Interoperability Working Group

● Projects

PJ31: **Ethernet over OTN Technology**
- 400Gigabit Ethernet -LANPHY Transmission Technology etc…

PJ32: **Multi-Technology Transport Network Control Technology**
- Multi Layer/ Multi Domain Network Control Technology
- SDTN (Software Defined Transport Network) etc…

● Demonstration Concept

■ *"Data, Application and Next   Generation Vertical Oriented Network & Compute Platform"* at iPOP2022-Showcase. *(PJ32)*

◆ At iPOP2023-showcase, we conducted a demonstration test according to last year's concept which focused on the elemental technologies such as telemetry, ultra high speed / flexible / secure connectivity, dynamic / distributed resource management, integrated orchestration.

● Publications

● Shinya Nakamura, Kohei Shiomoto, Hyde Sugiyama, Yusuke Hirota, Noboru Yoshikane, Kentaro Sugawara, Masatake Miyabe, Tomotaka Eguchi, Satoru Okamoto, Masaki Murakami, Takahiro Hirayama, Ikuo Sato, Thomas Roux, ``First Demonstration of End-to-End Network Slicing with Transport Network Coordination and Edge Cloud Applications in 5G Era," 24th OptoElectronics and Communications Conference/International Conference on Photonics In Switching and Computing (OECC/PSC 2019), No. PDP-4, July 2019.

● M. Shiraiwa, N. Yoshikane, S. Xu, T. Tsuritani, N. Miyata, T. Mori, M. Miyabe, T. Katagiri, S. Yoshida, M. Tanaka, T. Hayashi, H. Sugiyama, I. Satou, M. Mikuni, S. Okamoto, N. Yamanaka, B. Jeong, Y. Awaji, N. Wada, "Experimental Demonstration of Disaggregated Emergency Optical System for Quick Disaster Recovery," IEEE/ OSA Journal of Lightwave Technology (Invited), August 2018.

● M. Shiraiwa, N. Yoshikane, S. Xu, T. Tsuritani, N. Miyata, T. Mori, M. Miyabe, T. Katagiri, S. Yoshida, M. Tanaka, T. Hayashi, H. Sugiyama, I. Satou, M. Mikuni, S. Okamoto, N. Yamanaka, Y. Awaji, and N. Wada, "First Experimental Demonstration of Disaggregated Emergency Optical System for Quick Disaster Recovery," in Proc. Optical Fiber Communication Conference (OFC2018), San Diego, CA, USA, Th2A.29, March 2018.
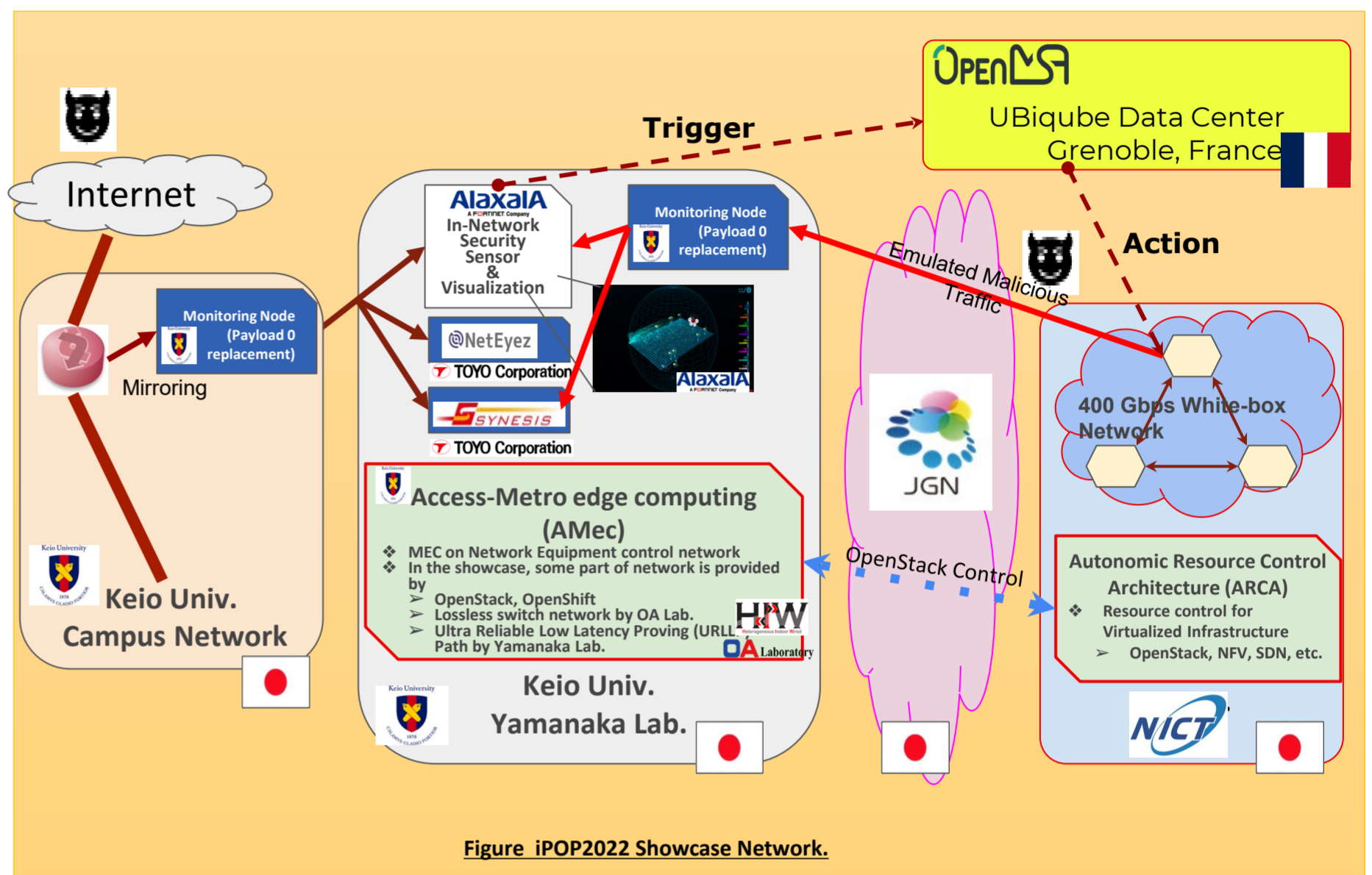
Chair：Naoaki YAMANAKA （Keio University）
Vice chairs： Hiroyuki OHNISHI (NTT)
              Satoru OKAMOTO （Keio University）
              Masatoshi SUZUKI （KDDI Research）
Members： Keio University, NTT, KDDI Research, Anritsu, OKI, Mitsubishi Electric, NEC, NICT

Our demo movies are available on the Kei-han-na OpenLab YouTube channel.

Figure iPOP2022 Showcase Network.

Open Optical Network (O²N) Working Group

Chair：
Takehiro Tsuritani（KDDI Research）
Vice chair：
Emmanuel Le Taillandier de Gabory (NEC)
Masayuki Kashima (OKI)
Members： Keio University, NEC, KDDI Research, Oki Electric, Mitsubishi Electric
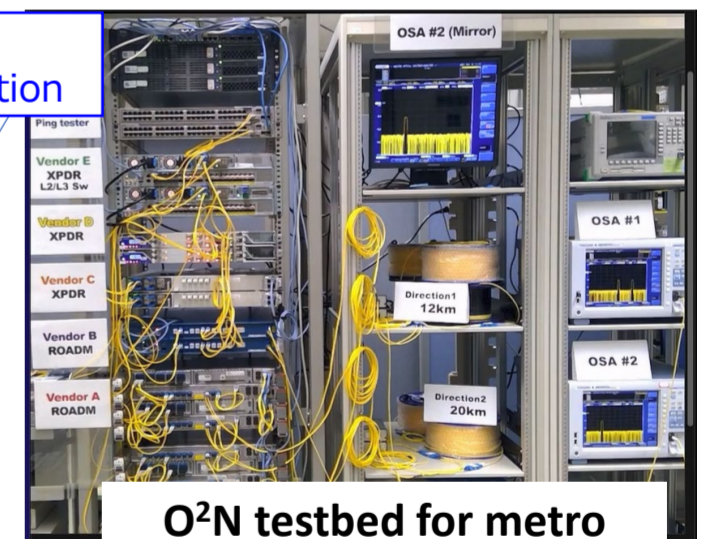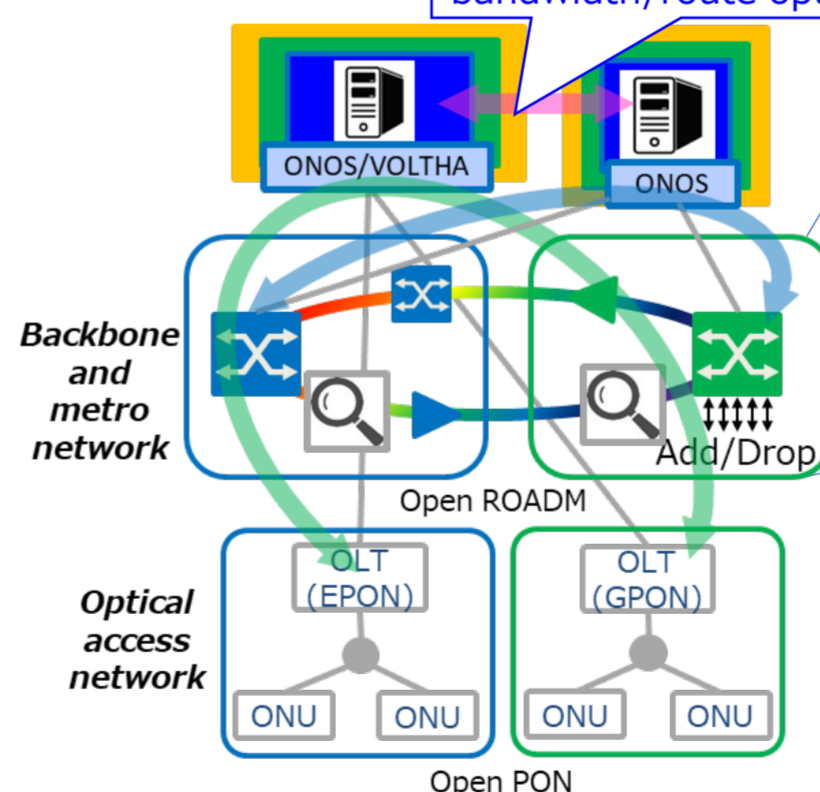
● What O²N WG?

◆ Focuses on promoting interoperability testing and standardization as de fact for realizing **"open" and "disaggregated" optical networks from backbone/metro networks to access networks**.

◆ Acts with collaborating **new project** of "Research and Development of Advanced Optical Transmission Technology for Green Society (JPMI00316)" **Theme II: High Capacity and High Multiplex Optical Access Network Transmission Technologies (2022-2025)** and past research project "Research and Development of Innovative Optical Network Technology for a Novel Social Infrastructure (JPMI00316)" Theme Ⅲ: High efficiency reliable optical access & metro network funded by the Ministry of Internal Affairs and Communications.

● Developments and demonstration

Key architecture

E2E NW management: bandwidth/route optimization

O²N testbed for metro NW with 5 vendors

You can watch the demo movie on Kei-han-na OpenLab YouTube channel.

● Motivation and goal

◆ Open and disaggregated optical networks would be capable of **CAPEX reduction** since each network module such as transponders and optical switches can be appropriately introduced in the right place at the right time. However, it might **increase OPEX.**

◆ In backbone and metro networks, there are concerns that openness will increase operational costs due to the increased complexity of guaranteeing optical signal quality and device control, and the difficulty of identifying and recovering from faults. In this activity, we will promote collaboration and verification of elemental **technologies to realize optimal open optical network operations**.

◆ In the access network, openness/virtualization is being considered, but since it's a stand-alone control, it's necessary to efficiently control the whole backbone, metro, and access networks. This activity will verify and promote elemental **technologies for efficient end-to-end network control**.