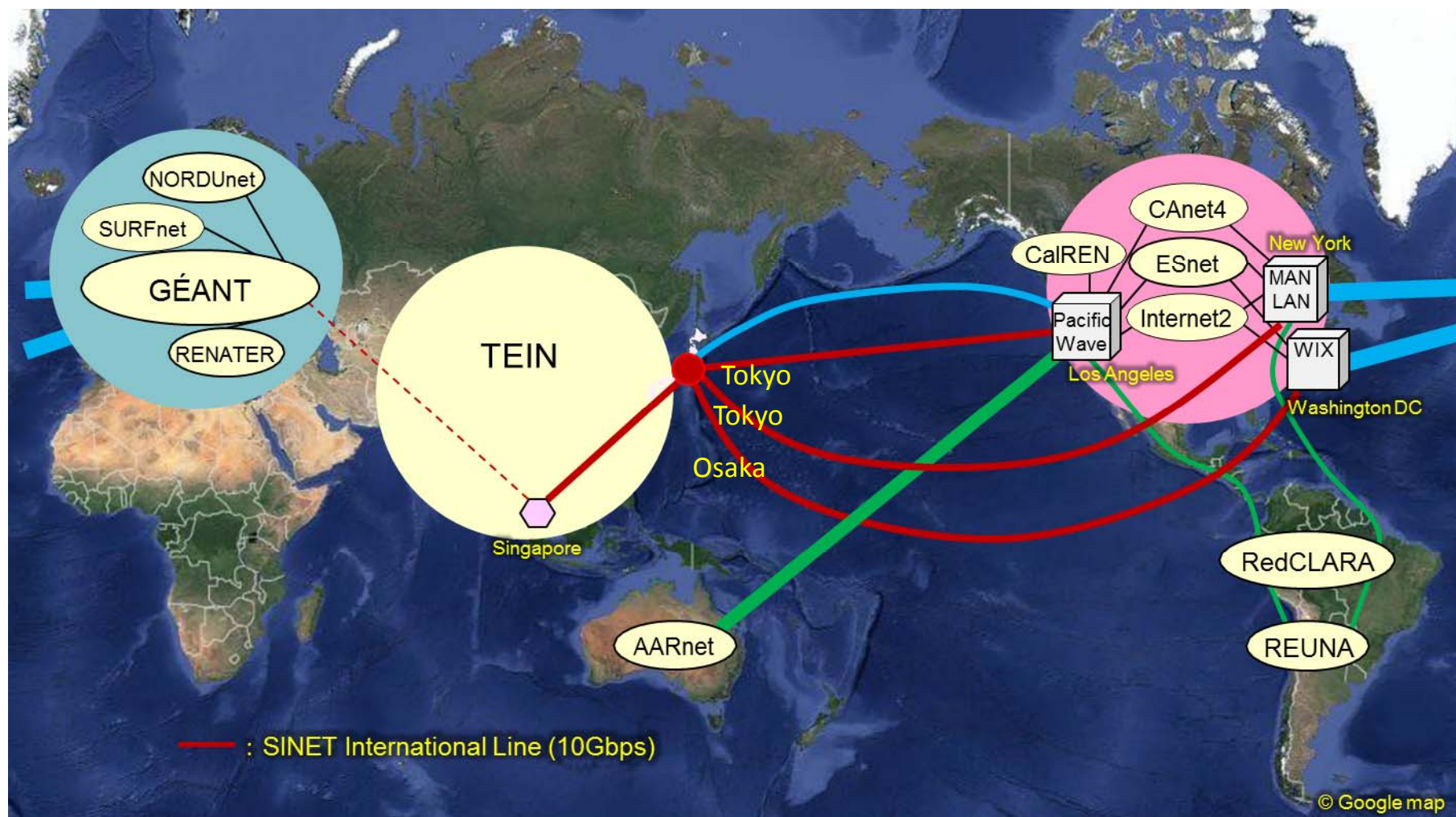# Update on SINET5 implementation for ICEPP (ATLAS) and KEK (Belle II)
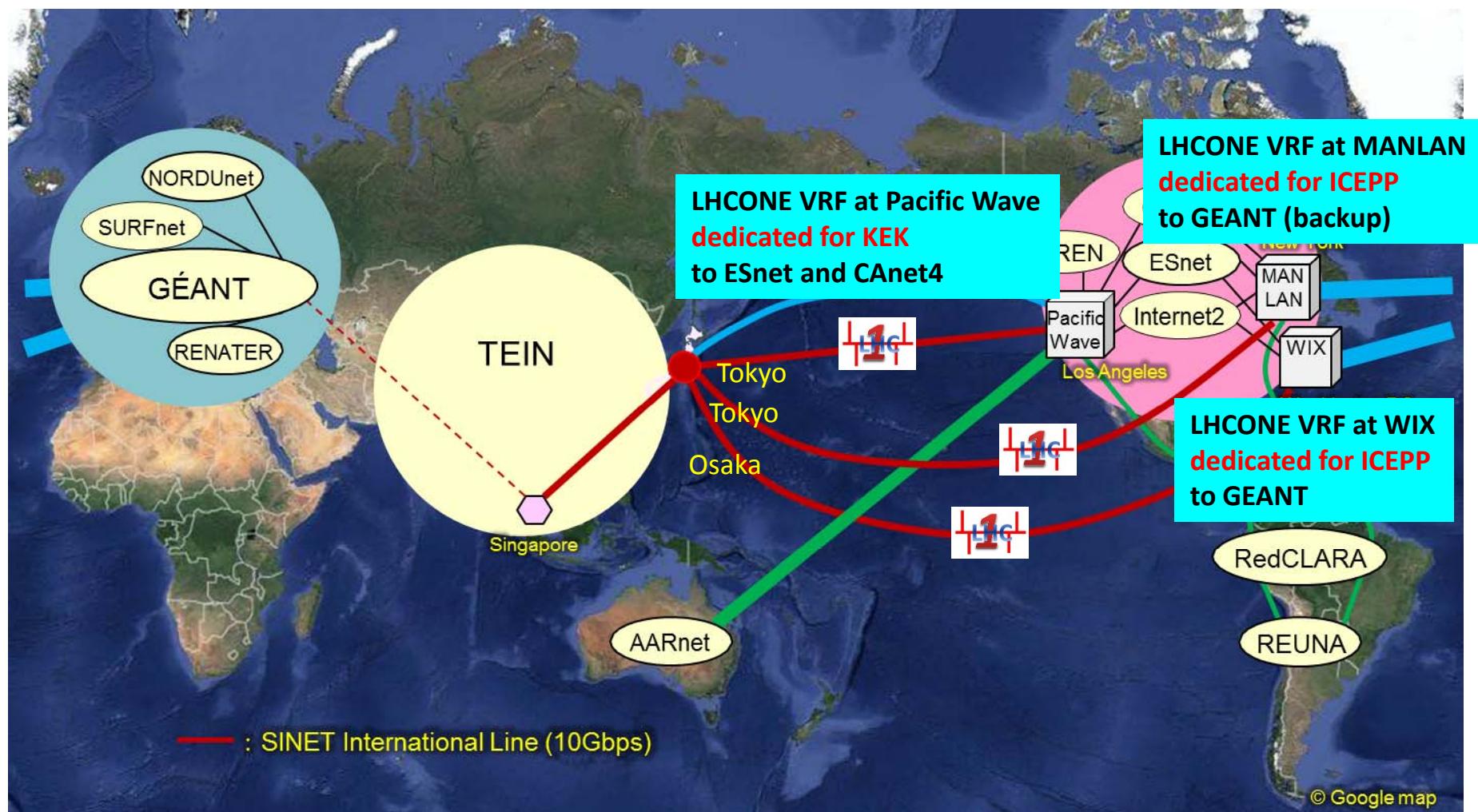
Tomoaki Nakamura
KEK (Computing Research Center)

SINET4 until JFY2015 (Mar. 2016)

Y. Kubota (NII)

Current LHCONE peering (until Feb. 2016)

LHCONE VRF at Pacific Wave
dedicated for KEK
to ESnet and CAnet4

LHCONE VRF at MANLAN
dedicated for ICEPP
to GEANT (backup)

LHCONE VRF at WIX
dedicated for ICEPP
to GEANT

NORDUnet
SURFnet
GÉANT
RENATER

TEIN

Singapore

Tokyo
Tokyo
Osaka

REN
ESnet
Pacific Wave
Internet2
Los Angeles
MAN LAN
WIX
New York

RedCLARA
REUNA

AARnet

——— : SINET International Line (10Gbps)

© Google map

Sites connected with LHCONE in Japan

## ICEPP at UTokyo

- Computing resource is dedicated to ATLAS
- Outbound bandwidth: 10G (ICEPP computer room to border switch in UTokyo)
- LHCONE routing only for the sites in Europe (no US sites at this moment) since 2013
    - Primary: ICEPP - SINET4 (Tokyo - Osaka - WDC) - GEANT
    - Backup: ICEPP - SINET4 (Tokyo-NY) - GEANT

KEK

- Support many VOs and small projects, Belle II will be a main consumer
- Outbound bandwidth: 10G (for grid sites) + 10G (
- LHCONE routing is limited for three sites
    - US: KEK - SINET4 (Tsukuba - Tokyo - LA) - ESnet (PNNL)
    - CA: KEK - SINET4 (Tsukuba - Tokyo - LA) - CAnet4 (UVictoria and McGillU)

SINET5 from JFY2016 (Apr. 2016)
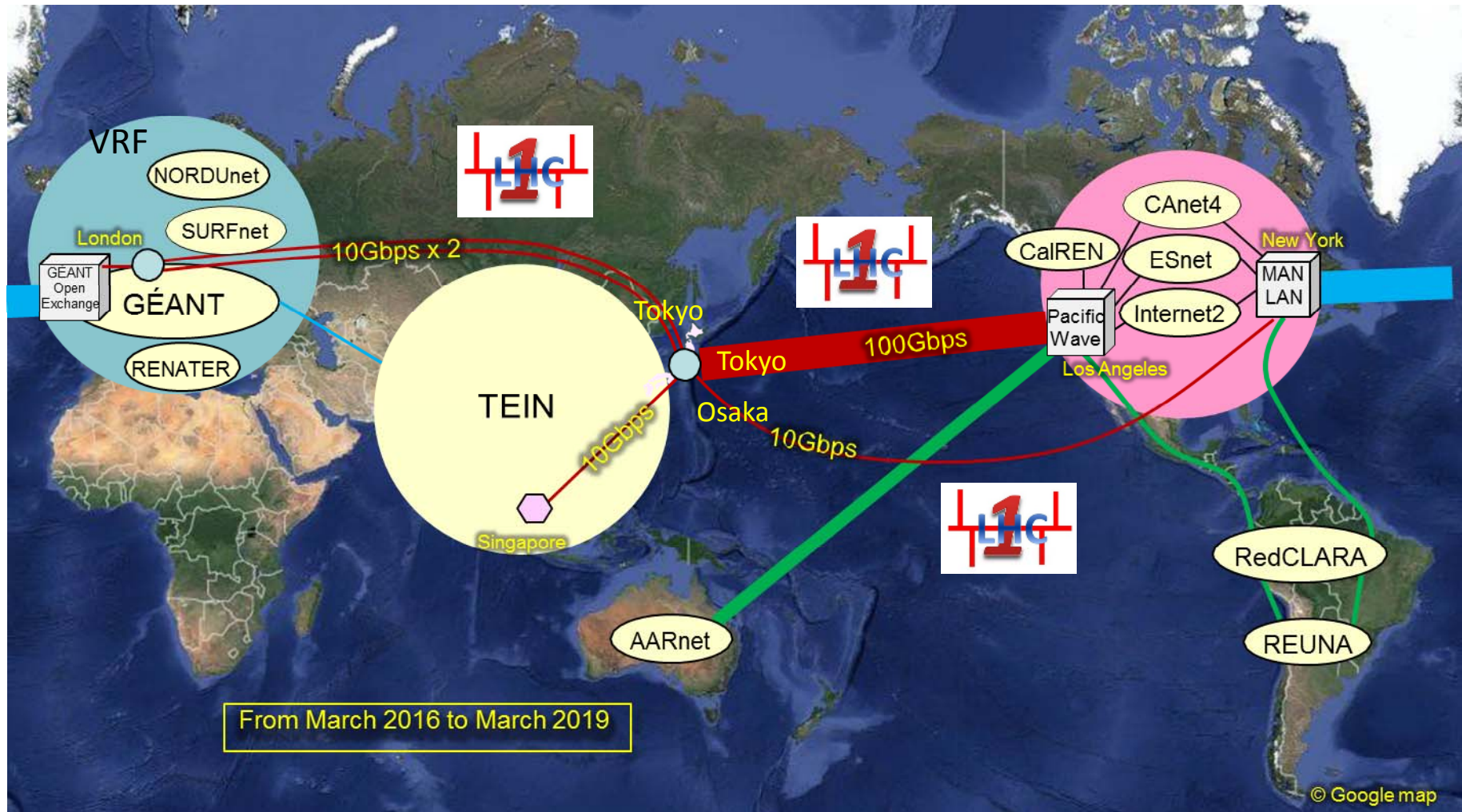
Y. Kubota (NII)

# Schedule of SINET migration

SINET5 international network

- Migration of Singapore line (10G):   Feb. 12
- Termination of WDC line (10G):   Feb. 26   Done
- Switching of NY line (10G):   Mar. 8 (via Osaka)
- Upgrade of LA line (100G):   Mar. 15   On going
- New London Line (20G):   by Mar. 18

- Currently, no backup for LHCONE routing (only general IP network is available for backup)

Migrating to SINET5 (Just on going)

- KEK: Mar. 16
- ICEPP: Mar. 23

KEK (Apr. 2016)
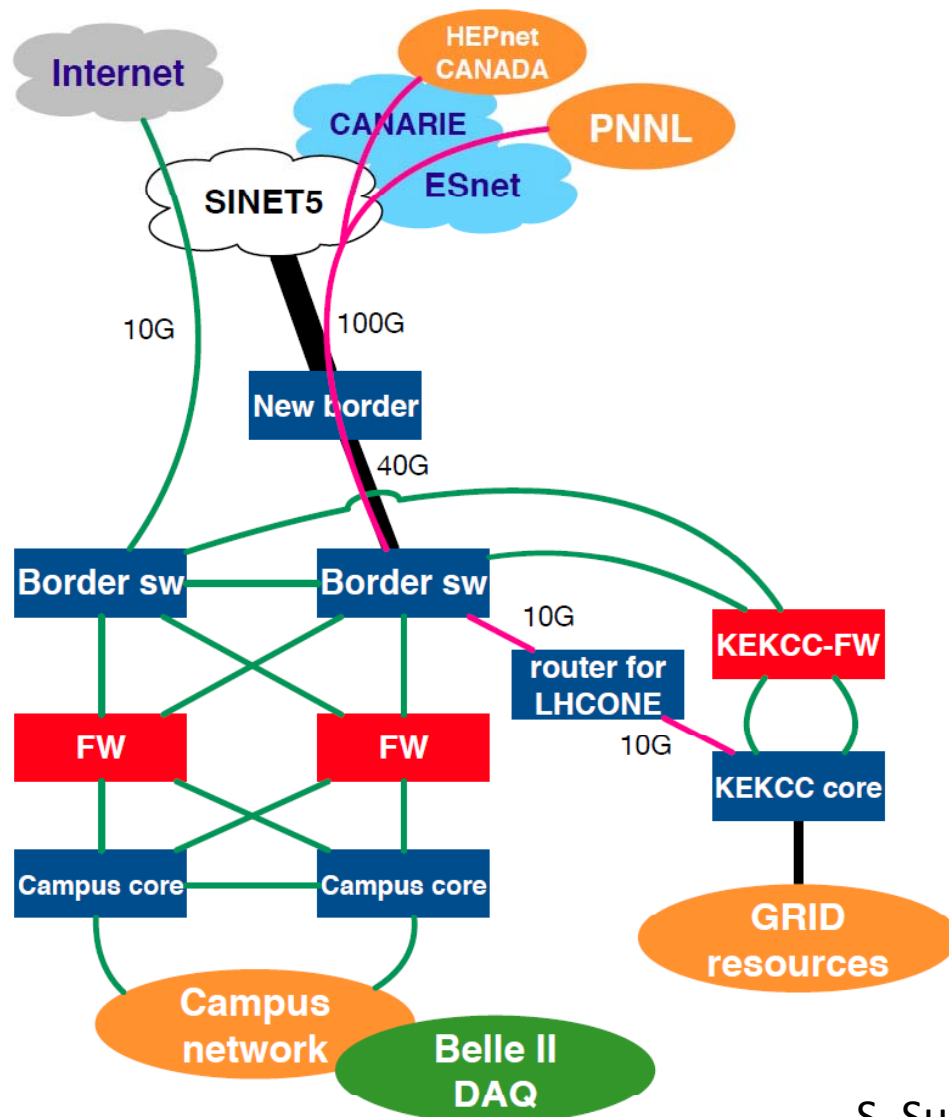
Network configuration

- New border switch is available
- 100G connection with SINET5
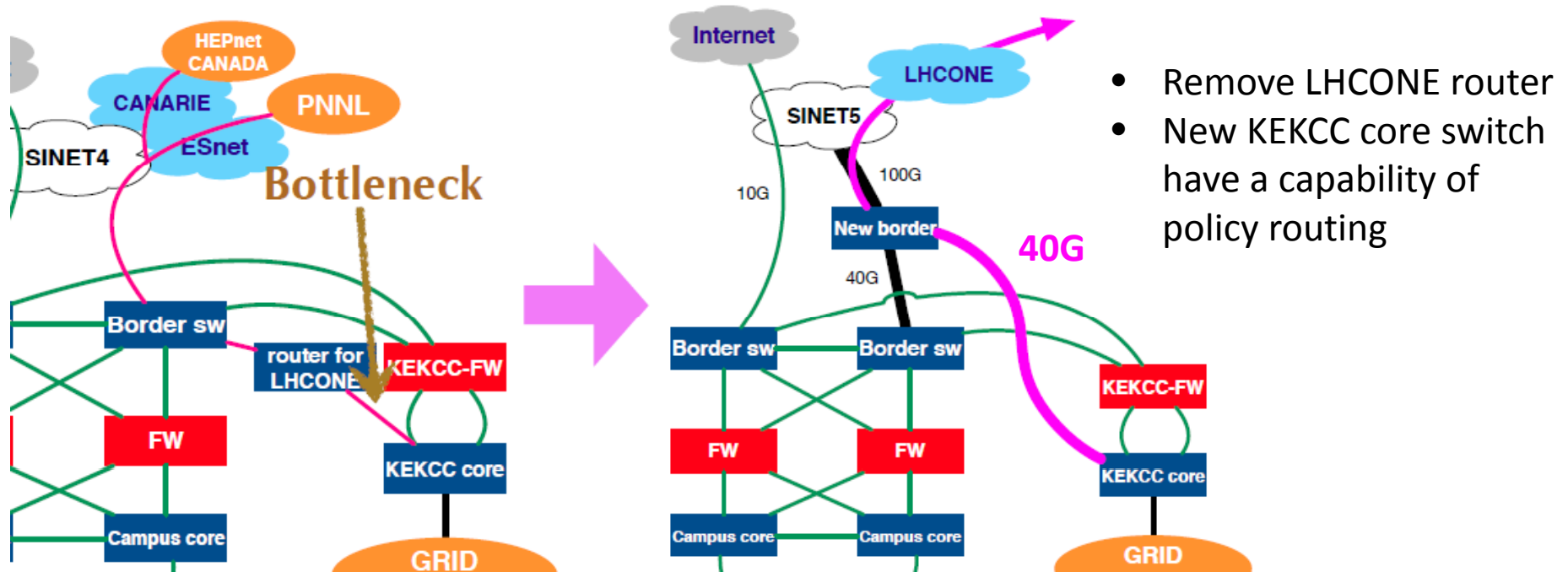- No capability of policy routing in KEK Central Computer (KEKCC)

Grid servers

- Four GridFTP servers are in production
- 4 x 1G links in each (16G in total)
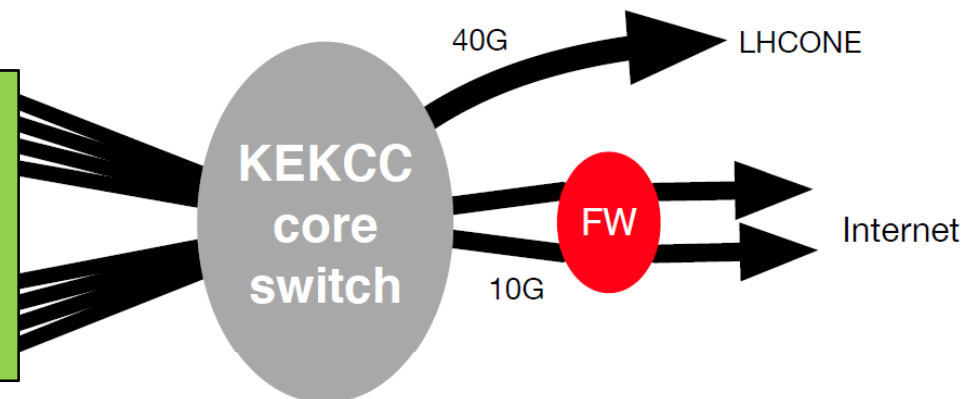- Static routing by the servers

S. Suzuki (KEK)

KEK (Sep. 2016)

- Remove LHCONE router
- New KEKCC core switch have a capability of policy routing
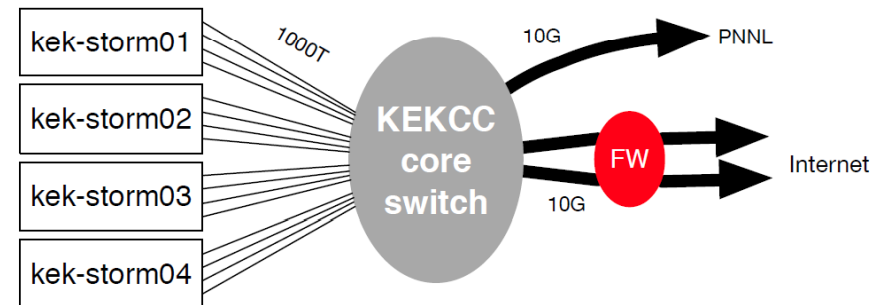
- Belle II raw data transfer: 40G x 2 servers

- Belle II analysis: 20G x 1 server

- Other VO: 20G x 2 servers

No static routing for LHCONE

Plan for LHCONE peering in future

ICEPP

- Switch routing for sites in Europe at the same time with the SINET5 migration
    - Primary: Tokyo - London (20G)
    - Backup: Tokyo - Osaka - NY (10G)
- Add peering for US sites (ESnet and Internet2 at LA) in a few months time scale
- Upgrade outbound bandwidth from 10G to 20G in several months time scale
- Upgrade from 20G to 40G in several years time scale depend on ATLAS traffic
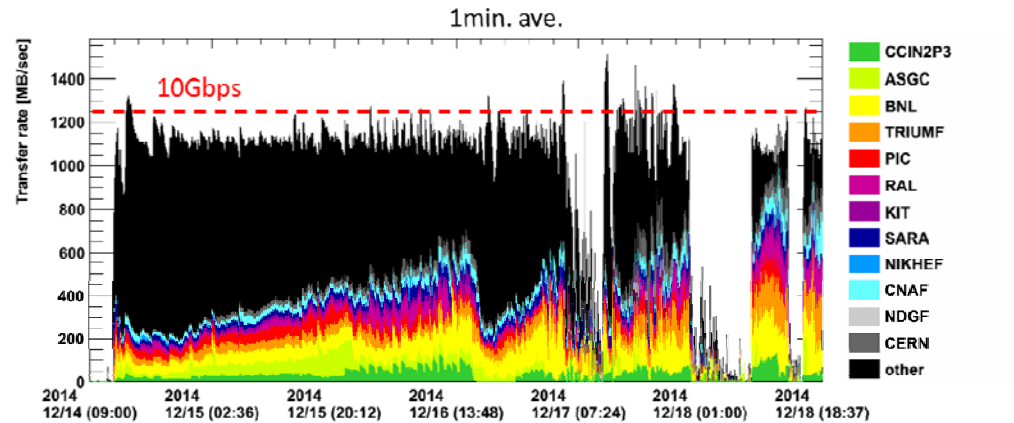
KEK

- Keep current configuration for PNNL and UVIC and McGill until Sep. 2016
- Switch to full LHCONE routing for US (LA) and European (London) sites with new KEKCC
- 40G and 20G will be available for US and European sites, respectively