SC06: JGN2 Sessions at CMC booth #443

NICT Osaka Research Center

NICT Osaka Research Center produces technical and demonstrative sessions. In these sessions collaborative works utilizing JGN2, Advanced Network Testbed for R&D in Japan, are shown. We make presentations and demonstrations with **Tiled Display Wall** which explores large-scale extremely high resolution scientific visualizations.

Tuesday, November 14

11:00-11:30- JGN2 Session-1 (Chair: Ken-ichi Baba, NICT Osaka RC/Osaka University)
JGN2: Advanced Network Testbed for R&D in Japan
Takayuki Nakao (Assistant Director, Network Testbed Group, Collaborative Research Department, National Institute of Information and Communications Technology (NICT))
Mission of NiCT Osaka Research Center
Ken-ichi Baba (Senior Researcher of NICT Osaka Research Center/ Associate Professor, Cybermedia Center, Osaka University)
Computational Oral and Speech Science on E-science Infrastructures
Kazunori Nozaki (Cybermedia Center, Osaka University)

13:00-13:30 - JGN2 Session-2 (Chair: Ken-ichi Baba, NICT Osaka RC/Osaka University)
Seamless and Secure Resource Management
Shingo Takeda (Guest Researcher, Osaka Research Center, NICT/ PhD course student, Graduate School of Information Science and Technology, Osaka University)
Application-Oriented Platform for Network Management
Hideaki Sone (Director of NICT Tohoku Research Center / Professor, Information Synergy Center, Tohoku University)
Investigating the Performance of High-Speed Transport Protocols on JGNII
Kazumi Kumazoe (Researcher of NICT Kyushu Research Center)

Wednesday, November 15

13:00-13:30 - JGN2 Session-3 (Chair: Ken-ichi Baba, NICT Osaka RC/Osaka University)
JGN2: Advanced Network Testbed for R&D in Japan
Takayuki Nakao(Assistant Director, Network Testbed Group, Collaborative Research Department, NICT)
Computational Oral and Speech Science on E-science Infrastructures
Kazunori Nozaki (Cybermedia Center, Osaka University)
Activities of e-VLBI over GMPLS in NICT
Mamoru Sekido (Senior Researcher, Space-Time Standards Group, New Generation Network Research Center, NICT)

15:30-16:00 - JGN2 Session-4 (Chair: Ken-ichi Baba, NICT Osaka RC/Osaka University)
Very High Bandwidth Data Transfer Between Disks Using a Single Server Data-Reservoir System
Kei Hiraki (Professor, The University of Tokyo)
Secure File Sharing "SRFS on Ether" with Host-to-Host IPSec Connection Over the Pacific Ocean Link
Hirofumi Okawa (Japan Aerospace Exploration Agency (JAXA))
Inter-Domain Bandwidth Reservation Over the Pacific
Tomohiro Kudoh (Team Leader, Cluster Technology Team, Grid Technology Research Center, National Institute of Advanced Industrial Science and Technology (AIST))

Abstracts

JGN2 Session-1

JGN2: Advanced Network Testbed for R&D in Japan (by Takayuki Nakao, NICT)

JGN2 is an open, high bandwidth network testbed for R&D, which is operated by National Institute of Information and Communications Technology (NICT) in Japan. We will present a brief introduction of JGN2, including its mission, services ,research activities and so on.

Mission of NiCT Osaka Research Center
(by Ken-ichi Baba, NICT Osaka Research Center / Cybermedia Center, Osaka University)

NICT Osaka research center is one of R&D bases. Our team aims to develop a middleware and its component technology that will allow scientific experts to work together in a distributed collaborative environment with efficient large-scale data sharing and visualization. Key technologies are Seamless and safe resource management under a large-scale Grid environment, High performance remote visualization and computation, Network QoS technology to improve the efficiency of network resources, and E-science applications.

Computational Oral and Speech Science on E-science Infrastructures
(by Kazunori Nozaki, Cybermedia Center, Osaka University)

We will demonstrate an e-science infrastructure that enables scientists and clinicians to achieve the advanced information produced by simulations. The physical theory of sound production – specifically speech sound -- is used to create a clinical index of disease prognostics for use in medical and dental clinics.

JGN2 Session-2

Seamless and Secure Resource Management
(by Shingo Takeda, NICT Osaka Research Center/ PhD course student, Osaka Univ.)

In this talk, I introduce a new tool developed for grid administrators. It provides integrated view of security information in a grid environment where computer resources are shared among sites via network.

Application-Oriented Platform for Network Management
Hideaki Sone, NICT Tohoku Research Center / Professor, Tohoku University)

Development of operation and management technology for wide-band application in the NICT Tohoku RC includes a multi-point bi-directional video stream distribution system and a managemtnt assist system to collect and integrate both statistical and operational information. This practical development uses the JGN2 network, and the experiment has an effect for promotion of JGN2 utilization and contribution to our region.

Investigating the performance of high-speed transport protocols on JGNII
(by Kazumi Kumazoe , Researcher of NICT Kyushu Research Center)

Our group has been conducting a series of experiments to examine/evaluate a variety of high-speed transport protocols on JGNII, for investigating the problems involved when those protocols are deployed in shared and heterogeneous network environments like the global Internet. In my presentation, the preliminary experimental results and analysis using a monitoring tool, TCPvisible, will be presented.

JGN2 Session-3

Activities of e-VLBI over GMPLS in NICT (by Mamoru Sekido, NICT Space and Time standard Group)

Very Long Baseline Interferometry (VLBI) is a space technology used for precise geodesy, astronomy and spacecraft navigation. E-VLBI is a fusion of VLBI and high speed network technology. In the e-VLBI, the network links world radio telescopes to forms a virtual radio telescope with earth diameter. Here, the transpacific real-time data transfer and data processing will be demonstrated with newly introduced GMPLS-controlled dedicated path established by collaboration between DRAGON and NICT.

JGN2 Session-4

Very High Bandwidth Data Transfer Between Disks Using a Single Server Data-Reservoir System
(by Prof. Kei Hiraki , The University of Tokyo)

We will present the outline of the single-stream high-bandwidth iSCSI data transfer using Data- Reservoir. The system utilizes high-speed, long distance TCP facility and data sharing software developed by DataReservoir project.

Secure File Sharing "SRFS on Ether" with Host-to-Host IPSec Connection Over the Pacific Ocean Link
(by Hirofumi Okawa , Japan Aerospace Exploration Agency (JAXA))

When we use the file system over the Internet, we have to consider both performance and security. In our bandwidth challenge, we demonstrate the remote file system, named "SRFS on Ether" that is enough to meet the requirement for using HPC-system over the Internet. For security issue, we use a host-to-host IPSec connection between Tampa and Tokyo. And, to show the performance, we use hardware IPSec accelerator and tune up TCP/IP and SRFS on Ether's parameter for a server and a client.

Inter-Domain Bandwidth Reservation Over the Pacific (by Tomohiro Kudoh , Team Leader, AIST)

Japan's G-lambda project and US Enlightened computing project cooperated to realize inter-domain advance reservation of coordinated network and computing resources over the Pacific, and demonstration will be shown at LSU and AIST booths. In this demonstration the JGN2 GMPLS network testbed and the US-Japan link are used.