SingAREN Open Exchange and Global Research Platform

By
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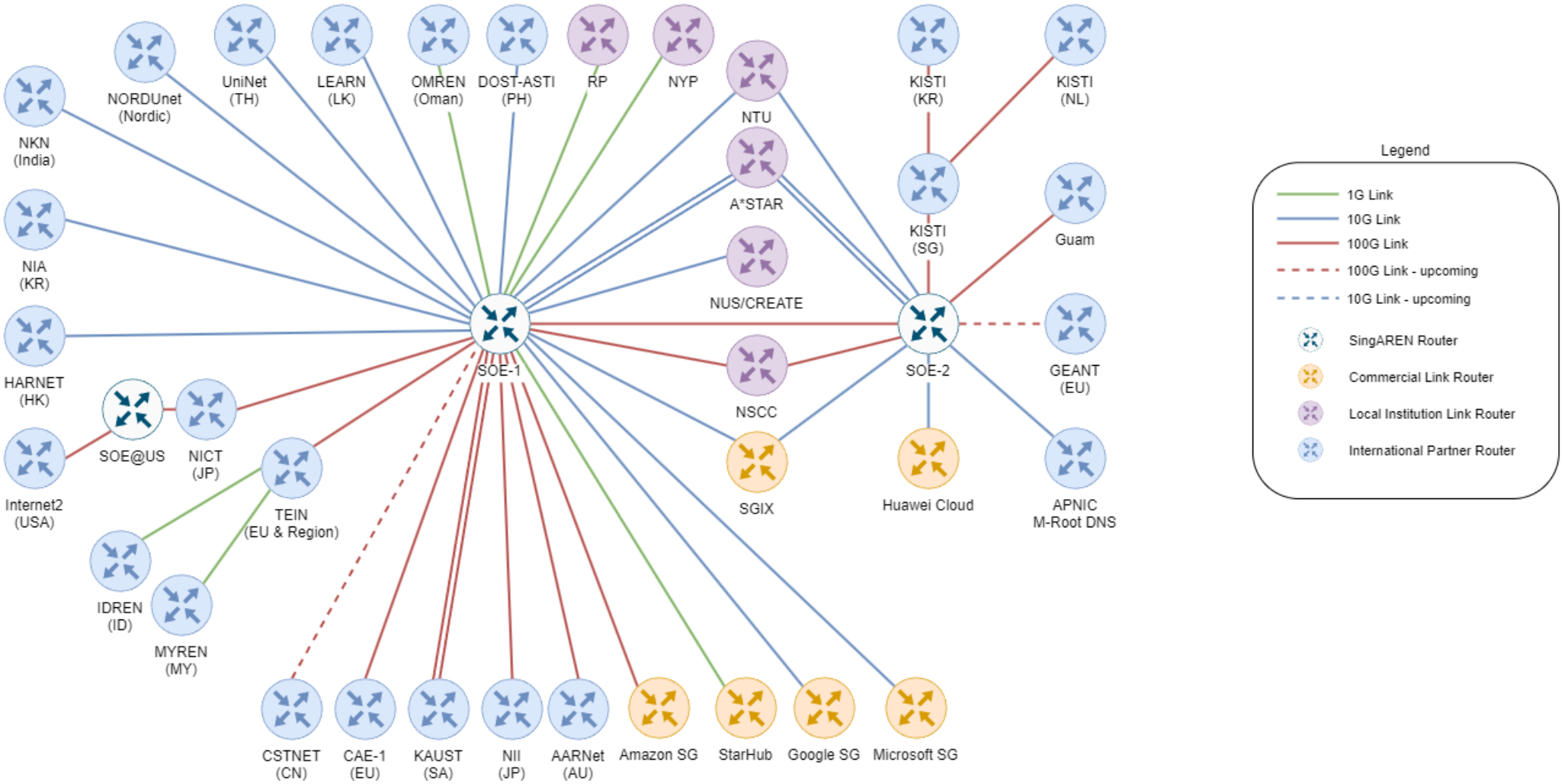
SCA23

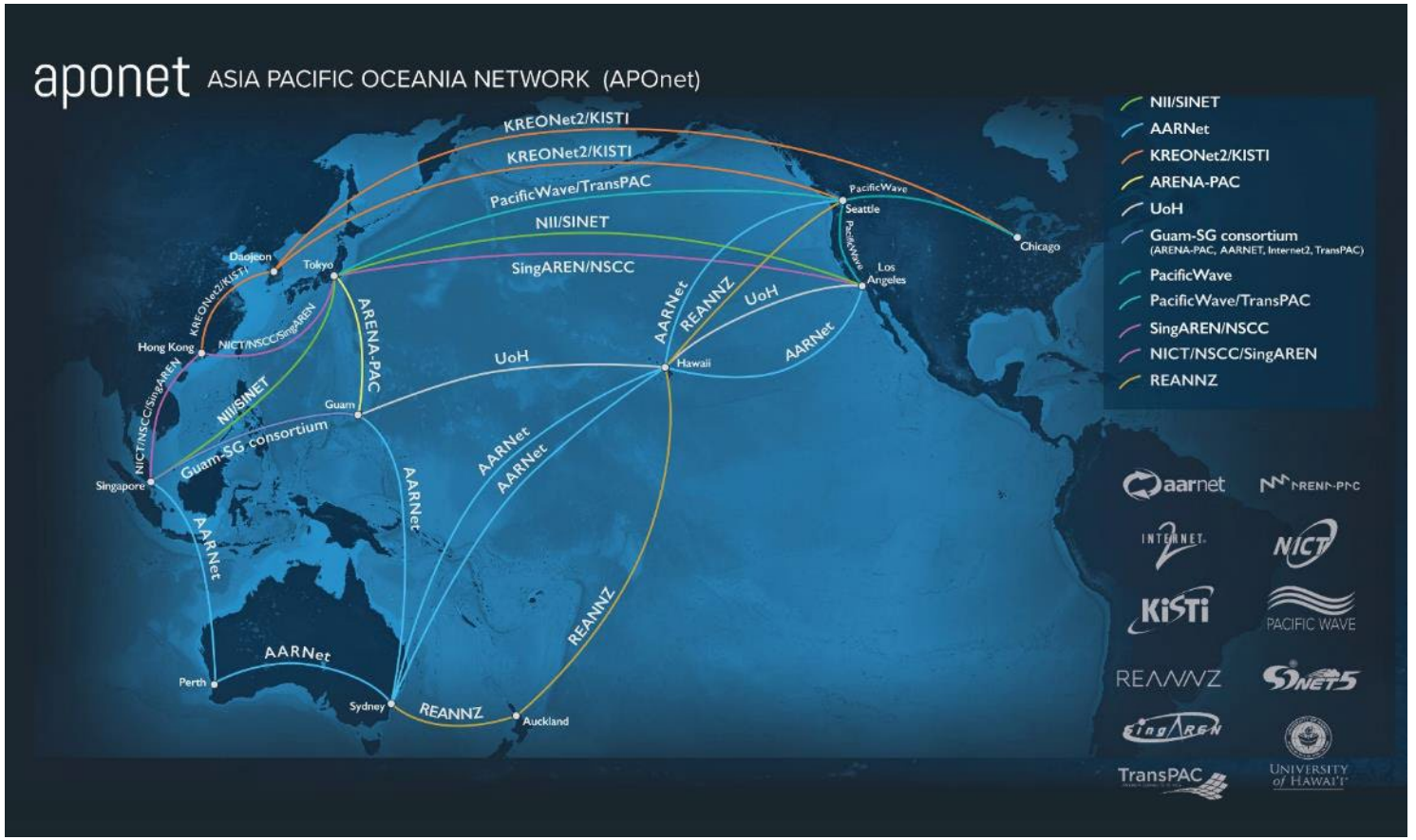
SingAREN Partners:

SingAREN topology



International Connectivity

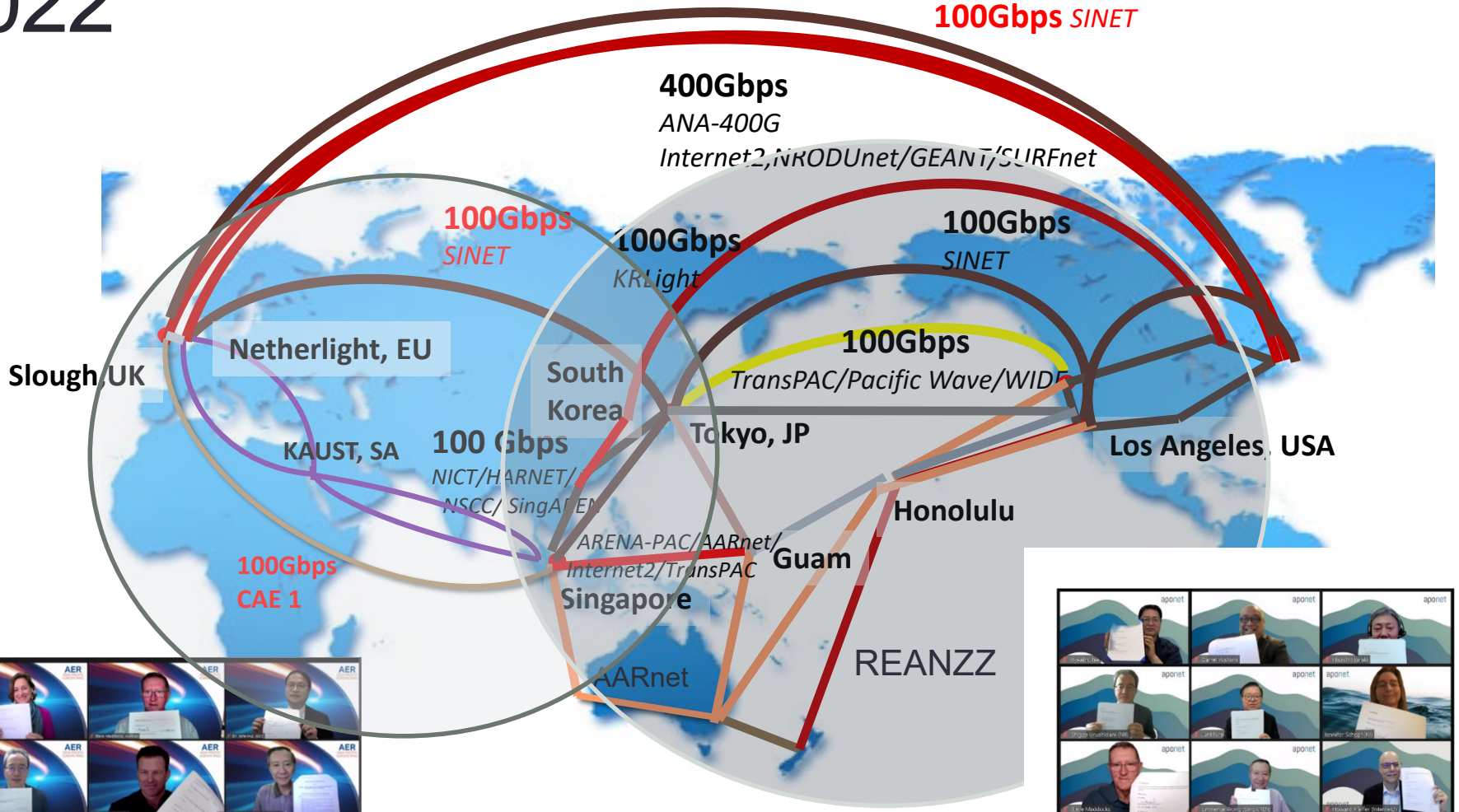
- **Asia-Pacific-Oceania Network (APOnet):**
  - An MoU was signed on 15 Jun 21 with the 11-partner consortium for network resilience.



International Connectivity

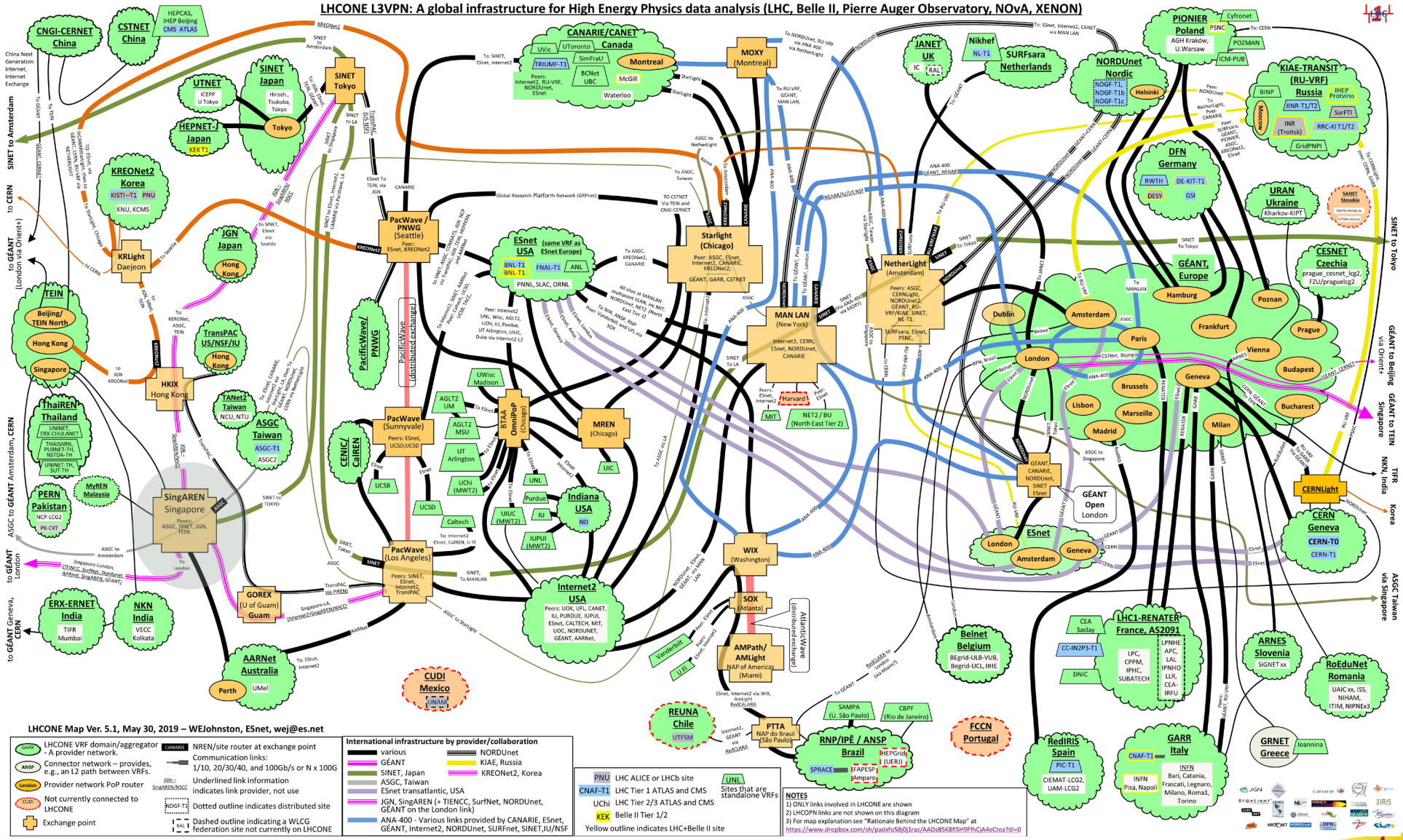
- Extension of MoU for **Asia-Pacific Europe Ring (AER)**
  - 10-partner consortium for network resilience, consisting of **100G network ring** between Europe and Asia
  - New partners: HARNET(Hong Kong) and KAUST (Saudi Arabia)

2022



AER (2022)

APOnet (2021

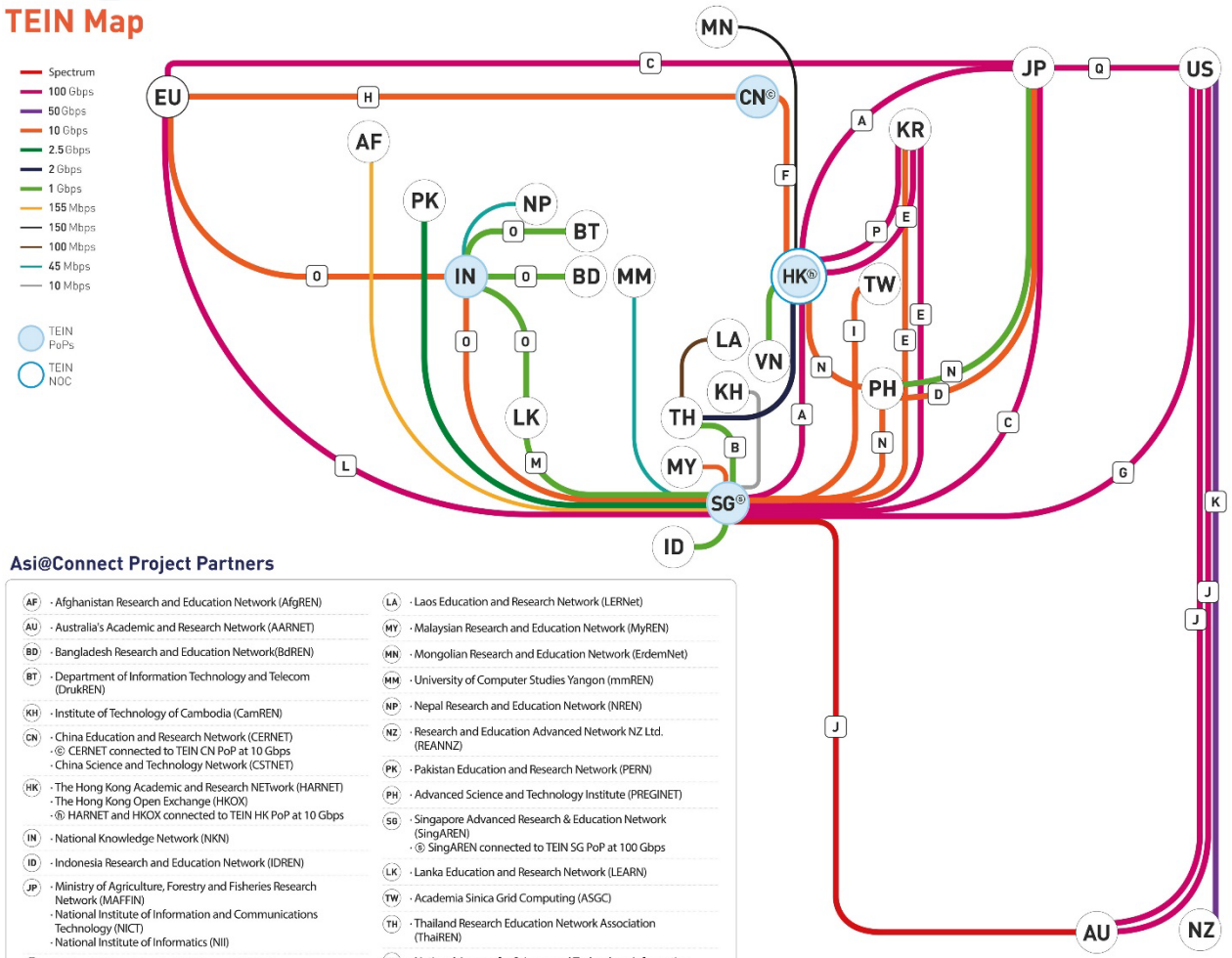


https://www.dropbox.com/sh/padxfo58j0j1raz/AADsB5K8fISH9FfhCjA4eCtea?dl=0

Asi@Connect

The EU co-funded Asi@Connect project provides a dedicated regional high capacity and high quality internet network, Trans Eurasia Information Network(TEIN), for Research and Education (R&E) communities across Asia-Pacific and Europe, and leverages e-infrastructures developed for public service projects.

TEIN Map



Asi@Connect Project Partners

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

* As of 31 January 2022.
** Other regions (Central Asia, Africa and Latin America) can be connected via global R&E networks such as EU(GÉANT) and US(Internet2)

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
  Hong Kong Academic and Research 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 · Internet2
  ARENA-PAC
  TransPAC/Pacific Wave
  Australia's Academic and Research Network
- 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
  Singapore Advanced Research & Education Network

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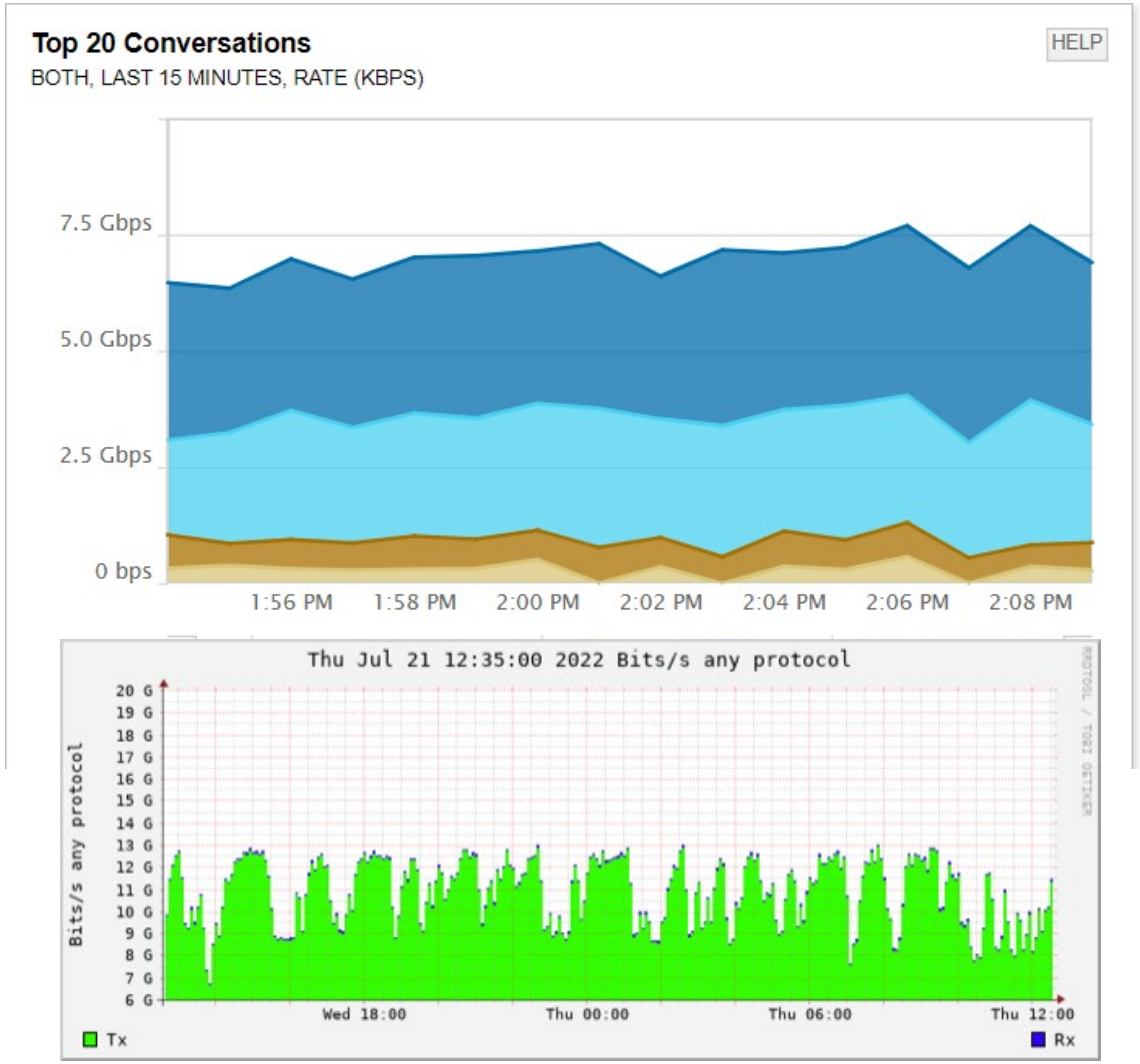
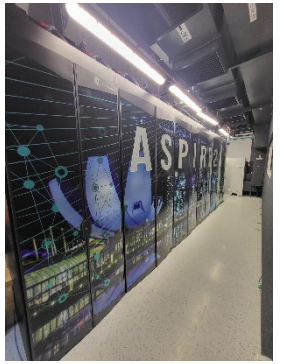
High Speed Data Transfer



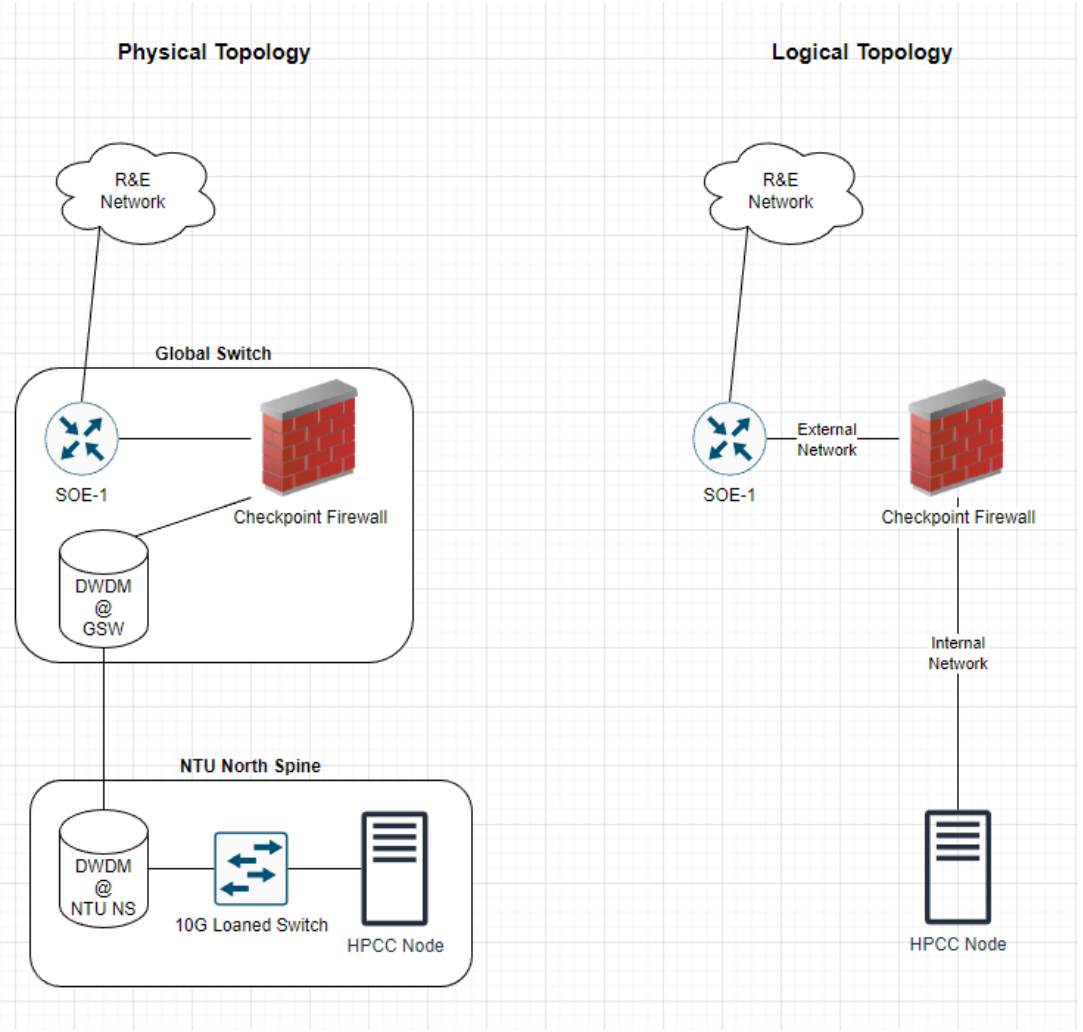
Gadi supercomputer
NCI(AUS)

ASPIRE 2A
Singapore

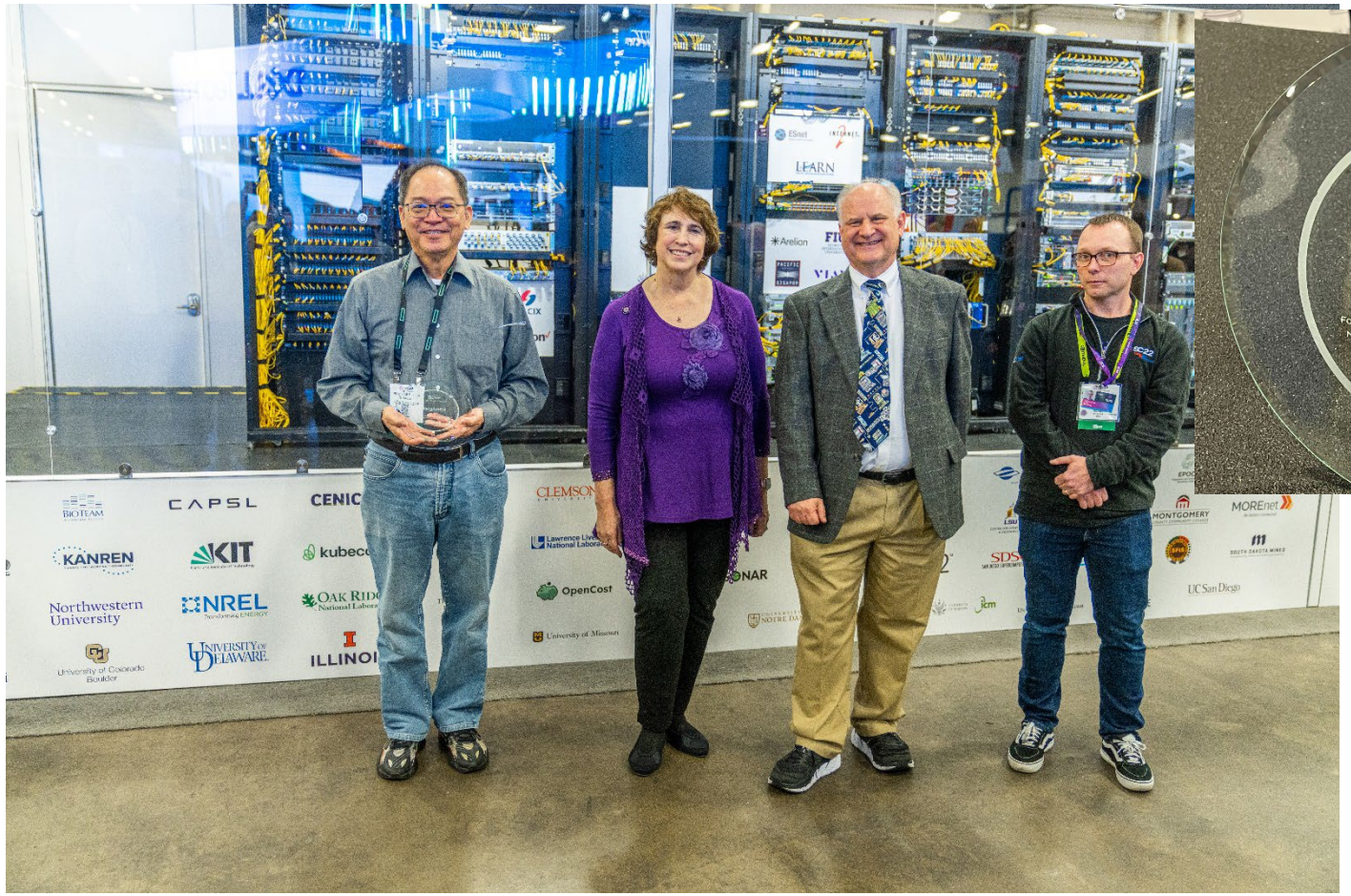


NTU Science DMZ POC

- To setup a Science DMZ as of proof-of-concept with NTU HPCC to facilitate faster connectivity and a secure zone for HPCC users who are currently limited by the network policies in place
- NTU HPCC transfer speeds limited by NTU infrastructure policies < 100 Mbps
- Sci DMZ POC will be completely separate from the NTU network
- Expecting potential speeds of up to multiple Gbps
  - Network connectivity of 10Gbps
  - Checkpoint Maestro able to support 20Gbps



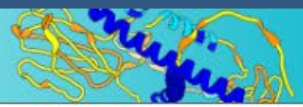
SCinet Spirit of Innovation at SC22



Awarded at Supercomputing 2022, Dallas, Texas, USA

SDSC-SingAREN working together

- Deploy a server to provide Open Science Data federation and RCSB Protein Data Bank.
- About 50% of the access to Protein Data Bank is coming from Asia and Oceania.

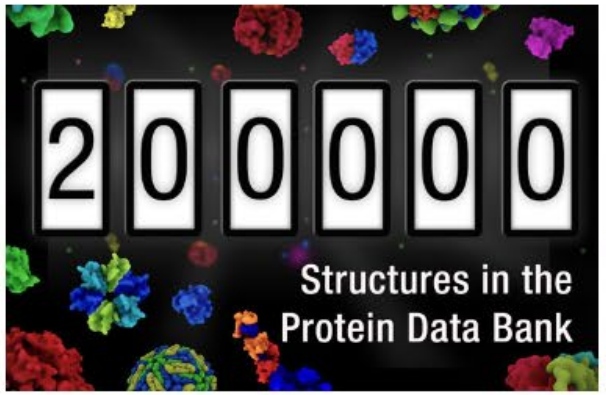


New: More Computed Structure Models (CSM) available Learn more

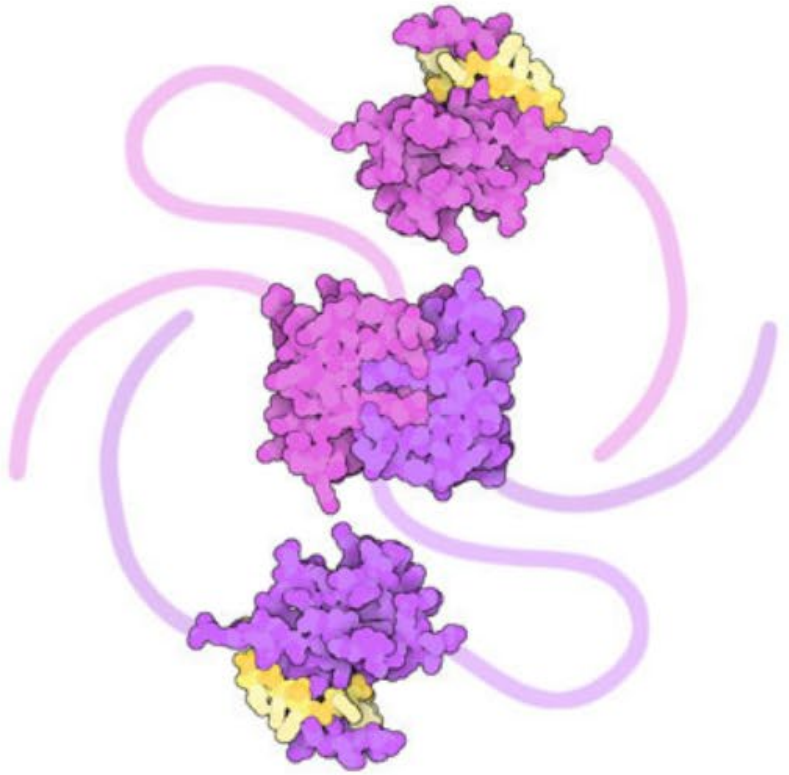
RCSB Protein Data Bank (RCSB PDB) enables breakthroughs in science and education by providing access and tools for exploration, visualization, and analysis of:

- Experimentally-determined 3D structures from the **Protein Data Bank (PDB)** archive
- **Computed Structure Models (CSM)** from AlphaFold DB and ModelArchive

These data can be explored in context of external annotations providing a structural view of biology.

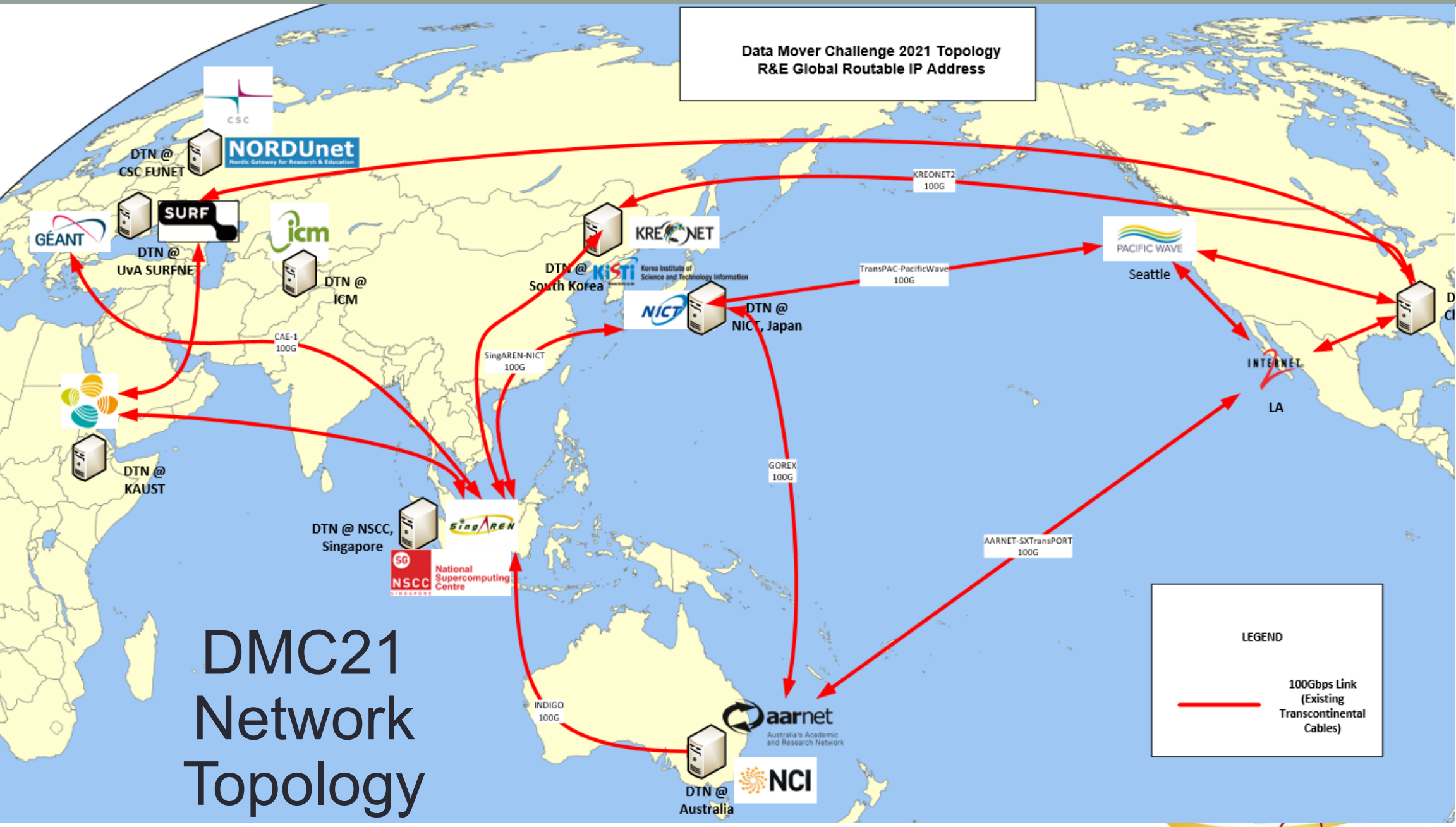


February **Molecule of the Month**

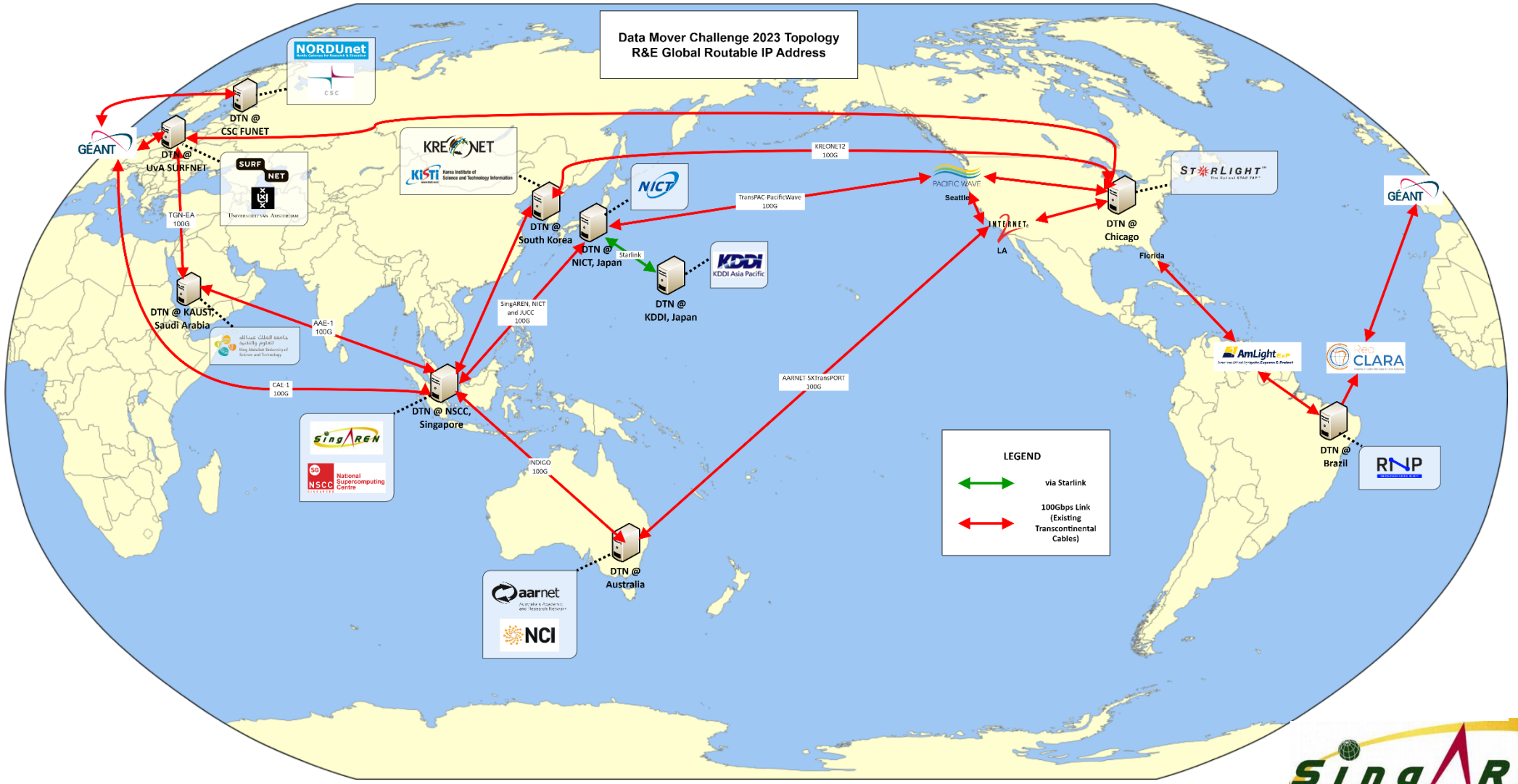


SARS-CoV-2 Nucleocapsid and Home Tests

DATA MOVER CHALLENGE


Data Mover Challenge 2021 Topology
R&E Global Routable IP Address
DTN @
CSC FUNET
NORDUnet
Nordic Gateway for Research & Education
GÉANT
SURF
DTN @
UvA SURFNET
icm
DTN @
ICM
DTN @
South Korea
KREONET
KISTI
Korea Institute of Science and Technology Information
KREONET2
100G
PACIFIC WAVE
Seattle
TransPAC-PacificWave
100G
NICT
DTN @
NICT, Japan
CAE-1
100G
SingAREN-NICT
100G
INTERNET2
LA
DTN @
KAUST
DTN @ NSCC,
Singapore
SingAREN
SG
NSCC
National Supercomputing Centre
GOREX
100G
AARNET-SXTransPORT
100G
INDIGO
100G
aarnet
Australia's Academic and Research Network
DTN @
Australia
NCI
LEGEND
100Gbps Link
(Existing
Transcontinental
Cables)
DMC21
Network
Topology

Data Mover Challenge 2023



SingAREN

THANK YOU

Q&A