PRESS RELEASE

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RIKEN
National Institute of Informatics,
Nippon Telegraph and Telephone Corporation

RIKEN, NII, and NTT collaborate and promote to utilize large-scale data for research by using IOWN

Tokyo - March 29, 2023 - RIKEN, National Institute of Informatics (hereinafter NII), and Nippon Telegraph and Telephone Corporation (hereinafter NTT) signed a Memorandum of Understanding (hereinafter MOU) to collaborate and promote to utilize large-scale data for research by using IOWN (Innovative Optical and Wireless Network*1), which achieves ultra-high speed, ultra-low latency, and ultra-low power consumption, on March 27, 2023. From now on, we will use the strengths of each of the three parties to study and conduct Proof of Concept (hereinafter PoC) on large-scale, high-quality data transfer using IOWN. Moreover, we hope to improve research environments and enhance research capability.

Overview of MoU

1. Background

There are increasing opportunities to work with data at scale in all areas of research, not just big data, the Internet of Things (IoT), and artificial intelligence (AI). In order to effectively advance research activities by making the most of this data, there is an increasing need for the efficient transfer of large-scale research data between physically distant research sites for storage, processing, and analysis.

RIKEN, the only comprehensive research laboratory for natural science in Japan, is currently preparing for the launch of a cross-sectional RIKEN-wide project, “Transformative Research Innovation Platform of RIKEN platforms (TRIP),” in fiscal 2023, as a precursor to the next medium and long-term plan, Phase 5 (fiscal 2025 to 2031). TRIP is a challenging project that aims to provide an engine for social change by connecting RIKEN’s cutting-edge research platforms (e.g., supercomputers, large synchrotron radiation facilities, and bio-resource businesses) and by pioneering the acceleration and development of research digital transformation. In order to accomplish this project, it is urgent to establish an environment for efficiently transferring and utilizing large-scale, high-quality research data between research centers.

NII, the only academic research institute in Japan dedicated to information science, is promoting research to create future values in the field of information science and building and operating an academic information infrastructure, including the Science Information Network (SINET), which is essential for research and educational activities throughout the academic community. In fiscal 2022, NII launched the new SINET (SINET6), which connects all the prefectures at 400 Gbps (100 Gbps x 2 in Okinawa) using the shortest route, supporting the high-performance transfer of ever-increasing research data, and providing a Virtual Private Network (VPN) for secure and high-speed data transfer. NII is also developing and improving our research data infrastructure to promote open science

and to create an innovative academic research platform by effectively fusing it with SINET6.

NTT, an ICT company with global operations, proposed the IOWN concept in 2019 and is pursuing research and development in all-photonics networks and digital twin computing with partners worldwide. NTT aims to spread innovative communication infrastructure using optical technology globally to achieve carbon neutrality.

This time, the three parties aim to create an environment in which researchers can handle large-scale experimental data and analysis results from remote locations as if they were in the field and to develop new research results through the fusion of various types of data by connecting experimental facilities and research facilities that an ultra-low latency, unfluctuating, ultra-high-speed network cannot physically operate.

2. Purpose of MoU

The purpose of this MoU is to accelerate the promotion and development of large-scale, high-quality research data utilizing IOWN and to contribute to the research and development activities of each of RIKEN, NII, and NTT by sincere collaboration and cooperating with each other utilizing the strengths of their respective capabilities and human resources.

3. Collaborating items

To the extent that the objectives of the MoU are achieved, the three parties will promote collaboration and cooperation on the following matters related to the content of discussions and implementation of the PoC agreed upon by the three parties.

(i) Using IOWN to build and manage network environments
(ii) Construction of technology and environment for data management and data processing
(iii) Data transfer and data management using IOWN vs. existing networks
(iv) Expanding the research data utilization environment based on the future functions of IOWN

4. Future Initiatives

In the future, RIKEN, NII, and NTT will study and conduct PoC on large-scale, high-quality data transfer using IOWN in cooperation and collaboration based on the MOU. We will utilize the IOWN infrastructure and knowledge built by NTT as well as NII's technology and knowledge at the RIKEN Research Center, receive feedback from the research field, and jointly consider the expansion of the research data utilization environment, especially in light of the future functions of IOWN, in order to establish a data utilization environment that will change the premise of the research environment as stated in the TRIP Project concept. We hope these efforts will serve as a model for many research fields and institutions in the future, leading to improvements in the research environment and strengthening of research capabilities.

*1 IOWN is a future communications infrastructure to realize a smart world by using cutting-edge technologies like photonics and computing technologies.

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