealand
L	    
M	 Lanka Education and Research Network
N	 Advanced Science and Technology Institute
O	 National Knowledge Network
P	 Korea Research Environment Open Network
Q	 National Supercomputing Centre  Internet2  Singapore Advanced Research & Education Network

Asi@Connect Project Partners

AF - Afghanistan Research and Education Network (AfgREN)	LA - Laos Education and Research Network (LERNet)
AU - Australia's Academic and Research Network (AARNET)	MY - Malaysian Research and Education Network (MyREN)
BD - Bangladesh Research and Education Network (BdREN)	MN - Mongolian Research and Education Network (ErdemNet)
BT - Department of Information Technology and Telecom (DrukREN)	MM - University of Computer Studies Yangon (mmREN)
KH - Institute of Technology of Cambodia (CamREN)	NP - Nepal Research and Education Network (NREN)
CN - China Education and Research Network (CERNET) - % CERNET connected to TEIN CN PoP at 10 Gbps - China Science and Technology Network (CSTNET)	NZ - Research and Education Advanced Network NZ Ltd. (REANNZ)
HK - The Hong Kong Academic and Research Network (HARNET) - The Hong Kong Open Exchange (HKOX) - # HARNET and HKOX connected to TEIN HK PoP at 10 Gbps	PK - Pakistan Education and Research Network (PERN)
IN - National Knowledge Network (NKN)	PH - Advanced Science and Technology Institute (PREGINET)
ID - Indonesia Research and Education Network (IDREN)	SG - Singapore Advanced Research & Education Network (SingAREN) - ^ SingAREN connected to TEIN SG PoP at 100 Gbps
JP - Ministry of Agriculture, Forestry and Fisheries Research Network (MAFFIN) - National Institute of Information and Communications Technology (NICT) - National Institute of Informatics (NII)	TH - Thailand Research Education Network Association (ThaiREN)
KR - National Information Society Agency (KOREN) - Korea Institute of Science and Technology Information (KREONET)	VN - National Agency for Science and Technology Information (VinaREN)

* As of December 2020.

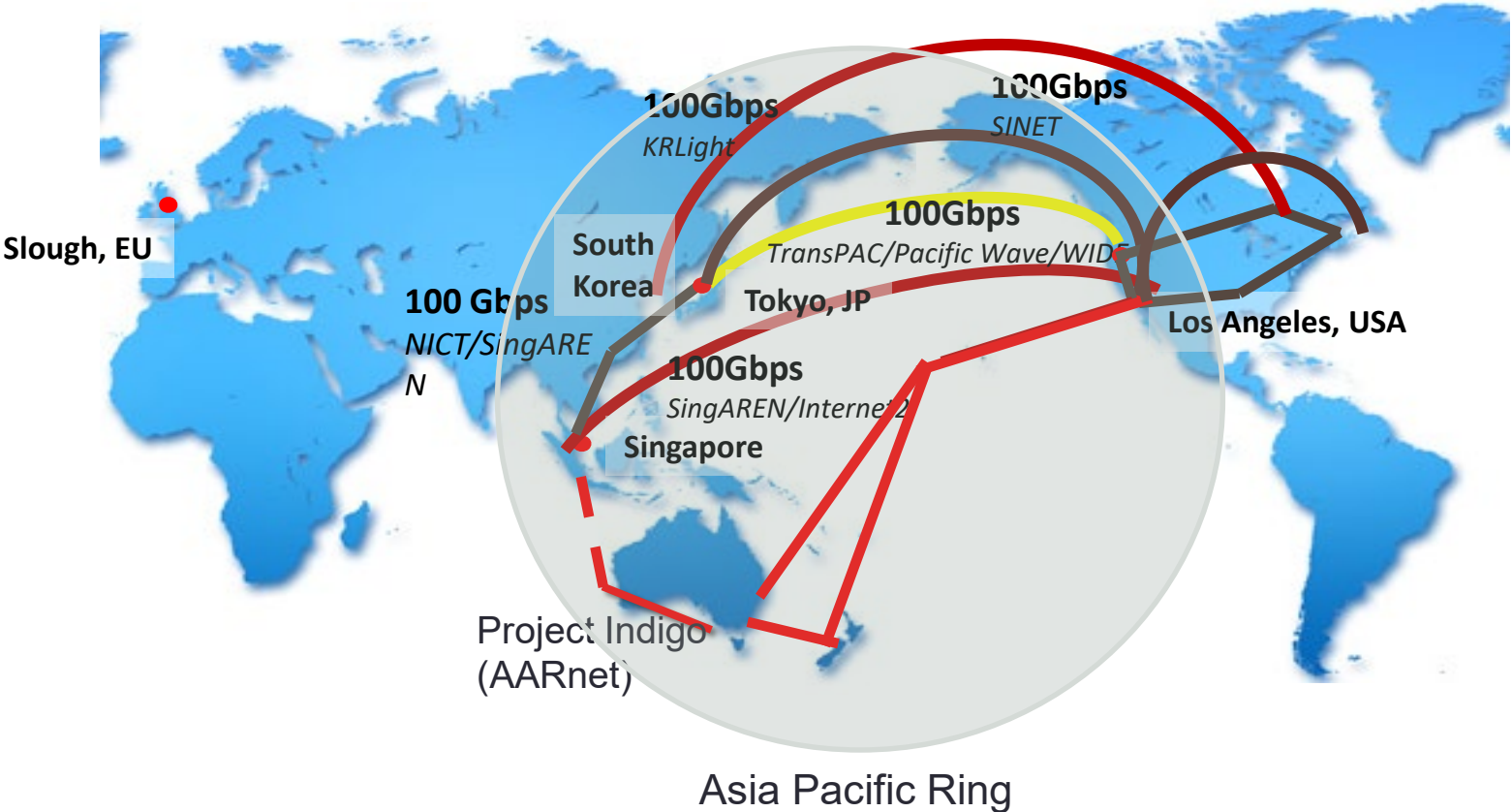
** Other regions (Central Asia, Africa and Latin America) can be connected via global R&E networks such as EU(GÉANT) and US[Internet2]



Asia-Pacific Ring MoU signatories - 2017

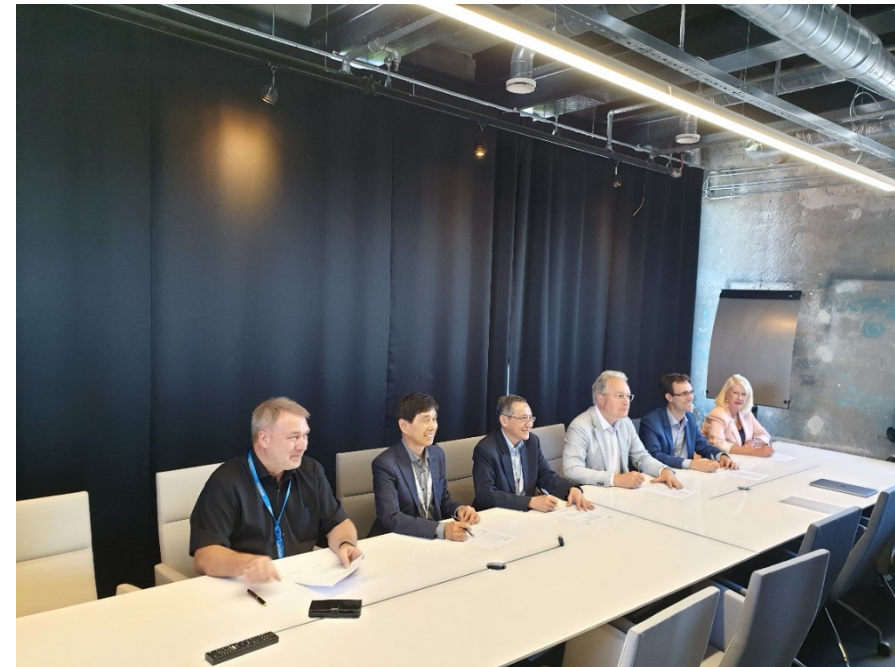


Late-2017



Collaboration Asia-Europe-1 (CAE-1)

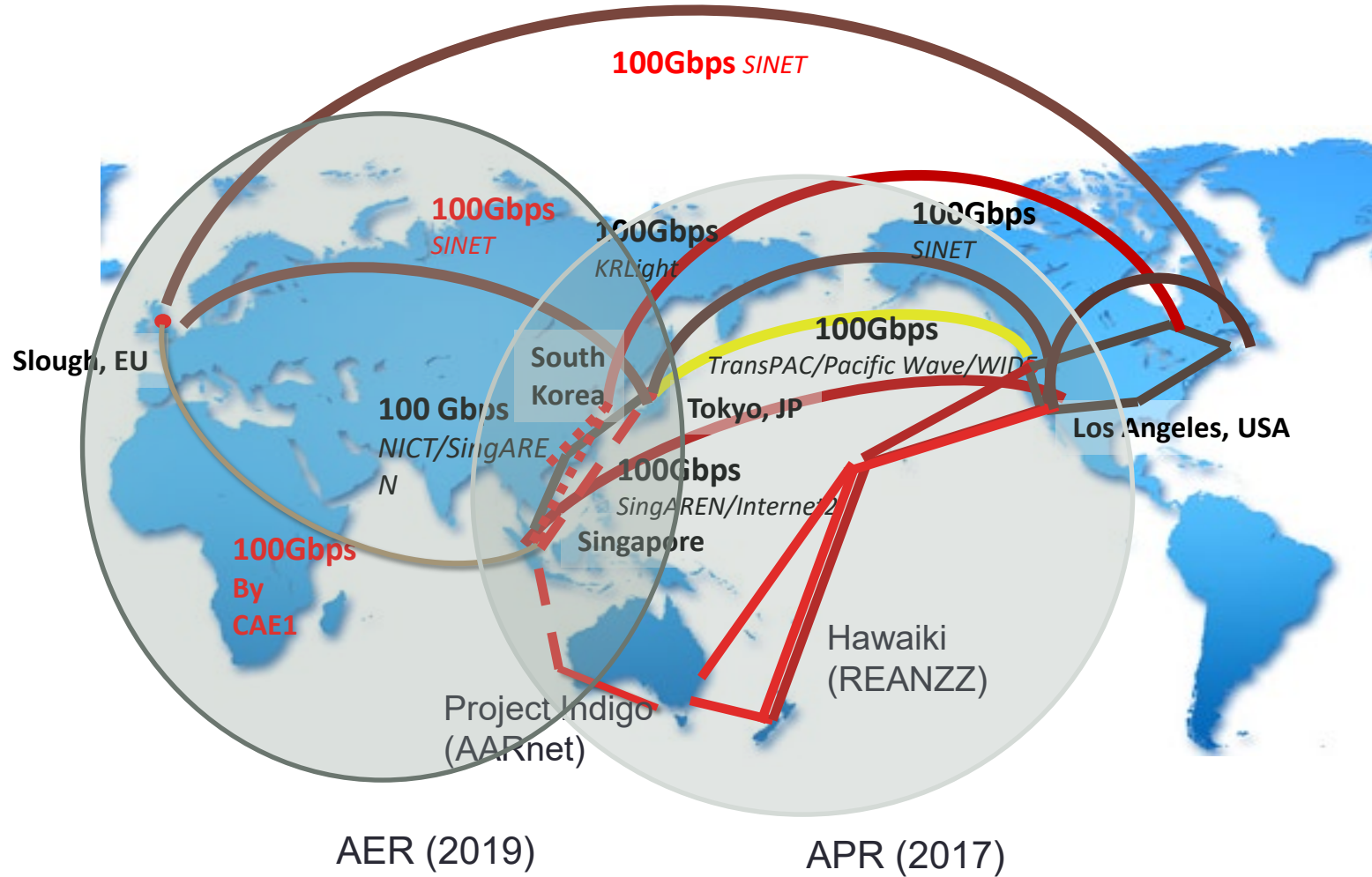
- A new high performance direct 100 gigabit per second (Gbps) link between Singapore(SOE) and GeantOPEN(London).
- 15 year IRU
- Cable system: SMW5
- Established June 2019

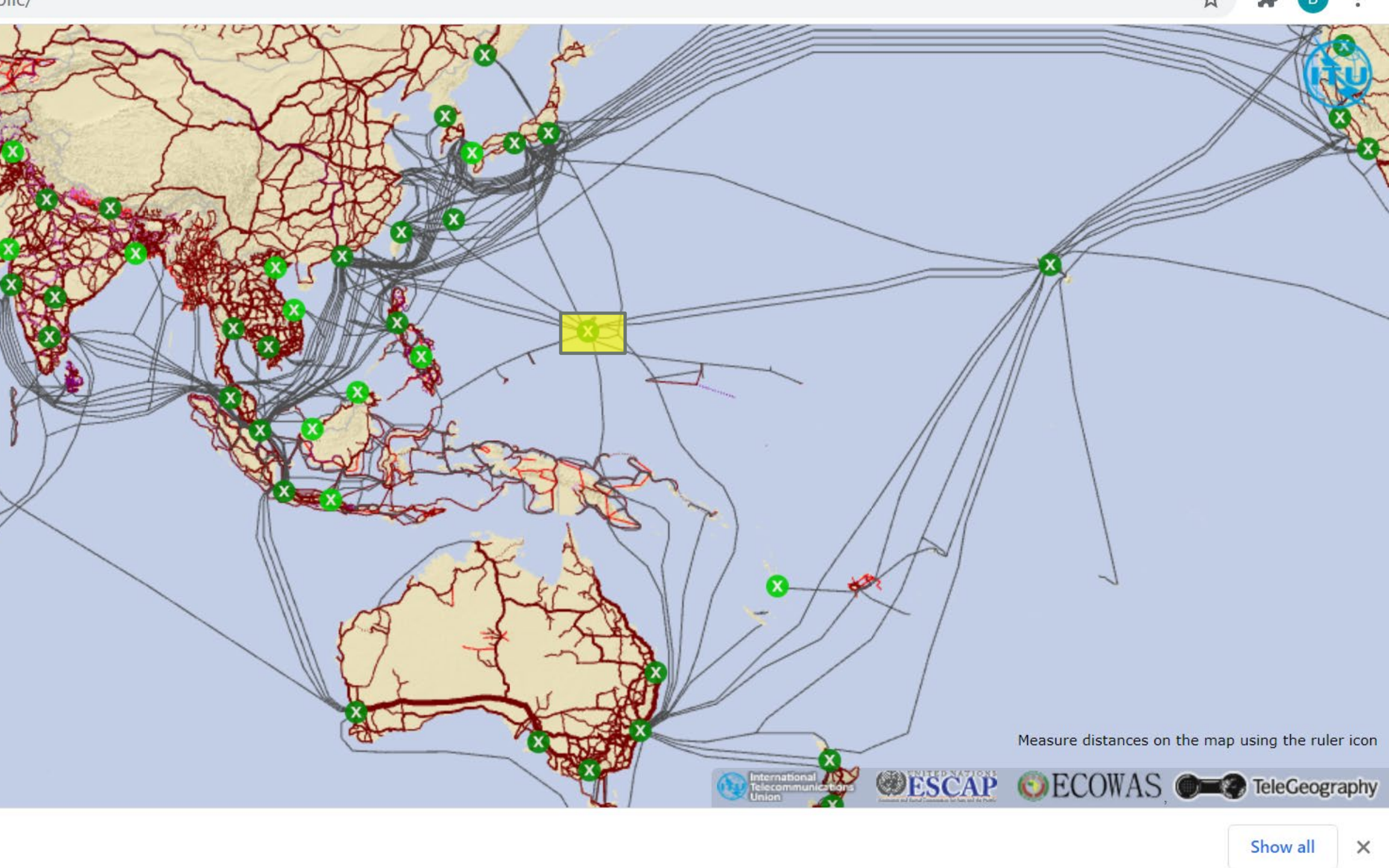


AsiaOeania Europe Ring - 22 July 2019

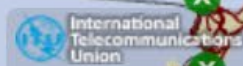


2019



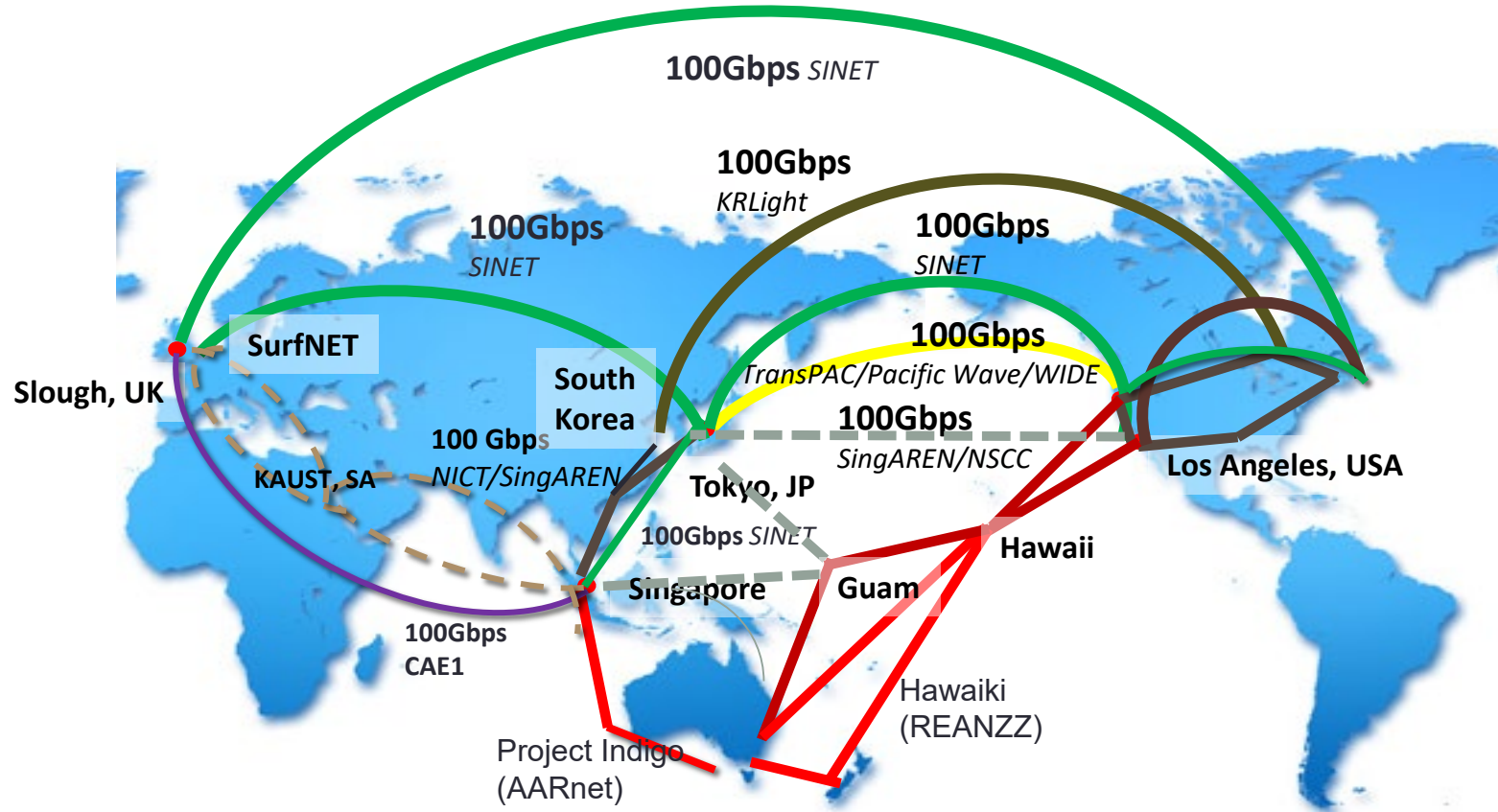


Measure distances on the map using the ruler icon



Show all X

2020 -> 2021



Summary of new links in 2020

- KAUST 2 x 100G connection from KAUST, Saudi Arabia to Singapore, KAUST 2 x 100G connection from KAUST, Saudi Arabia to Surfnet. - Jan 2021
 - New AARnet Sydney to Guam. – Dec 2020.
 - New 100G link SG-HK-JP on 10 year IRU. Currently co-funded by NICT and SingAREN/NSCC – 1st quarter 2021
 - New 100G link from JP to LA, USA on 10 year IRU. Currently funded by SingAREN/NSCC - 1st quarter 2021.
-
- **Planning**
 - Tokyo-Guam 100G funded by NII(Japan)
 - Tokyo-Guam 100G funded by ARENA-PAC
 - Guam-Singapore 100G funded by Consortium



APR Ring renewal

- APR renewal in discussion with exiting and prospective members
 - WIDE
 - NII
 - NICT
 - Internet2
 - PacificWave
 - TransPAC5
 - SingAREN/NSCC
 - KISTI (new member)
- IN Discussion
 - AARnet
 - University of Hawaii
 - REANNZ



What's next ?

- Latin America – Australia to Asia
- Arctic Connect
- Africa ??
- Central Asia??

12/1/2020 The Arctic Connect telecom cable project becomes more international: Cinia having new partners from Japan, Norway and Finland

The Arctic Connect telecom cable project becomes more international: Cinia having new partners from Japan, Norway and Finland

PR Release [Arctic Connect](#) 29 September 2020

Cinia Ltd, as the leading party of the Cinia Alliance, in collaboration with MegaFon, are executing the development phase for the Arctic submarine cable project. The objective of the international project is to build the first trans-Arctic submarine telecom cable between Europe and Asia.

“Arctic Connect is a real international opportunity. Cinia is very pleased to see broad international interest towards the project, and I warmly welcome our new partners from Japan, Norway and Finland to join the Cinia Alliance. The project is moving forward and together we will have an exciting journey to make the plans real” says **Ari-Jussi Knaapila**, CEO of Cinia Ltd.

Chile's Transoceanic Cable to connect to New Zealand and Australia

Instead of going directly to Asia

July 28, 2020 By: Alex Alley Be the first to comment

The Chilean Government has finished its consultation period examining the viability of a Pacific submarine cable to Asia - opting for a fiber route to Australia instead.

The [Asia - South America Digital Gateway](#) will now take the form of the Transoceanic Cable which will be a 13,000km (8,000 miles) fiber route to Auckland, New Zealand, and then continue to Sydney, Australia.

Chile hopes it can then piggyback off of Australian submarine cables that lead to Asia.

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THANK YOU

