NICT NEWS

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情報通信研究機構

New Year's Greeting 2014

President of National Institute of Information and Communications Technology

Dr. Masao SAKAUCHI

I wish all of you a Happy New Year

The government has been working on revitalizing the economy to rise out of prolonged deflation, and as the export environment improves by correction of yen appreciation, there is growing anticipation for economic recovery.

ICT is the foundation of all social and economic activities, and using ICT for a wide range of fields is expected to be the driving force to grow the Japanese economy and to regain the vitality of society by creating new values and innovations.

In such conditions, I believe that last year, we were able to achieve much more significant results than ever before. For example, a global radio communication standard "Wi-SUN", which NICT actively promoted research and development as well as standardization for, was adopted as one of the communication systems between next generation "smart meter" applications by Japan's largest power companies and Home Energy Management System (HEMS). In the future, I believe that Wi-SUN will be incorporated into home appliances and office equipment in homes and businesses, and will eventually become the core technology for sensor networks, which serves as a leading role of ICT. The significance of Wi-SUN lies in its future contribution in strengthening the industrial competitiveness of our country.

Speaking of industrial competitiveness, the optical switch LSI, a high-capacity optical fiber communication for 100 Gbps developed in cooperation with the private sector, successfully occupied the top market share of approximate 60% in the world market in 2012. Today, in order to keep the established position in the market, we are proceeding preparations for the development of an optical switch LSI of 400 Gbps as soon as possible.

In addition, we are conducting the research and development of multi-core optical fiber technology that allocates multiple cores (light paths) per one optical fiber in order to respond to the rapid increase in network traffic at a rate of over 30% due to popularization of smart phones, and so on. As for the cyber security, which has become a major issue worldwide, we began providing alerts to local governments and Asian countries.

In addition, regarding electromagnetic sensing technology, we have developed an airborne synthetic aperture radar technology to process the observation data of the ground surface on board in high-speed and to transmit it to the ground in just 10 minutes. This year, the GPM satellite equipped with a Dual-frequency Precipitation Radar, which NICT and JAXA have collaborated in research and development, is planned to launch and is expected to contribute to the worldwide challenge of global environment issues.

Today, information and communication field has entered a new paradigm. Up until 20 years ago, it focused on how to make computers and communication systems. Until 5 years ago, we entered a phase that focused on how to build a cyber society on the Internet, and how to make use of the information exchanged within cyber society. Now, we have entered an era where we seek harmonization of the real world and the cyber world, and how to create new value from it. The direction of ICT ahead will not finalize within the scope of information communication. It is expected to work in collaboration across a wide range of fields such as transportation, disaster prevention, energy, infrastructure preservation, agriculture, medical care, and nursing care to improve efficiency of society as a whole, create new values, and solve social issues.

One of the keywords for that is Big Data. We would like to devote our energies on Big Data for social contribution, or Social Big Data among other things. We take the Social Big Data as the major pillar for NICT's research and development that will generate new values by gathering and analyzing a variety of information via networks in collaboration with institutions of other fields that play social and public roles such as agriculture, transportation, energy, infrastructure preservation, environment, health care, and disaster-resilience.

Aside from advancement in the use of Big Data, privacy protection remains a concern for many people. Although it is considered technically possible to utilize information while maintaining privacy, it is important for us to verify the technology by constructing an actual system to advance objective discussions on this issue. By doing so, we would like to deepen public understanding of Social Big Data by conducting practical verifications of privacy protection while showcasing the values generated by the use of Social Big Data.

Currently, a new organization system of incorporated administrative agencies for research and development is under consideration by the government. While we await more details to arrive soon, our understanding is that there are growing demands for management to maximize the results obtained from input resources by clarifying the research challenges for each institution to address in accordance with national strategy, which leads to maximizing researcher ability. In order to continue and expand the competitiveness of our country, especially in the ICT field, we will work in cooperation with the Ministry of Internal Affairs and Communications and actively promote initiatives, including a review of the current system to serve as a platform for private sectors.

To advance such initiatives, we also need to further promote international cooperation as well as industry-academia-government cooperation. In terms of creating a hub for research and development for global industry-academia-government cooperation, NICT has already established the Center for Information and Neural Network in Osaka University, as well as the Resilient ICT Research Center in Tohoku University, which was triggered by the Great East Japan Earthquake. Hereafter, in order to strengthen the research of Social Big Data to play a significant role in our research activities, we will set up a new research center with Institute of Industrial Science, the University of Tokyo and the National Institute of Informatics. In addition, we are currently establishing a new collaboration research center with the Japan Advanced Institute of Science and Technology, as well as one abroad with Chulalongkorn University in Thailand. In addition, in November last year, we organized a roundtable with institutions in Southeast Asia that concluded an MOU on comprehensive study cooperation. We continue to deepen cooperation with institutions at home and abroad extensively, and hope to develop it further in the future.

This year marks the fourth year of the third medium-term plan of NICT. We will focus all our resources on research and development to achieve our plan. At the same time, we will make sure of the future direction and start preparations for the development of the next medium-term plan so as to respond appropriately to the needs of society in the future, and to contribute to building a safe, secure, and rich society filled with vitality.

As a final note, I'd like to wish all of you that this year be a great year for you.

JGN-X and StarBED³

—Building the network infrastructure to support Big Data—

Takahiro SUMITOMO

Director of Network Testbed Planning and Deployment Laboratory, Network Testbed Research and Development Promotion Center

He joined the Ministry of Posts and Telecommunications (currently Ministry of Internal Affairs and Communications) in 1995. Current position since July 2013.

Minoru KUBOTA

Managing Director, Strategic Planning Department

He joined the Communications Research Laboratory, Ministry of Posts and Telecommunications (currently NICT) in 1997. After working on technological development for observing the physics of the upper polar atmosphere and fluctuation of terrestrial ionosphere, he is now engaged in supervising the research and development infrastructure by supplementary budget for the fiscal year of 2012. Ph.D. (Science).

Introduction

We are building and operating a wide-area network testbed JGN-X and a large-scale emulation environment StarBED^3 (star bed cubic) with integrated technology indispensable for realizing the New Generation network. By offering an integrated testbed environment for networks, from emulation verifications on StarBED^3 to the wide area network demonstrations on JGN-X, we are aiming to create a virtuous circle in advancing research and development, and demonstrations of the New Generation network technology.

JGN-X and StarBED^3 are open to the industry, academia and government. By having them used for prompt application developments, we seek to accelerate research and development by industry-academia-government collaboration. In addition, by employing JGN-X, we have succeeded numerous technology demonstrations at various exhibitions at home and abroad for the first time in the world. We will promote international cooperation in researches and collaboration between testbeds by interconnecting overseas research education networks.

Efforts of JGN-X

JGN-X constructed a wide area network (L2/L3) that spans across Japan and overseas, and offers IP virtualization services (virtual network, virtual router, virtual calculator, and virtual storage) as a foundation service for demonstration experiments over the wide area network. In addition, it provides SDN/OpenFlow (RISE testbed) services, DCN (Dynamic Circuit Network) services, experiment services such as PIAX testbed (partnership services), as an experiment and verification environment of element technology of the New Generation networks. Through the operation of the experiment and verification environment, we are working to further sophistication of the function. We are also making an effort to realizing the network orchestration, which means an integrated coordination of these basic technologies.

Since we started operation in April 2011, total of 94 projects (201 institutions, 792 researchers) including the external use of such partnership services; from pure study of network infrastructure technology, to verification of network technology seeking use in the field of medical health and disaster prevention, have used JGN-X as of November 2013 (Figure 1).

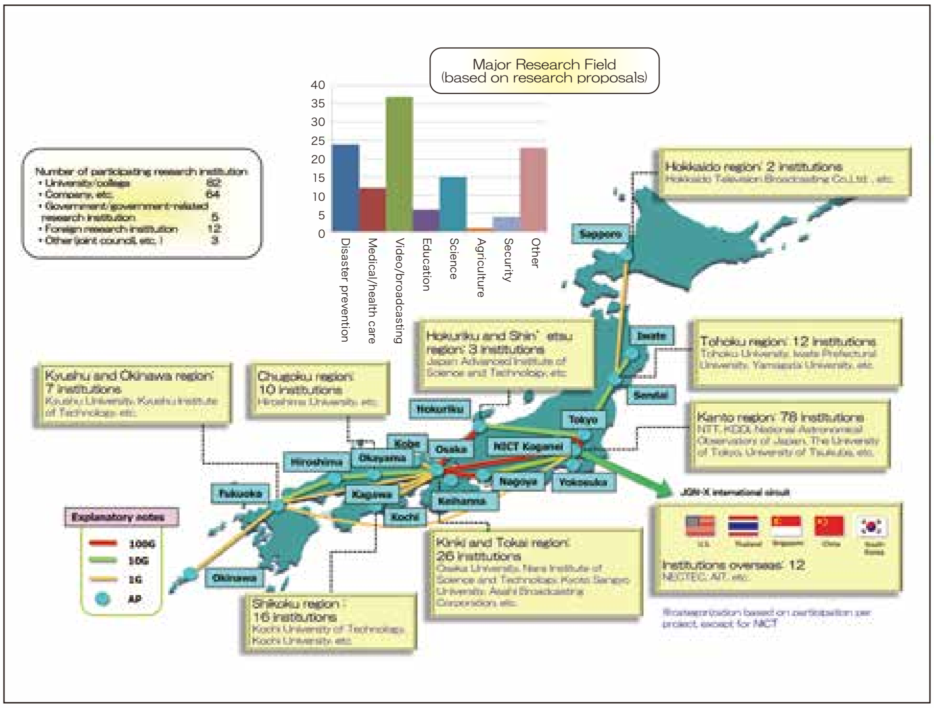


Figure 1 Utilization of JGN-X (from April 2011 to November 2013)

As an example of disaster prevention, we have been conducting a verification experiment in Tono, Iwate Prefecture, to test wired and wireless integrated network control by SDN which is useful in a time of emergency, and worked with the local government to build a network tailored to meet their needs in an emergency situation (Figure 2).

Aside from our R&D at NICT, various sectors are working to advance the New Generation networks; private companies, universities, municipalities, research institutes, and with the activities of New Generation Network Promotion Forum, Testbed Network Promotion Working Group (the chief examiner: Mr. Yuji INOUE, Chairman of the board, TOYOTA Info Technology Center Co., Ltd., secretariat: NICT) for promoting demonstrations and using the testbed network to advance the New Generation networks, we are working towards realization of new-generation networks from Japan, making sure that the country's technology development is universal, and the international community is informed.

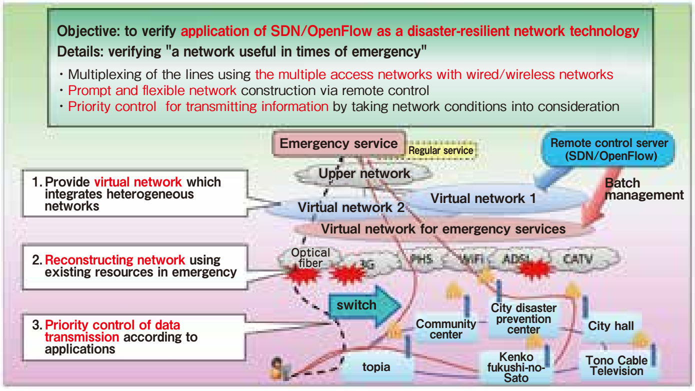


Figure 2　Verification of wired and wireless integrated NW control using SDN in Tono city

Efforts of StarBED³

StarBED³ is a testbed for verifying prototype systems and for experimenting the New Generation ICT technology; providing a large-scale emulation environment to articulately simulate the ICT environment of actual world in a large-scale. By integrating and operating the actual software and the hardware on it, StarBED³ enables to verify the actual movements and problems.

Reality: by utilizing the same implementation group as the actual world, you can obtain experimental results including bugs in implementation and disturbances of peripheral technologies.

Large-scale: by controlling more than 1,000 units of physical nodes, or in some case, more than ten thousands of virtual nodes, you can see the specific behaviors of the target technology in the large-scale environment.

Horizontal and vertical integration: for the interface with the peripheral technology (API) is the same as the real environment, which makes it easy to build an experimental environment that integrates a variety of techniques.

Various verifications have been carried out under these environments (Figure 3).

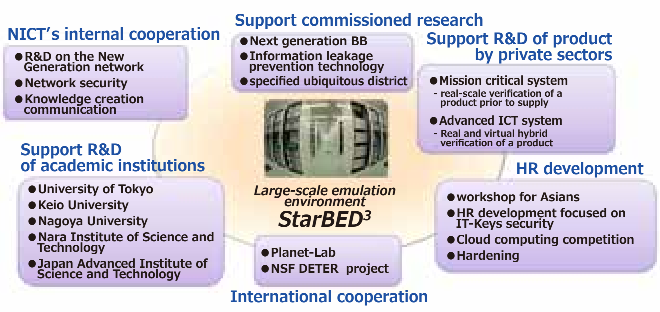


Figure 3　Utilization of StarBED³

Perspectives and Challenges of the future —As a Network infrastructure for Social Big Data—

In the future, we would like to deepen the relationship further between the users and NICT's R&D through the use of an implemented testbed environment, and promote research and development of network technologies and network utilization technologies. Through the exhibition at SC13 (Supercomputing Conference 2013) which took place in Denver, United States in late last year, and co-hosting Future Internet workshop with National Electronics and Computer Technology Center (NECTEC), Thailand, we would like to promote JGN-X and StarBED³ internationally as a global testbed environment and seek further international cooperation.

In addition, NICT is building a mobile wireless testbed using the supplementary budget of fiscal year 2012, and advancing the research and development to make use of Social Big Data based on sensor information, etc (Figure 4). By installing a variety of sensors in rivers, bridges, roads, and buildings, and conducting advanced analysis of Big Data collected through wired/wireless networks in the large-scale data center, we seek to create new values to contribute to the society, such as "maintenance and management of social infrastructure", "disaster prevention and with the aim of strengthening disaster mitigation function", and "creating new industries and employment". In addition to providing network infrastructure for the transmission and storage of Big Data, we would like to continue to promote research and development of JGN-X, to respond flexibly to emerging requests necessary for the network on the utilization of Social Big Data.

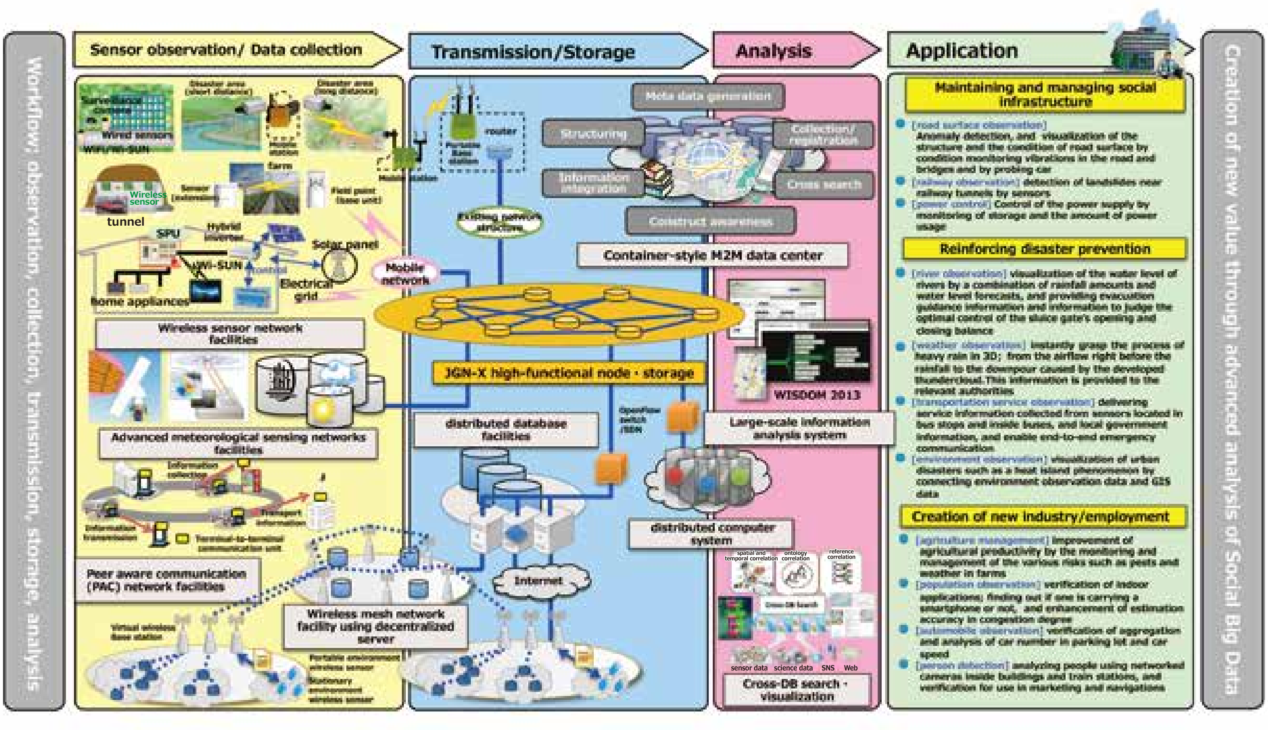


Figure 4　Mobile wireless testbed

SDN/OpenFlow Testbed RISE

—Approach towards scalable multi-tenancy—

Eiji KAWAI

Director of Network Testbed Research and Development Laboratory, Network Testbed Research and Development Promotion Center

After completing a graduate school and worked for Japan Science and Technology Corporation, and Nara Institute of Science and Technology, he entered NICT in 2009.
He has been engaged in research on testbed technology, SDN/OpenFlow technology.
Ph.D.(Engineering).

SDN and OpenFlow

The mechanism of today's Internet has been designed and implemented as a highly distributed system to achieve the outstanding scalability as well as high stability. In other words, it is operating as a robust distributed system where many networks are interconnected by many relay devices in which complex network protocols are implemented. Thanks to such features, the Internet has become the basis to support the information society. On the other hand, its lack of flexibility has been pointed out such as the difficulty in incorporating the new communication functions, or providing a high quality communication services on-demand on the Internet.

Therefore, instead of implementing a form like the conventionally integrated as a protocol within the relay device, the idea of Software Defined Network (SDN), freely programmable by a controller outside the device, has been proposed, and its R&D is being advanced widely. OpenFlow, the technology to realize the concept of SDN along with the implementation model of the relay device, has many supporting products released in recent years.

In short, the functions of the network relay device are as follows; (1) it receives the packet from the port, (2) determines the destination port by interpreting the header of packet functions of the network relay device, and (3) transmits the packet to the destination port (Figure 1). Information required for the function of the step (2) has been implemented as a table (memory area) named FDB (Forwarding DataBase). From the information in the packet header and the information in the FDB, the relay equipment determines the destination port. OpenFlow enabled a flexible network control by allowing the program of FDB to be freely rewritable by software outside.

Since OpenFlow is made of a very simple mechanism, it is relatively easy for equipment vendors to support these products and it also allows users to achieve customized network functions. For such reasons, the use of OpenFlow has been showing growth today, particularly in research and development purposes, as well as its commercial use.

SDN/OpenFlow testbed RISE

At JGN-X, we have built a testbed for SDN and OpenFlow technologies called RISE (Research Infrastructure for large-Scale network Experiments), and have been operating it (Figure 2). A testbed is the infrastructure for the purpose of operating a large-scale verification of the technology. At NICT, we have conducted various demonstrations since 2009 such as traffic control, application and network alliance test by expanding the OpenFlow network in wide area on JGN2plus, a previous version of JGN-X. By making use of the know-how obtained in these demonstration experiments, we rebuilt this OpenFlow network as a testbed RISE in 2011, and began to provide it as an OpenFlow service. Users can bring the OpenFlow controller of his/her own to perform demonstrations. RISE is available to anyone to use for free as well as JGN-X as long as used for R&D purposes.

RISE has enabled the utilization concurrently by multiple users.

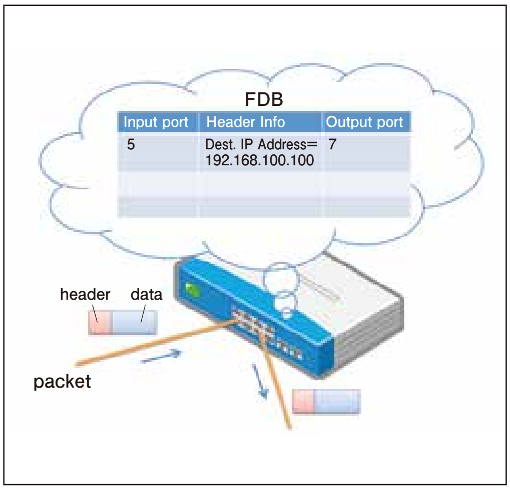


Figure 1 A simple model of network switch functions

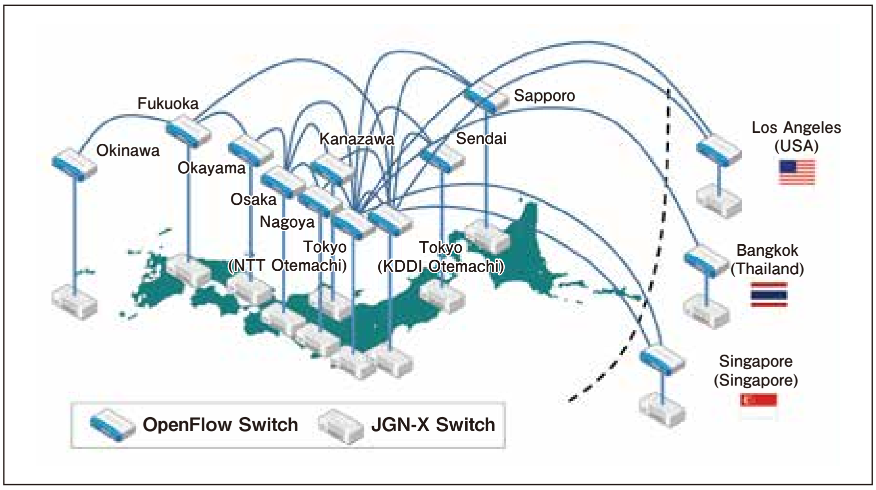


Figure 2 The current RISE networks

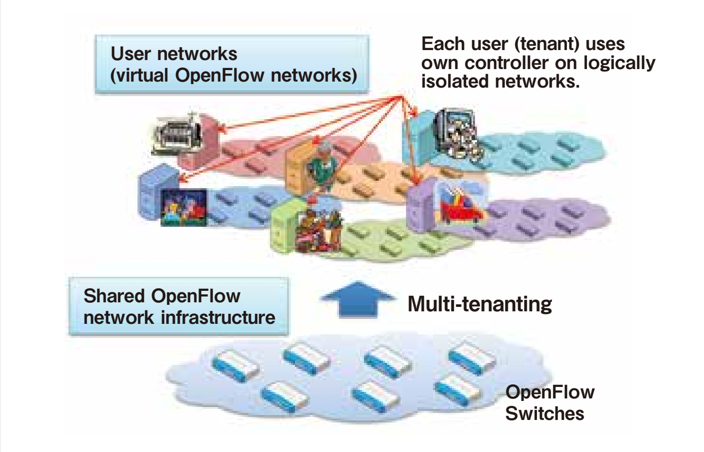


Figure 3 A concept of multi-tenant OpenFlow networks

This feature is called being multi-tenanted (Figure 3). Typically, in OpenFlow network environment, it is common to use a mechanism of the controller proxy (such as well-known FlowVisor) for the construction of such a multi-tenant environment. However it requires adjustment in advance so that the control does not interfere with each other in between users, in some cases, this might cause failures of providing an environment that users desire. On the other hand, RISE has realized the multi-tenant environment using a system that virtualizes OpenFlow device It allows a function to realize logical OpenFlow devices (control content does not affect each other) within a physical Open Flow device, and by providing the user with this logical device, one can build a network of his/her own.

Virtualization architecture of OpenFlow

If more devices and services obtain the original controller function of their own and enable the use of more flexible network control functions of OpenFlow, it will enable various functions that are difficult to achieve in today's internet such as integration into terminals of a variety of communication functions on the current Internet, and control of quality of service to meet the needs of individual users. However, we need to devise how to expand the scale of the multi-tenancy. For example, RISE has been multi-tenanted, but in the virtualization capabilities that are implemented in the current OpenFlow device one can only connect to controllers of up to 16 at the same time. In addition, when using a proxy controller, pre-conditioning of the control becomes difficult as the number of users increases.

Therefore, we are committed to research on making scalable multi-tenanted extensibility by virtualizing the entire OpenFlow network. We achieved this by converting two sets of information in OpenFlow network: (1) control information exchanged between a controller and the OpenFlow device, and (2) data packet exchanged among terminals or OpenFlow devices (Figure 4). In the implementation, conversion of (1) can be realized by extending the controller proxy, and the conversion of (2) can be realized within the mechanism of OpenFlow. Such features of virtualization including high compatibility with an existing structure help lower the cost of implementation.

Future prospects

RISE has been appreciated by many users for research and development. However, there is a problem of the network topology that restrains free construction due to strong constraints from the topology of the JGN-X serving as the underlying network. For this reason, there were a lot of cases that we had to ask the users to change their demonstration scenario. Therefore, in a way to incorporate some mechanisms of OpenFlow virtualization, we have been developing a mechanism to implement the free network topology to RISE. We had a successful demonstration of using the prototype at an international conference SC13, which was held at Denver, United States. As we expand the mechanism, we would like to start the actual service from fiscal 2014 by increasing the degree of perfection of implementation.

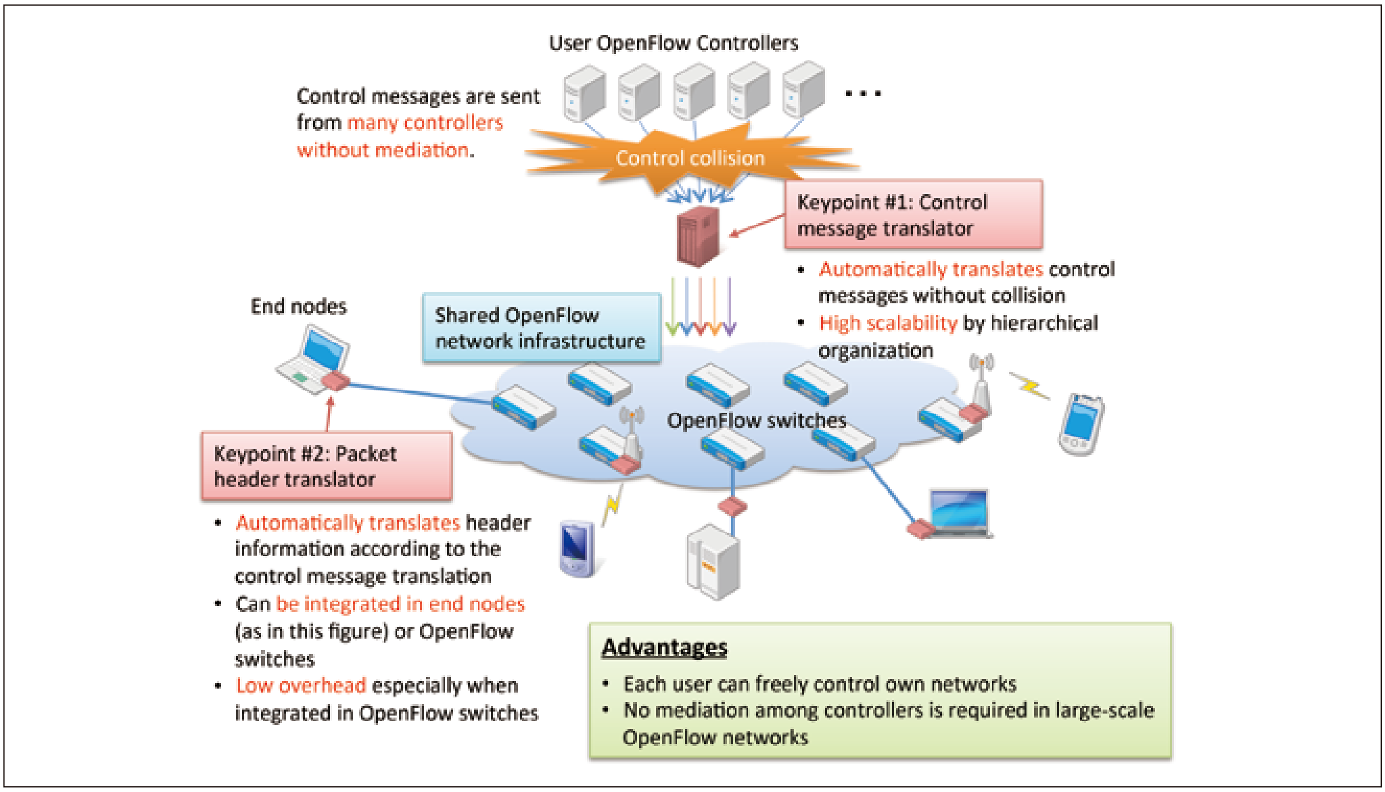


Figure 4 Overview of OpenFlow network virtualization

Integrated Verification/ Experiment Environment for Disaster-Resilient ICT

—To verify its usefulness when an actual disaster occurs—

Shinsuke MIWA

Director of Hokuriku StarBED Technology Center

After completing doctoral course and worked as an assistant, Japan Advanced Institute of Science and Technology, Hokuriku, he joined Communications Research Laboratory (currently NICT) in 2001.
He has been engaged in research on emergency communications, and security testbed.
Ph.D. (Information Science).

Introduction

To enable transmission of information necessary in a disaster and emergency, research and development on various techniques to support the ICT environment during a disaster has been carried out, such as a technology that temporarily makes up a communication network via wireless in the affected area, and a technology to reconfigure the surviving communication infrastructure in post-disaster.

Before we put out such disaster-resilient information communication technologies into the real world, we need to inspect the practical effectiveness of functions by performing verification in many ways. The impact of ICT environment caused by a real disaster propagates intricately from the infrastructure layer of communication to the application layer. Therefore, it is necessary to offer an integrated demonstration environment that can reproduce and simulate the effect of the disaster on the overall communication system.

Technical requirements of integrated verification/experiment environment for disaster-resilient ICT

There are two technical requirements to realize an integrated verification/experiment environment necessary to verify disaster-resilient ICT.

First and the foremost, the technology you are verifying must be suitable for the integrated verification/experiment environment; the technology needs to be inserted and verified in the environment. For example, if you want to check a new disaster-resilient ICT you need to insert the technology into the integrated verification/experiment environment as a communication infrastructure, and verify to what extent existing services and applications are available in the event of a disaster using the communication infrastructure.

Next, it needs to be capable of simulating the entire ICT environment and its changes occur at the time of a disaster, including the technology subject to the verification. For example, if a disaster occurs, there are places where communication infrastructure may not function due to physical break downs in cables, equipments and power sources. This hinders the service providing servers and user terminals that use the communication infrastructure to function properly, and eventually creates a situation where users cannot use the application and services properly. However, it is difficult to reproduce or simulate how an actual disaster affects the networks and applications of a specific technology because the impact of such disasters propagates through a linkage of various technologies including the communication infrastructure. Thus, it requires the environment to consistently enable reproduction and simulation of how the physical impact of disaster on various communication infrastructures propagates, and how it affects the services and applications that are implemented using the technology you wish to verify.

Integrated verification/experiment environment of disaster-resilient ICT

In order to meet the technical requirements, we have developed a framework of integrated verification/experiment environment (Figure 1). In this framework, through the communication infrastructure to the application, we layer stacks of simulations at multiple levels on the large-scale emulation environment

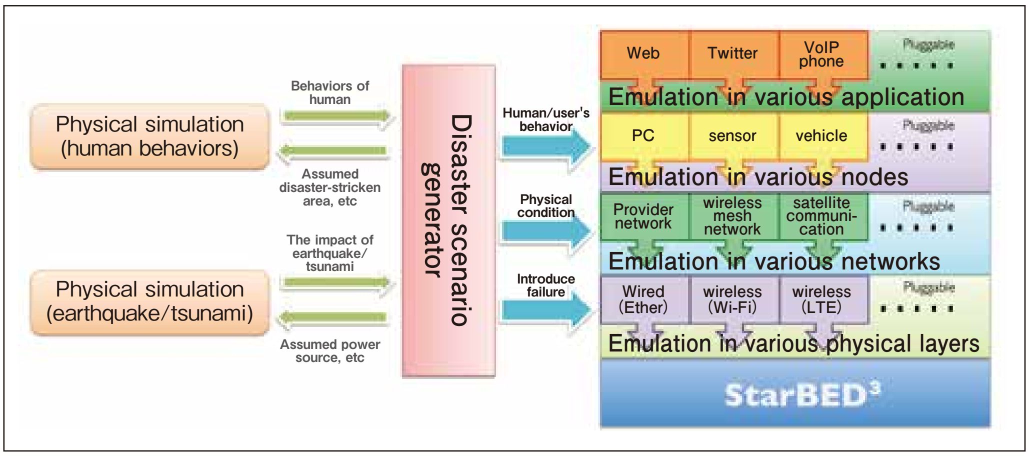


Figure 1　Framework of the integrated verification/experiment environment of disaster-resilient ICT

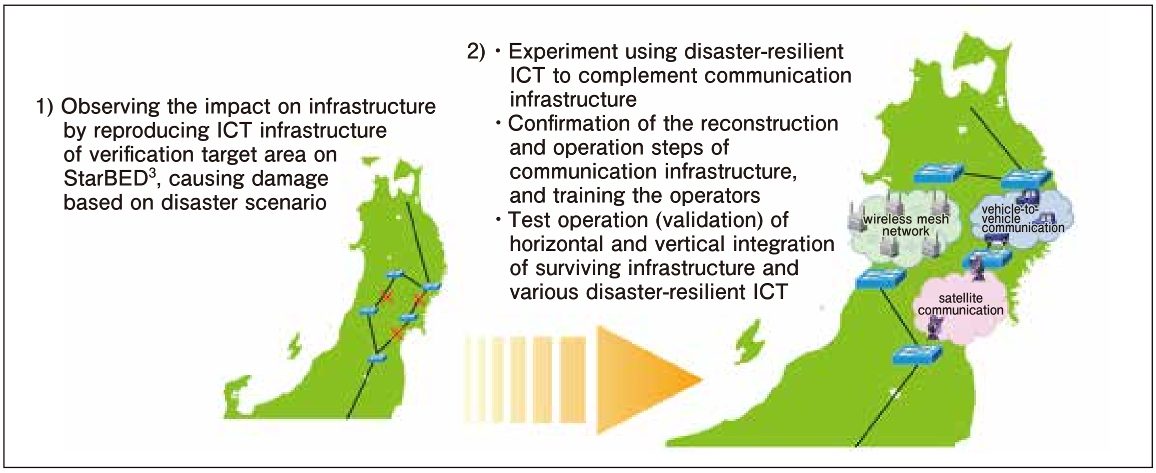


Figure 2　Image of virtual verification experiment

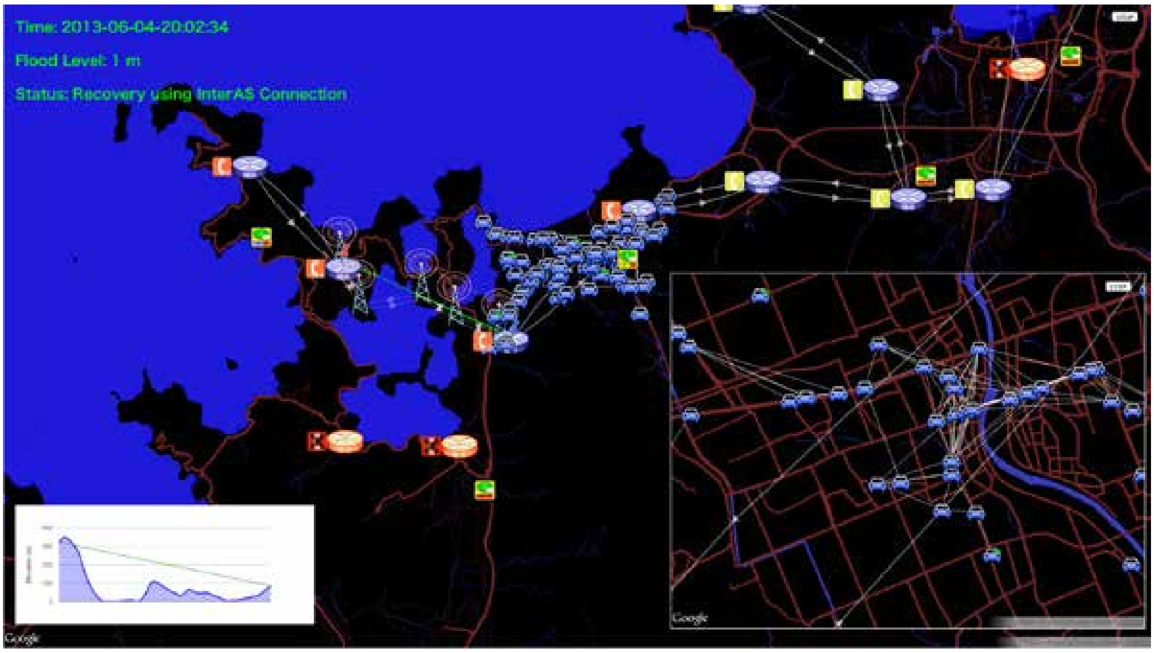


Figure 3　Visualization of disaster situation and complementary condition of communication infrastructure

StarBED3, and offer a consistent emulation. The emulation is a technique to perform the analysis and verification. Unlike the simulation on computers, emulation uses the actual equipment and software, and operates them in the verification facility. When a disaster occurs, changes in circumstances propagate between the upper and the lower layers. For example, changes such as physical destruction propagate from the lower layers to the upper layers, and changes in the behavior of people propagate from the upper layers to the lower layers. "Disaster scenario generator" controls the content of the disaster simulation, which, in conjunction with physical and scientific simulation, assumes the impacts of the disaster in chronological order, and then introduces them into the emulation. In addition you can insert a variety of technologies individually required in each layer in the form of emulation or a real object. By inserting the emulation and actual technology to be verified, you can see the affects on the function and performance of services and applications mediated through the technology of verification target when it is affected by the disaster.

We conducted a virtual experiment assuming the actual disaster with this framework (Figure 2). We inserted technologies to complement the communication infrastructure in the event of a disaster as a hypothetical verification target technology, and verified how communication services such as VoIP and messaging services such as Twitter are damaged and recovered.

In this experiment, we virtually verified the effectiveness of long-range wireless communication technology as verification target technology, an alternative to a wired network that has been cut due to a disaster, as well as the effectiveness of message propagation technology by vehicle-to-vehicle communication and DTN (Delay/Disruption Tolerant Networking), which can be an effective complement technology in the affected areas with a catastrophic destruction of equipments due to tsunami and power losses triggered by an earthquake (Figure 3). These virtual verification target technologies, with each emulation developed independently, work together in cooperation through the framework.

Future prospects

The technology subject to the current verification, is only a virtual technology, and was neither researched nor developed as an actual anti-disaster information communication technology. In the future, using the framework in conjunction with external joint research institutes, we will continue to perform verification of disaster-resilient ICT.

Report on NICT's Exhibits and Participation at "the ITU Telecom World 2013"

The ITU Telecom World 2013 hosted by the United Nations' specialized agency International Telecommunication Union (ITU) was held from November 19 to 22 in Bangkok, Thailand. The event worked as a forum for interactive debates among political and business establishments, national pavilions and theme pavilions about the current state of ICT in the world today. This year, 239 speakers participated in 58 panel sessions and, with an impressive list of delegates and representatives starting from government ministries, public institutions, and private corporations, there were a total of more than 6,000 participants at the event (This year was the 14th of the event, and the second time at Thailand).

NICT's participation at the event was comprehensive beginning with Masao SAKAUCHI, President of NICT, discussing the necessity of merging/fusing the various fields of ICT, such as cars, energy, and disaster prevention, into one when he participated as a panelist on the Mobile Cloud Networks forum session. NICT also held a workshop on Resilient ICT for Disaster Relief, and exhibited at the Japan Pavilion centering Ministry of Internal Affairs and Communications, together with NTT Group, NEC Corporation (NEC), Mitsubishi Electric Corporation, and Yamaha Corporation.

Mobile Cloud Networks Panel Discussion (Second from the right is Dr. Masao SAKAUCHI, President of NICT)

Resilient ICT for Disaster Relief Workshop

Japan Pavilion's NICT Booth

At the workshop on Resilient ICT for Disaster Relief, Dr. Yoshiaki NEMOTO, Director General of Resilient ICT Research Center gave a talk on the case with disaster-resilient ICT research in Japan. National Broadcasting & Telecommunications Commission, Thailand also gave a talk on the status of disaster and its countermeasure in Thailand. Nippon Telegraph and Telephone Corporation (NTT), NTT DOCOMO, INC., and NEC introduced the research in Japan conducted under Resilient ICT Forum.

International Roundtable on ICT R&D Collaboration in the ASEAN Region

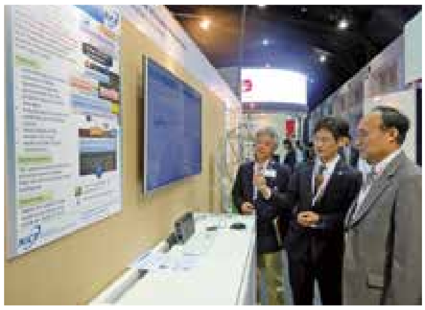
The International Roundtable on ICT R&D Collaboration in the ASEAN Region was hosted by NICT on November 20, 2013 in Bangkok, Thailand. The aim of the roundtable was to encourage strong relationships between NICT and institutions in the ASEAN region and promote the international development of NICT's research findings and products. In parallel, the ITU World Telecom 2013 was also held in Bangkok from November 19 to 22. The event was an outstanding opportunity for all researchers and institutions working in ICT R&D from around the world to learn and share new trends and technologies with each other. Also, it was a great occasion for all participants of the roundtable to come together.

The roundtable consisted of 10 institutions and 16 executives from Thailand, Malaysia, Singapore, and Indonesia which have MOUs with NICT, and an additional 4 institutions and 6 executives from Myanmar and Vietnam also joined in the NICT sponsored discussions. NICT began with a technical tour of its exhibition at the ITU World Telecom 2013 introducing an outline of its ICT R&D, international collaboration strategy, and future plans of ICT R&D to all roundtable participants. This was followed by 7 institutions from Indonesia, Malaysia, Myanmar, Singapore, Thailand, and Vietnam introducing the ICT R&D outlines and strategies of their institutions and countries. Finally, all participants discussed how to further strengthen international collaboration with one another. This roundtable has deepened understanding of NICT and its relationships with fellow institutions and was a meaningful meeting to form an international collaboration alliance in the Japan and ASEAN region.

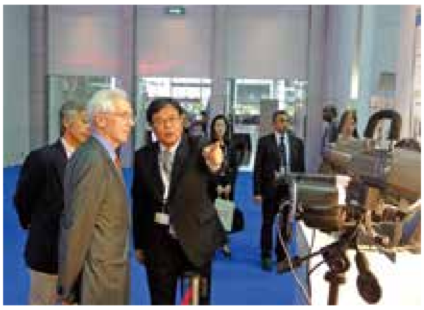
Snapshot of the visit to NICT booth

VIP tour organized by ITU

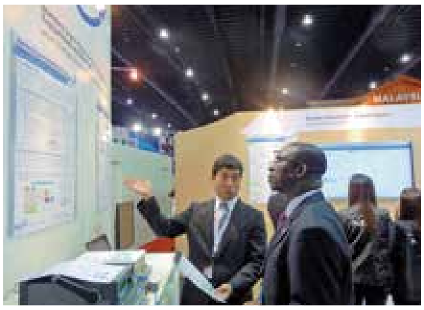
Dr. Hamadoun TOURÉ, Secretary General of ITU



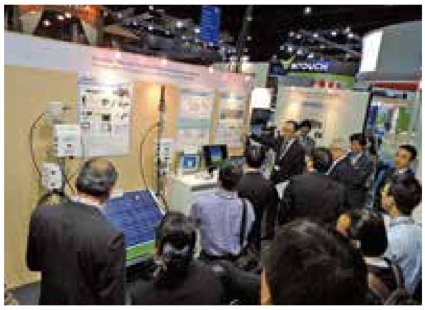
Mr. Houlin ZHAO, Deputy Secretary-General of ITU



Mr. François RANCY, Director of ITU-R



Mr. Brahima SANOU, Director of ITU-D



Participants of the roundtable

At Japan Pavilion's NICT Booth, we exhibited the following research and development outcomes of NICT.

1. NerveNet: Resilient Wireless Regional Area Mesh Network
2. Disaster Information Analysis System (see NICT News, May 2013)
3. Portable Burst-Mode Optical Amplifier
4. Standard Signal Generator for Testing Optical Transmitters and Receivers (see NICT News, July 2013)
5. Non-destructive Building Inspection Using Infrared 2-D Lock-in Amplifier

Many experts including participants such as Head of State, ministers, industry CEOs from VIP tour organized by ITU, Dr. Hamadoun TOURÉ, Secretary General of ITU, Mr. Houlin ZHAO, Deputy Secretary-General of ITU, and Directors from ITU-R, ITU-T, and ITU-D, visited the Japan Pavilion. They took a good look at the exhibition and exchanged ideas on the state of international standardization activities and practical implementations of NICT's R&D outcomes. To make contribution to the society through R&D outcomes, we will continue to actively work on standardization activities in ITU.

Roundtable group photo

A scene of the roundtable

Announcement of "Disaster Crisis Management ICT Symposium 2014"

—Communication and sensing technology for crisis management—

Organized by: National Institute of Information and Communications Technology (NICT), ICT Forum for Security and Safety

Supported by: Cabinet Office, Government of Japan, Ministry of Internal Affairs and Communications, Ministry of Education Culture, Sports, Science and Technology, Ministry of Land, Infrastructure, Transport and Tourism, Ministry of Defense, Japan

Program

11:15	〈Keynote Speech1〉 **For Disaster Response in the 18th Typhoon in 2013** Yoshinori MACHIDA (Disaster and Emergency Management Office, Kyoto Administration and Finance Bureau)
11:55	〈Keynote Speech 2〉 **What is Public Information Commons —Recent development and the outlook for the future—** Masahiko YOSHIDA (The Foundation for MultiMedia Communications)
12:35 -13:30	Intermission
13:30	〈Special Lecture〉 **The Current State of Network Security and Countermeasures** Masashi ETO (NICT)
14:40	〈Lecture 1〉 **Observation of Volcanic Smoke and Ash Fall Forecast by Utilizing Weather Radar** Toshiki SHIMBORI (Seismology and Volcanology Research Department, Meteorological Research Institute)
15:20	〈Lecture 2〉 **Observation of Yellow Sand / PM2.5 / CO_2 / Pollen Wind with a lidar (a radar using the laser light)** Kohei MIZUTANI (NICT)
16:00	〈Lecture 3〉 **Development of Detection Technology of Blast/ Localized Heavy Rain with High-speed Scanning Radar** Kenichi KUSUNOKI (Meteorological Satellite and Observation System Research Department, Meteorological Research Institute)

Date and venue

February 7, 2014

Admission free

Start: 11:00 AM
(Registration opens at 10:30 AM)
F205 Annex Hall, PACIFICO YOKOHAMA
1-1-1 Minato Mirai, Nishi-ku, Yokohama 220-0012, Japan

Occasionally, disasters, such as tornadoes, river floods due to torrential rain, collapses of river embankment, floods due to unexpected strong rain, arrivals of tsunami after a huge earthquake, and volcanic eruptions, bring enormous damage. When a disaster is predicted or actually occurs, it is an urgent task to provide prompt, accurate information and evacuation guidance to people in the affected area. Therefore, promoting risk management and countermeasures is a pressing issue in order to prevent unauthorized access and cyber attacks that cause damage to the users and the networks which are the means of communication in such occasions.

Through lectures by a researcher of a technology that detects disaster-causing events, a local government official making use of information to prevent and mitigate disasters, and respective parties who provide safety and security information to the community using various media, we would like to make this symposium a starting point to think about the tasks and research systems necessary for disaster countermeasures in the future as well as how to put available technologies into practical use.

Inquiry

For details, please visit the following.

URL: http://ictfss.nict.go.jp/yokohama2014/index.html

Symposium Secretariat: ictfss-2014@ml.nict.go.jp
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In addition to the above symposium, NICT will present how to apply communication and sensing technologies to countermeasure earthquakes, and exhibit non-destructive sensing technology at the 18th Earthquake Countermeasure Technology Exhibition Yokohama.

Date and venue February 6 and 7, Hall B, Pacifico Yokohama

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