NTT, Hitachi, and Matsushita begin Joint Research
Targeting Next-generation E-commerce using Optic Networks

Promoting HIKARI Market Creation through HIKARI Commerce Services

Nippon Telegraph and Telephone Corp. (NTT; Head Office: Chiyoda-ku, Tokyo; President: Jun'ichiro Miyazu), Hitachi, Ltd. (Hitachi; Head Office: Chiyoda-ku, Tokyo; President: Etsuhiko Shoyama), and Matsushita Electric Industrial Co., Ltd. (Matsushita; Head Office: Kadoma City, Osaka; President: Kunio Nakamura) have reached an agreement to begin joint research targeting the development of "HIKARI Commerce Services" from February 2002. These next-generation E-commerce services, which are oriented toward network-compatible home appliances, make use of the ultra high-speed, wide bandwidth characteristics of optic networks.

These joint research activities are intended to create, at an early date, a "Commerce-oriented HIKARI service platform"(*1) (hereafter referred to as the "HIKARI Commerce Platform") that is essential to providing convenient, comfortable HIKARI Commerce services at a low cost. The three companies will conduct joint research into core protocols that will enable interactive connections linking terminals (such as Internet appliances), optic networks, other networks, and servers via high-speed optic networks, opening the way for two key "commercial space operation technologies" that take advantage of the optic environments developed by NTT: a "Visual Shopping Environment" for regular home users, and a "Visual Showcase Environment" for business users. The specifications for the protocols developed will be made available to manufacturers of servers and home appliances; at the same time, function verifications and other tests will be conducted to confirm the effectiveness of these protocols.

With regard to the HIKARI Commerce Platform, the three companies plan to invite a broad range of business partners interested in developing E-commerce business to participate in cooperative activities targeting "HIKARI Market Creation."

1. Ongoing Activities at NTT, Hitachi, and Matsushita

Optic networks and other high-speed, broadband telecommunication networks are

rapidly being established, and we are gradually entering an era in which it will be possible to distribute huge volumes of information with ease.

In the midst of these trends, NTT has been developing information sharing platforms and commercial space operation technologies that make use of the special features of optic networks, which offer such merits as high-quality image communications, high-speed acquisition of information from multiple locations, and real-time interaction. NTT has also been involved in "Optic Market Creation Activities" [*2] aimed at spurring new demand, in cooperation with advanced companies in various fields.

Hitachi has been conducting technological developments in various related fields, including network server systems that will support optic services and dramatically improve content distribution performance, as well as technologies related to service quality assurance.

Matsushita, meanwhile, has been involved in technological development geared toward opening up new service markets targeting network appliances, taking advantage of the high-speed characteristics of optic networks.

The three companies have come to a common awareness of the need to combine their respective activities and create a HIKARI Commerce Platform that will facilitate a merging of the mutual capabilities of terminals and network servers, using the high-speed characteristics of optic broadband technologies.

2. Joint Protocol Research (Ref. Fig 1)

NTT, Hitachi, and Matsushita believe that in order to achieve convenient, comfortable, low-cost HIKARI Commerce Services, it will be essential to develop a HIKARI Commerce Platform with mutual links between terminals, networks, and servers.

For this reason, the current joint research will focus on development of protocols for conducting negotiations required to confirm the performance of terminals that will allow users to enjoy these services and to secure the necessary resources from within networks. Using these protocols, it will be possible to allocate many resources in business-oriented terminals to quickly send large volumes of information, and at the same time to send information in volumes appropriate for the performance of easy-to-use home terminals, thus ensuring comfortable operations for users.

In terms of the development of these protocols, NTT will contribute commercial space operation technologies that make use of optic environments; Hitachi will bring network server control technologies required to assure image service quality and increase system scale; and Matsushita will bring network appliance service technologies, with a particular focus on digital TV.

The development of these protocols will make it possible to organically and

efficiently connect business users and regular home users on the "HIKARI Commerce Platform" using the "Visual Shopping Environment" and the "Visual Showcase Environment." The protocols will also support business partners in the creation of new business models worthy of the "era of optic technologies," and at the same time will enable smooth business developments for the future.

3. What are HIKARI Commerce Services? (Ref. Fig 2)

In the case of traditional E-commerce applications, the user faced a number of limitations; for example, even once the target product was located, it was difficult to quickly find other related products, and there were limits to the amount of detailed product information that could be accessed. The usage environment also tended to focus on PCs, which presented a problem with regard to ease of use.

"Real Commerce" presents a number of dilemmas as well; for example, there are limits to the amount of real space available for product displays, and it is difficult to show the products in a variety of combinations and patterns.

"HIKARI Commerce Services" feature a visual shopping environment for regular users and a visual showcase environment for business users to overcome the problems mentioned above.

The visual shopping environment offers a number of functions, including "window shopping" and "moving catalogs." The Window Shopping function displays not only the target product, but a variety of other related products at the same time, so that the user can find attractive products that they might not even have known existed, even from their own living room. The "Moving Catalogs" function allows the user to view moving parts on products, and to interactively confirm more detailed information on product features. By accessing these services from Internet appliances and other terminals, anyone can easily enjoy shopping in an environment that is much more familiar than traditional PCs.

Meanwhile, the visual showcase environment offers tools for catalog registration, product registration, and display planning. The catalog registration tool enables the business user to set conditions for catalog use, and to conduct block registration of product information. The product registration and display planning tools enable the same users to conduct a number of processes easily, including product display planning using 3D virtual space and registration of product attribute information and information on multiple-product combinations. In this way, product information can be generated with less effort, popular products and products targeted for sales can be displayed in more prominent positions, and related products can be displayed nearby.

4. Plans for the Future

The protocol specifications¾which will represent the first stage of research results¾will be published in April of this year.

Once the specifications have been published, the three companies will invite a broad range of home appliance and server manufacturers to participate in function verification tests, in order to confirm the effectiveness of the HIKARI Commerce Platform.

At the same time, with regard to the HIKARI Commerce Platform, the three companies plan to invite a broad range of business partners interested in developing E-commerce business to participate in cooperative activities targeting "HIKARI Market Creation."

<Explanation of Terms>

*1: Commerce-oriented HIKARI Service Platform

In the context of NTT's research activities, the Japanese word "HIKARI," meaning light or optics, takes on a new meaning, encompassing physical light, the software and hardware technologies essential to the era of optics, and new services (including optic software services and ubiquitous services) created through optic technologies and the melding of optic and wireless technologies.

The "Commerce-oriented HIKARI Service Platform" is designed to make these services a reality in the field of E-commerce. It provides a venue for the safe, worry-free information sharing, while vertically and organically integrating various elements of the E-commerce environment, including information sharing platforms that ensure comfortable exchanges of video images, Internet appliances and other devices capable of receiving contents in large quantities, and technologies that will enable management and operation of a "visual commercial space."

*2: HIKARI Market Creation Activities

NTT announced the start of HIKARI Market Creation Activities in November 2000. These activities are designed to open up new demand and create new markets related to optic technologies, by cooperating with partners in various industries to provide customers around the world with new information sharing services (HIKARI software services) worthy of the era of optic technologies¾taking full advantage of the unique characteristics of optic networks such as "high-speed, broadband environments," "interactivity," and "multi-media integration"¾and by having users provide evaluations of these services.

(http://www.NTT.co.jp/news/news00/0011/001128.html)

Fig1. Examples of Merits Derived through Joint Research

1. Functions that complement terminals can be accessed via high-speed optic networks.
2. Functions can be added according to various terminal performance levels, so users can increase the capabilities of their own terminal depending on the services they want to receive.
3. Commerce service providers can offer services suited to terminal capabilities.
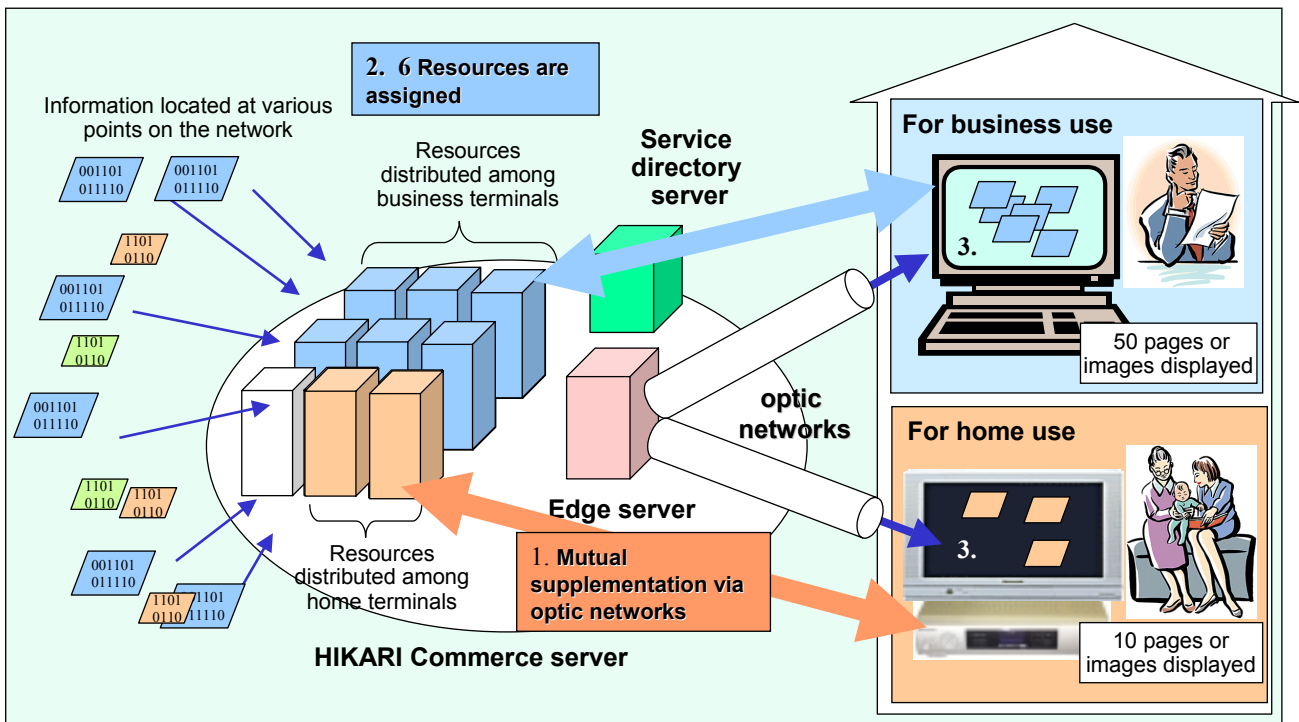

Fig 2. Developments in the HIKARI Commerce Platform

Providing a **visual shopping environment** to users at home to enable visual, interactive access to information on multiple products via networks, and providing a **visual showcase environment** to business users as a venue for planning catalog display designs and providing catalogs to customers—in other words, supporting the creation of business models worthy of the era of optic technologies.