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(News release material)

Nippon Telegraph and Telephone Corporation
Sharp Corporation
Dai Nippon Printing Co., Ltd.

NTT, SHARP and DNP Have Started Joint Research to Create a HIKARI Market

- Researching HIKARI-Soft Services using State-of-the-Art Networks, Terminals, and Content -

Nippon Telegraph and Telephone Corporation (NTT, headquartered in Chiyoda-Ku, Tokyo, Japan; President: Jun-Ichiro Miyazu), Sharp Corporation (SHARP, headquartered in Abeno-Ku, Osaka-shi, Osaka, Japan; President: Katsuhiko Machida), and Dai Nippon Printing Co., Ltd. (DNP, headquartered in Shinjuku-Ku, Tokyo, Japan; CEO: Yoshitoshi Kitajima) have started a program of joint research to develop "HIKARI-Soft services"[*1] that make the most of the ultra-high-speed, broadband characteristics of the optical network.

As the network increasingly becomes broadband, the optical network, which provides the users' homes with broadband access at over 10Mbps, will allow the two-way delivery of high definition images in real time, holding out the possibility of revolutionizing not only what we know of as information sharing, but also how we do business and people's lifestyle.

The joint research aims to explore what the new information sharing services (HIKARI-Soft services) should be like if they are to harness the potential of the optical network. We will explore a new market to be created on the optical network, and stimulate new demands - activities dubbed as "HIKARI Market Creation." Specifically, for approximately 6 months starting in July, the three companies will bring together their state-of-the-art technologies and content, give examples of the services and verify their business models by periodically holding appropriate events for HIKARI Market Creation.

In this joint research, NTT Laboratories will be in charge of the technologies for the optical network and for the information sharing platform, while SHARP will study high-definition displays, broadband terminals, and services using these terminals, and DNP will cover the area of high-definition, high-quality content centered on still images. This is a pioneering approach as joint research by the leading companies in networks, terminals and content, targeted at the HIKARI Market Creation.

The main items to be investigated and tested will include the transmission of DNP's high-definition images and videos[*2] over NTT's optical networks and through SHARP's customer premises optical fiber wiring[*3], to be displayed on SHARP's high-definition displays[*4]. Using this configuration, the joint research team will examine the technologies for image quality conversion and the impact of transmission speeds on image reproducibility. We will also evaluate virtual reality using live images of lectures and concerts transmitted over the optical network. These experiments will be

demonstrated at showrooms to the general public and to people in educational, welfare and medical institutions as part of various events, with a view to identifying applications in both the consumer and business fields.

All three companies are core members of the "HIKARI Service Architecture Consortium"(Main promoter: Prof. Hiroshi Yasuda, University of Tokyo)[* 5], a cross-industry organization aiming for the establishment of HIKARI service infrastructure. Therefore, all the results of this joint research will be reflected in the interface standards of the Consortium.

The first event for this joint research will be an interactive "astronomy class" centered on the topics of radio astronomy to be held by connecting SHARP's and DNP's event sites and NTT's Musashino Research and Development Center. In this event, celestial signals received by the large-scale antenna at the Kashima Space Communication Center will be delivered to the Musashino Center using the ultra-high-speed experimental network and will be analyzed as part of the demonstration. These event sites will be interconnected using a new high-quality image transmission technology based on Internet technology.

(Glossary)

*1 HIKARI-Soft Service
" HIKARI " is a Japanese word meaning "Optical." " HIKARI -Soft Services" are innovative information sharing services that utilize the three characteristics of the optical network, that is, "high-speed and broad bandwidth", "interactivity", and "the convergence of communications and broadcasting media."
NTT has coined the term " HIKARI -Soft Services" to describe the services that can be made available by an information sharing platform and application software, running on optical network hardware, and the services that help to distribute content, which can be considered a form of software.

*2 DNP's high-definition (HD) images and videos
DNP has produced over 500 titles of HD graphics TV programs, providing highly artistic, high-definition images, including the HD graphics art collections Louvre Museum I and II in cooperation with the Louvre Museum and RMN (the National Museum Union of France), which cover the history of European art with works from the Louvre Museum, and The Famous Japanese Treasures Series.

*3 Customer premises optical fiber wiring: OP i.LINK
This is an optical fiber link for the home network, connected with digital AV/IT devices to carry AV/IT data. It is compatible with IEEE 1394a-2000.

*4 High-definition Displays: SHD LCD and CG Silicon TFT LCD
The former is a 28-inch, large-screen super-high definition LCD (SHD) capable of showing a photograph-quality of 5.25 million (2560x2048) pixels with 16.7 million colors. The latter is a 60-inch CG Silicon TFT LCD rear projector, using three 2.6 inch ultra-high definition CG Silicon TFT LCD panels with built-in high speed drivers to display images of 1.31 million (1280x1024) pixels.

*5 HIKARI Service Architecture Consortium

This is a consortium set up to study the service models and technical requirements for 100-Mbps class broadband services, especially aimed at the creation of an environment (HIKARI service infrastructure) where anyone can use the network securely, including the protection of ownership rights, information security, and service level assurance. The member companies represent a wide range of industries, including content providers, application providers, communications/information system suppliers, consumer electronics suppliers, and network providers. (Established on January 22, 2001; 74 member companies as of July 2001)

- Transmission of High-definition Image and Video Content over Optical Network
- Attached paper

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