Inter-University Institute Corporation
Research Organization of Informatics and Systems

National Institute of Informatics

2007-2008

As Japan's only general academic research institution seeking to create future value in the new discipline of informatics, the National Institute of Informatics (NII) seeks to advance integrated research and development activities in information-related fields, including networking, software, and content. These activities range from theoretical and methodological work to applications. As an inter-university research institute, NII promotes the creation of a state-of-the-art academic-information infrastructure (the Cyber Science Infrastructure, or CSI) that is essential to research and education within the broader academic community, with a focus on partnerships and other joint efforts with universities and research institutions throughout Japan, as well as industries and civilian organizations.

Weaving Information into Kowledge

NII

Research & Education Activities at NII

Informatics is a new academic discipline based not only on computer science and information technology, but on the human, social, and life sciences. The NII advances informatics research with the goals of creating future value; furthering social and public contributions; promoting interdisciplinary approaches to information processing; partnerships among industry, government, academic, and civilian organizations; and international research activities and operations. The NII has established four research divisions, five research centers, the Organization for Management and Outside Collaboration on R&D, and the Collaborative Research Unit.

Research Division

●Principles of Informatics Research Division

In the Principles of Informatics Research Division we seek to discover new principles, theories and methods in Informatics, and extend our goal to pioneering the frontiers to try and achieve a paradigm shift in informatics.

●Information Systems Architecture Science Research Division

The Information Systems Architecture Science Research Division deals with the research issues in software/hardware architectures of computers and networks, and their system implementation.

●Digital Content and Media Sciences Research Division

The Division conducts research on various types of contents and media such as text and video in terms of analysis, creation, compilation and application, and their processing methods from the theories to the systems.

●Information and Society Research Division

The Information and Society Research Division takes an interdisciplinary approach to relations between a variety of information and society or community and to implementing information systems in society. (This approach includes social informatics, scientific informatics, and cultural informatics.)

Research Center

●Center for Grid Research and Development

The Center researches and develops grid middleware necessary to advanced research and development in the Cyber Science Infrastructure (CSI), and disseminates its results and conducts operations.

●Research and Development Center for Informatics of Association

The Center researches and develops associative calculation mechanisms about large-scale content, and constructs practical information technology that supports raising humans' associative ability.

●Strategic Research Projects Incubation Center

The Center plays a role in developing potential projects and incubating them into strategic and organized projects by providing research support.

●Research and Development Center for Academic Networks

The Research and Development Center for Academic Networks is responsible for conducting research and development as well as construction of the cutting-edge infrastructures of the academic network and the UPKI (University Public Key Infrastructure) for Japanese universities, both forming the core of the Cyber Science Infrastructure (CSI) by cooperating with Japanese universities and relevant organizations.

●Research and Development Center for Scientific Information Resources

The Center coordinates and operates with the related organizations in conducting advanced research and development about their circulation and generation, common of the academic digital content on the Cyber Science Infrastructure (CSI).

Organization for Management and Outside Collaboration on R&D

●Organization for Science Network Operations and Coordination.

The Organization coordinates and operates the construction of Next-Generation Network, middleware and others as part of the core of the Cyber Science Infrastructure (CSI).

●Organization for Scientific Resources Operations and Coordination

The Organization coordinates and operates the management of scientific resources and the provision of services as part of the core of the Cyber Science Infrastructure (CSI).

●Organization for Value Creation in Informatics

Meeting future social and technological requirements through value creation in informatics, the organization is making continuous research efforts to overcome grand challenges by organizing all Japanese universities and research institutions in each research area.

Organization for Promoting Cooperation with Society and Industry

Promoting research activities in informatics to contribute to society and the public and to reinforce government-industry-academia collaboration, and aiming at sharing reseach results and their values with society and industry, the organization is developing innovative model and frameworks for promoting cooperative activities.

Projects

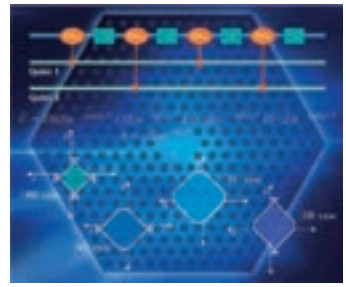
●Cyber Science Infrastructure (CSI)

- ■ Science Information Network SINET3
  〈Organization for Science Network Operations and Coordination〉
- ■ Integrated middleware for CSI 〈Center for Grid Research and Development〉
- ■ Next-generation scientific content infrastructure, content service
  〈Organization for Scientific Resources Operations and Coordination〉
- ■ UPKI (University Public Key Intrastructure) joint public key infrastructure for universities
  〈Organization for Science Network Operations and Coordination〉
- ■ E-Science Project

A research project to taekle the information explosion has been initiated

●Informatics for future value creation

- ■ Cyber infrastructure for the information-explosion era 〈Jun Adachi〉
- ■ Electronic entanglement security technology 〈Yoshihisa Yamamoto〉
- ■ Research into quantum computing based on coherent states and solid state quantum bits (qubits) 〈Yoshihisa Yamamoto〉
- ■ Science Grid 〈Kenichi Miura〉
- ■ Next-generation Informatics Research Infrastructure



Qbus computation

●Next-generation software strategies

- ■ Next-generation operating system: SSS-PC 〈Takashi Matsumoto〉
- ■ Identifying basic software technologies 〈Katsumi Maruyama〉
- ■ TOP SE (Education Program for Top Software Engineers) 〈Shinichi Hoiniden〉

●Information environment / Content creation

- ■ New generation bio portal R&D 〈Asao Fujiyama〉
- ■ Associative information access technology incorporating self-learning 〈Akihiko Takano〉
- ■ Generic Engine for Transposable Association (GETA) 〈Akihiko Takano〉
- ■ Content integration and manipulation technology for digital archiving 〈Jun Adachi〉
- ■ Thinking content - The Smartive Project 〈Shinichi Honiden〉
- ■ Digital cinema common specifications development project (DCCSDP) 〈Noboru Sonehara〉
- ■ Research Infrastructure for Evaluation and Performance Comparisons of Information Searching and Access Technology - NTCIR (NII-NACSIS Test Collection for IR Systems) 〈Noriko Kando〉

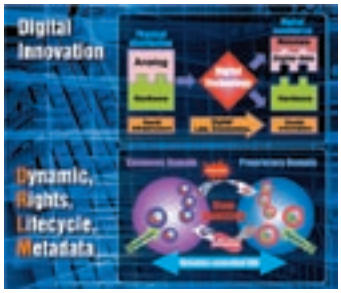
Jabion

●Social/Public contribution

- ■ Cultural Heritage Online 〈Akihiko Takano〉
- ■ IMAGINE—a content-based infrastructure associated to the imagination 〈Akihiko Takano〉
- ■ Information sharing sysmte - NetCommons 〈Noriko Arai〉
- ■ Digital Silk Roads Project 〈Kinji Ono〉
- ■ Information reliability mechanism - Infotrustics 〈Noboru Sonehara〉

●Integrated informatics

- ■ Determing the genomic infrastructure of evolution and diversity through comparative genome analysis 〈Asao Fujiyama〉



Digital rights lifecycle metadata management system

Cultural Heritage Online

Associative engine changing information into insight

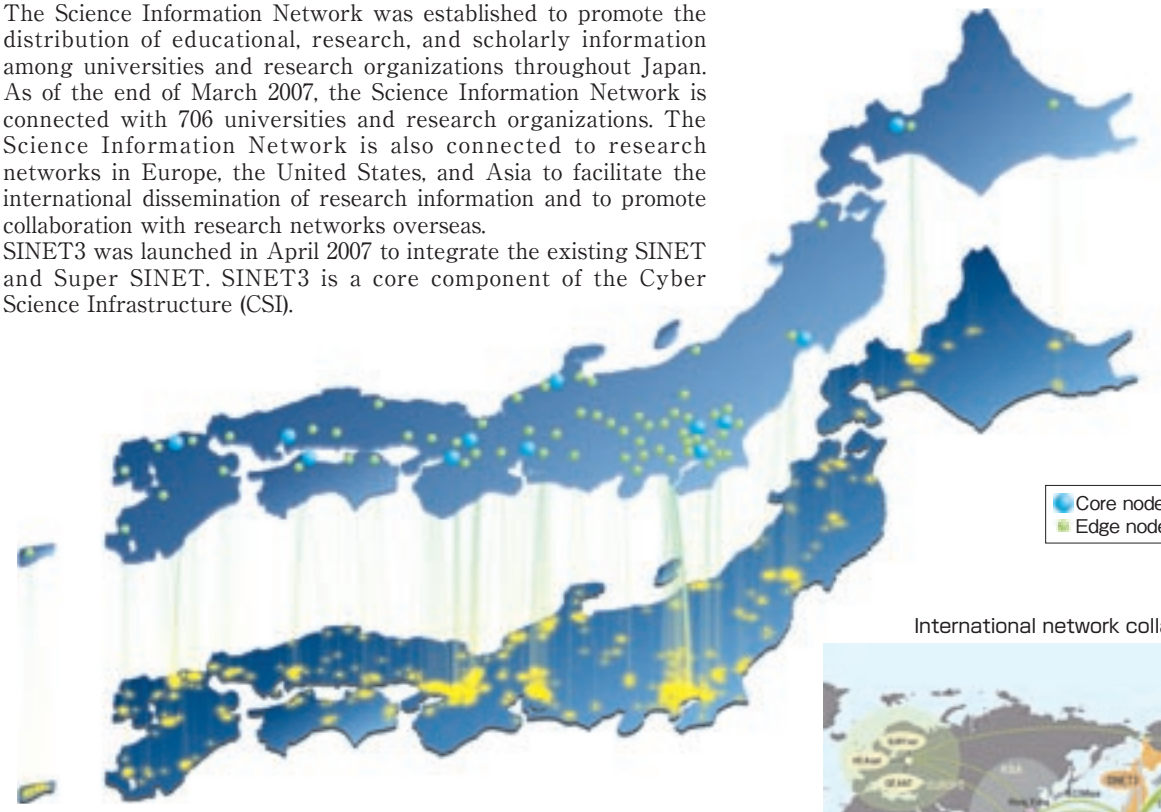
NetCommons

Thinking contents: Smartive

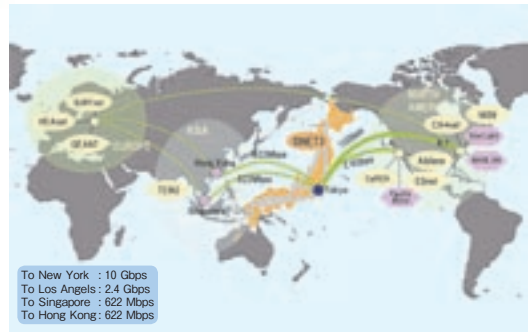
Cyber Science Infrastructure (CSI)

Science Information Network (SINET3)

The Science Information Network was established to promote the distribution of educational, research, and scholarly information among universities and research organizations throughout Japan. As of the end of March 2007, the Science Information Network is connected with 706 universities and research organizations. The Science Information Network is also connected to research networks in Europe, the United States, and Asia to facilitate the international dissemination of research information and to promote collaboration with research networks overseas.
SINET3 was launched in April 2007 to integrate the existing SINET and Super SINET. SINET3 is a core component of the Cyber Science Infrastructure (CSI).



International network collaboration



URL http://www.sinet.ad.jp/
Inquiry : Academic Network Division, Cyber Science Infrastructure Development Department
E-mail : net6@sinet.ad.jp

National Research Grid Initiative (NAREGI)

The NAREGI (National Research Grid Initiative) program aims to research and develop grid middleware that will put the construction of the computer research environment in the petascale era in view, as part of the "Development and Application of Advanced High-performance Supercomputer Project."
This program is a system of joint research development that designates NII and the Institute for Molecular Science as its core, in order to cooperate strongly with the cooperating organizations. The Program also involves cooperation with the industrial world.
The NII offers the tools that are necessary for the research and development of the grid middleware (NAREGI Middleware) and the construction and utilization of the resulting grid environment. In addition, the Institute aims at cooperation of the grid environment with those of various countries.

URL http://www.naregi.org/
Inquiry : Center for Grid Research and Development (Collaborative Center for Research Grid)

Construction of a University Public Key Infrastructure (UPKI) for use in cooperation between universities

Construction of the University Public Key Infrastructure (UPKI) is underway, intended to achieve an inter-university cooperation that makes use of educational and research computing systems, digital content, networks, and business systems at these universities and other institutions in safe, convenient, and effective ways.
In the construction of UPKI, Inter-university authentication federation is promoted by developing UPKI common specifications that makes it easier for campus PKI interoperation with each other, and by developing applications using the UPKI. And providing a software package for certification authority supports establishing of Campus PKI.
As part of efforts in construction of the UPKI, the UPKI initiative was established as a network community for the purposes of exchanging and sharing opinions and information with faculty and staff at universities and other institutions concerning UPKI specifications and its use.

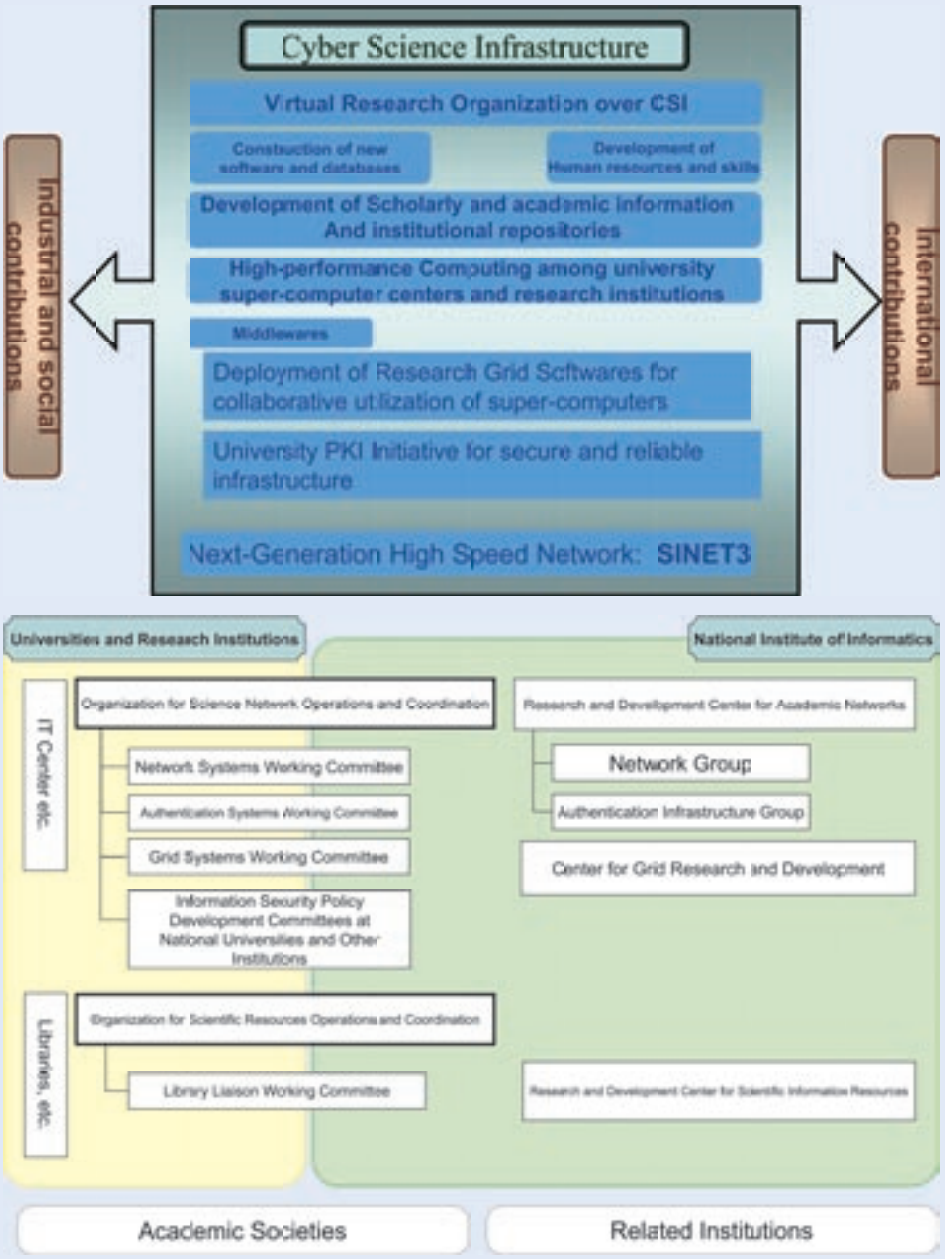
UPKI Initiative **URL** https://upki-portal.nii.ac.jp/
Inquiry : UPKI Section, Infrastructure Planning Division, Cyber Science Infrastructure Development Department
E-mail : upki@nii.ac.jp

Construction of Cyber Science Infrastructure (CSI)

NII is promoting the construction of the Cyber Science Infrastructure (CSI) through cooperation with universities and other organizations, in order to promote Japan's academic research and educational activities and to further strengthen whose international competitiveness.
CSI means an information environment that incorporates and utilizes various research activities and results from universities and research institutions – such as supercomputers and other distinctive scientific utilities and resources, scientific software and databases, and human resources – over a super high-speed network, transcending the borders of organizations or scientific fields. This infrastructure will guarantee an environment that enables the promotion of cutting-edge higher education as well as research and development of technology in universities, research institutions, and industry.
The NII put in strategic efforts to the following three areas, as expanding the various development projects and operations it has implemented to date within the framework of the CSI.

1. Establishment of next-generation academic networks, the infrastructure for grid environment nationwide authentication systems through cooperation between the NII, the university IT centers and other organizations
2. Establishment of the infrastructure for next-generation scientific resources through cooperation between the NII, university libraries and other organizations
3. Formation of a nationwide informatics research alliance for future value creation

The NII, universities and other research institutions will collaborate and cooperate closely to facilitate the above, and Japan's academic community will work as one to prepare and vigorously promote the framework for advancing CSI construction.



URL http://csi.nii.ac.jp/
Inquiry : Infrastructure Planning Division, Cyber Science Infrastructure Development Department, E-mail : plan@nii.ac.jp

Education and Training Programs

NII provides a range of training programs for university and other academic personnel responsible for scientific and academic information at universities and elsewhere.

■User Training
User Training course provides the opportunity to learn the structure of NACSIS-CAT/ILL, its contents, data uploading methods (input standards), and operation rules.

■NII Practical Training Course
NII Practical Training Course provides training in advanced academic information systems through hands-on experience at NII facilities.

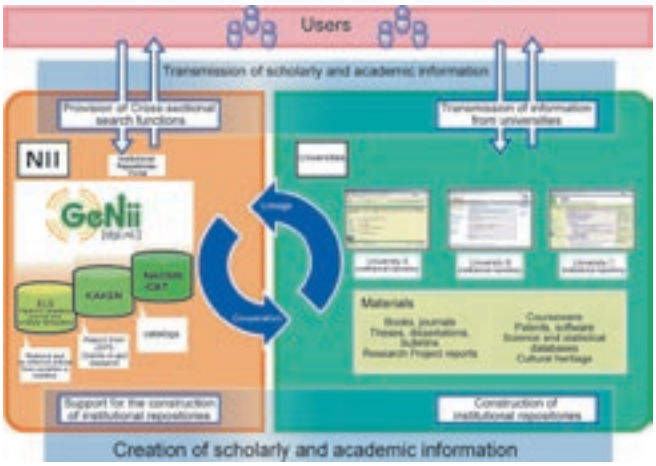
■Advanced Training Programs
Advanced Training Programs provides the opportunities to learn academic information, the latest development in information communication and specialized/advanced technologies.

■Support for User Training Sponsored by Universities
NII supports the user training sponsored by universities and academic societies.

URL http://www.nii.ac.jp/hrd/
Inquiry : Infrastructure Planning Division, Cyber Science Infrastructure Development Department E-mail : edu@nii.ac.jp

Next-Generation Academic Information Infrastructure

NII, in close collaboration with universities, is attempting to generate and secure scholarly and academic information that are indispensable to the scholarly community, and to build an information infrastructure that will give added value to and broadly transmit these information.



●Support for Linkage between Institutional Repositories

NII supports the construction of "institutional repositories" that harvest and store academic papers and other results of universities and other institutions, and transmit these both inside and outside the institutions to develop next-generation academic information infrastructure and collaborate with various institutions.

URL http://www.nii.ac.jp/irp/
E-mail：iradm@nii.ac.jp

●GeNii (NII Scholarly and Academic Information Portal)

GeNii is a portal site providing comprehensive information on academic research. The site currently provides four content services: (1) academic papers (CiNii), (2) books/journals (Webcat Plus), (3) research results (KAKEN), and (4) specialized academic information (NII-DBR). GeNii offers integrated search of all databases as well as individual search functions that maximize the features of each content type.
Although GeNii can be accessed free of charge through the Internet without a user registration, some of the for-fee contents in CiNii require institutional/individual registration.

URL http://ge.nii.ac.jp/
E-mail：geniiadm@nii.ac.jp

●Catalog Information Service

■NACSIS-CAT: Cataloging System

NACSIS-CAT is a system for constructing union catalog databases designed to provide at-a-glance information on academic information archived at university libraries across Japan. It serves as a useful tool for academic and research activities. As of the end of March 2007, 1,188 organizations were participated to NACSIS-CAT.

■NACSIS-ILL: Interlibrary Loan System

The NACSIS-ILL system supports inter-library services for document reproduction and lending of literature to researchers. Some 1.16 million requests are handled.

URL http://www.nii.ac.jp/CAT-ILL/
E-mail：〈NACSIS-CAT〉catadm@nii.ac.jp 〈NACSIS-ILL〉illadm@nii.ac.jp

NACSIS-CAT
NACSIS-ILL

●NII Electronic Journal Repository (NII-REO)

NII-REO is an electronic journal content storage and access system developed by consortia of university libraries as a means of ensuring continuous and reliable access to journal data. The availability of each item depends on the individual conditions agreed upon with the publishers.

URL http://reo.nii.ac.jp/
E-mail：reo@nii.ac.jp

NII-REO
NII電子ジャーナルリポジトリ

●International Scholarly Communication Initiative (SPARC Japan)

This project began for strengthening the electronic journals of the scholarly publications of Japan's academic societies, with a view to keeping in the hands of Japanese researchers the outstanding research results that are currently published abroad and further promoting the international dissemination of research results.

URL http://www.nii.ac.jp/sparc/
E-mail：sparc@nii.ac.jp

SPARC Japan

●Online Scientific Terms (Sciterm)

With the Online Scientific Terms (Sciterm) service, the scientific terms contained in the scientific dictionaries and glossaries can be retrieved, via the Internet, free of charge.

URL http://sciterm.nii.ac.jp/
E-mail：sciterm@nii.ac.jp

Sciterm

●Academic Society HomeVillage

The purpose of Academic Society Homevillage is to collects scholarly research relating to Japanese academic societies and disseminates the information over the internet.

URL http://wwwsoc.nii.ac.jp/
E-mail：wwwsoc@nii.ac.jp

Academic Society HomeVillage

Inquiry：Scholarly and Academic Information Division, Cyber Science Infrastructure Development Department

Research & Education Activities at NII

●Graduate Education

NII joined the Graduate University for Advanced Studies and established the Department of Informatics to provide graduate education (5-year and 3-year Ph.D. programs). The department covers six research areas: Foundations of Informatics, Information Infrastructure Science, Software Science, Multimedia Information Science, Intelligent Systems, Science, and Information Environment Science. NII also accepts excellent students from overseas. In addition, NII is cooperating in the provision of graduate education to graduate students pursuing Master's or Ph.D. degrees at many universities.

■Number of Students (April 2007)

	Domestic	Outside the country	Total
The Graduate University for Advanced Studies	43	18 (9 countries)	61
Other graduate schools	—	—	65

Inquiry : International Affairs and Education Support Team, Research and Education Promotion Division
E-mail : daigakuin@nii.ac.jp

●Research Cooperation / Intellectual Property

NII actively advances research with grants-in-aid for scientific research, with the private sectors and with external funds such as those for commissioned research, and also promotes contributing to society by utilizing intellectual property that is produced from research process and is managed by NII.

Inquiry : Research Promotion Team, Research and Education Promotion Division
E-mail : kaken@nii.ac.jp

●Dissemination of Research Results

NII organizes lectures and symposia and publishes books and brochures in order to disseminate research findings widely to society.

◆Open House : Poster Exhibitions and Demos

◆Lectures and Symposia
NII International Symposium
Karuizawa Saturday Salon
NII Public Lectures

◆Publications
Progress in Informatics
NII Technical Report
NII Series (Maruzen Library)
Karuizawa Doyo-Konwakai Koenshu: Chi to Bi no Harmony ("Collection of Lectures from the Karuizawa Saturday Salon: Harmony of Intelligence and Beauty")

Progress_in_informatics (No.3)

◆Brochures
NII Today
Catalogue of NII
Outline of NII
Annual Report

◆Mail Magazine
We deliver, the information such as various event guides regarding NII and up-to-date information with E-mail. Subscription charge is free. Please subscribe from the following page.
URL : http://www.nii.ac.jp/magazine/nii-mag-top-j.shtml

NII Open House (June, 2006)

Karuizawa Saturday Salon (November, 2006)

NII Public Lecture (July, 2006)

Inquiry : Publicity and Dissemination Team, Planning and Promotion Strategy Department
E-mail : publicity@nii.ac.jp

●International Activities

NII actively promotes international exchange agreements (MOUs, memoranda of understanding) with overseas universities and research institutes, and holds various exchange activities in the form of joint research projects, and other interactions between researchers and students. To support these exchange activities, NII provides various programs such as the International Internship Program and MOU Grants. NII promotes collaborations with overseas universities and institutes in various fields of research.

Inquiry : Plannning Team, Planning and Promotion Strategy Department
E-mail : kokusai@nii.ac.jp

Organization

- Director General
  - Advisory Board
  - Administrative Council
- Deputy Director General
  - Research Division
    - ●Principles of Informatics Research Division ●Information Systems Architecture Science Research Division ●Digital Content and Media Sciences Research Division ●Information and Society Research Division
  - Research Center
    - ●Center for Grid Research and Development ●Research and Development Center for Informatics of Association ●Strategic Research Projects Incubation Center ●Research and Development Center for Academic Networks ●Research and Development Center for Scientific Information Resources
  - Organization for Management and Outside Collaboration on R&D
    - ●Organization for Science Network Operations and Coordination ●Organization for Scientific Resources Operations and Coordination ●Organization for Value Creation in Informatics
  - Collaborative Research Unit
  - Planning and promotion Strategy Department
    - ●Planning and International Affairs ●Publicity ●Global Liaison Office
  - Cyber Science Infrastructure Development Department
    - ●Infrastructure Planning Division ●Academic Network Division ●Scholarly and Academic Information Division
  - General Affairs Department
    - ●General Affairs Division ●Budget and Accounts Division ●Research and Education Promotion Division
  - Information Technology Center
  - Organization for Promoting Cooperation with Society And Industry

Facilities

●National Center of Sciences (Chiyoda-ku, Tokyo)

NII is located in the National Center of Sciences at Hitotsubashi, Tokyo. This building has some meeting rooms including, Hitotsubashi Memorial Hall, which are used for international meetings and workshops organized by national universities and academic societies.

●Center for GRID Research and Development (Chiyoda-ku, Tokyo)

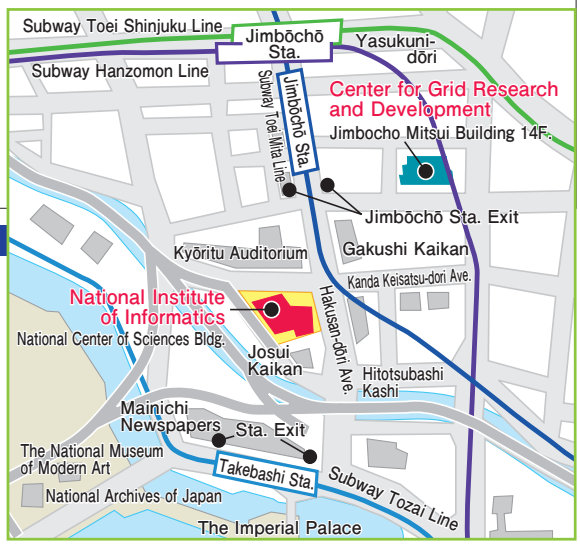
In order to develop grid research, the center is located in a building near the National Center for Sciences, and the Collaborative Center for Research Grid has been established there. Closer cooperation among the government, and the academic and private sectors is expected at the Center.

●Chiba Annex (Inage-ku, Chiba City)

The Chiba Annex is located in the Chiba Experiment Station of the Institute of Industrial Science of the University of Tokyo as a facility for computer systems and networking equipment, which are used to operate science information system and provide science information services.

●International Seminar House for Advanced Studies (Karuizawa, Nagano Prefecture)

This house was built as a venue for international research exchange. It has a seminar room and accommodations and other facilities, which can be widely utilized by universities and research organizations to organize international meetings, seminars, and training.



NII

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http://www.nii.ac.jp/

National Center of Sciences
2-1-2 Hitotsubashi, Chiyoda-ku, Tokyo 101-8430
Tel.+81-3-4212-2000

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