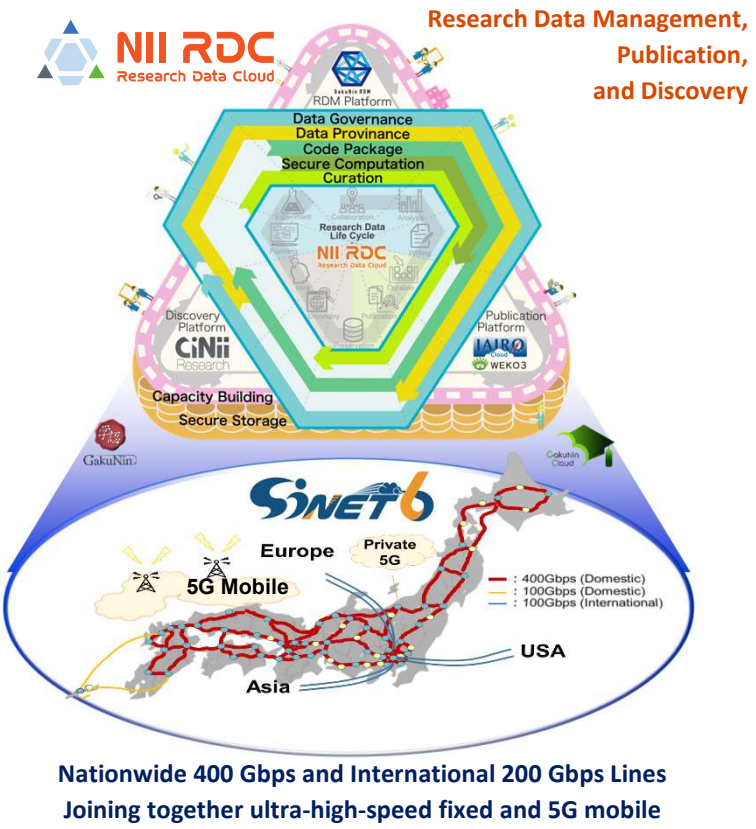
Academic Information Infrastructure for Data-Driven Science

National Institute of Informatics & Academic Information Infrastructure

The National Institute of Informatics (NII) seeks to advance integrated research and development activities in information-related fields, including networking, software, and content. NII also promotes the creation of state-of-the-art academic information infrastructure, designed by fusing the ultra high-speed network, ***SINET6***, and the research data platform, ***NII Research Data Cloud***, to promote data-driven science.



Cloud and IoT Platform

This research exhibit presents the latest results of our projects aimed at building cloud and IoT platforms for high-performance and secure data-driven science.

Analysis

Literate Computing for Reproducible Infrastructure

- ✓ Knowledge sharing for operations of cloud computing infrastructure utilizing Jupyter Notebook preserving reproducibility

Cloud

Case Study of Hybrid Cloud for Astronomical Observatory Data Analysis

- ✓ Case study of hybrid cloud architecture for storing *ALMA Radio Telescope data* and analyzing them through research applications

Tools for High-Performance Data Analysis Platforms

- ✓ Virtual cloud provider (VCP) for automatically building data analysis platforms, e.g., Open HPC/Open OnDemand environment
- ✓ Ecosystem for genome analysis workflows

Zero Trust based IoT Security

- ✓ Secure Internet of Things (IoT) systems by the concept of zero trust security by the fusion of formal verification and system software technologies

IoT Stream Processing

- ✓ Development of SINETStream, a software library that enables easy development of secure and efficient IoT applications over the Internet

IoT