NEWS RELEASE

NTT

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NTT Develops "Home Service Harmony," a Service Control Platform based on Network Management Technologies

- Realizing a comfortable lifestyle environment with coordination between phones, PCs, TVs, and other 'information appliances' on a home network -

Nippon Telegraph and Telephone Corp. (NTT; Head Office: Chiyoda-ku, Tokyo; President: Norio Wada) has developed "Home Service Harmony," a technology for controlling environments that enable interactive coordination between diversifying services targeting multiple information appliances from the user's perspective. These services are accessible using phones, PCs, TVs, and other 'information appliances' via home LANs and other home networks.
The goal of this technology, which is supported by the network management technologies developed and experienced by NTT, is to go beyond simple concentrated remote control of information appliances and achieve harmony among various different services, in order to offer greater comfort for the individual residents of a given household. Using this technology, each information appliance will not only provide its own services, but will also contribute to an environment that will enable users to enjoy an even higher level of comfort and convenience.

Features of Home Service Harmony

(1) Coordinated operations of multiple devices

By downloading the desired program modules to the Service Gateway(*1), the user can operate multiple devices connectively through a home network to access a variety of services. This technology also adjusts the format in which several different services are provided, thus ensuring greater ease of use for service users at home.

Ex. 1: Combine TVs, video cameras, and IP phones connected on a home network to enjoy video communication services.

Ex. 2: When the a phone call comes in while the user is watching a video, depending on the caller, the call can be connected to an answering machine without ringing, or the phone can be made to ring while the volume on the video is simultaneously lowered, or the video can be put on pause.

(2) Download-based program modules

Because the configuration uses download-based program modules with OSGi Service Platform(*2) specifications, various functions can be added without interrupting system operations. In this way, the system can accommodate a variety of home network protocols(*3) and Internet protocols(*4), thus enabling new services to be added easily in the future.

Background to Development

Information appliances and broadband networks have become increasingly popular, and devices for the home have progressed to a stage where they are connected via networks. As the number of functions increases, however, we can predict that it will become even more difficult to use these devices comfortably and effectively. It is still impossible to provide services from the user's perspective, for example by combining services with audio functions into a single service, and we have yet to reach a point where it is possible resolve the situations where users encounter inconveniences in their everyday lives. By connecting these devices to a home network and enabling remote control, it has become easier to provide services such as remote control of individual devices or communications between two or more predetermined devices, but it has been impossible to provide services that enable any combination of devices, or to avoid conflicts between multiple services being accessed by multiple users. NTT has thus been conducting research and development on technologies aimed at achieving services that are simpler and easier to use, by applying network management technologies - which have been the target of research for some time - to home networks, and by linking and coordinating devices and services within home networks.

Keys to Home Service Harmony technologies

(1) Integrated service management technologies

Let us assume that a user is listening to music, and wants the music volume to be lowered automatically when a phone call comes in. In the past, there were no methods for achieving unified control of completely different services - for example, a telephone and an audio system - and there was no way of determining which control methods should be used. To resolve this dilemma, NTT developed an "Integrated Service Management Technology," which establishes parameters for the service user's abilities (i.e.,. seeing, hearing, speaking), allocates these parameters to services being provided simultaneously, and autonomously coordinates methods for providing the various services within the scope of the allocated parameters. To allocate the parameters, the system analyzes the context(*5) that can be gathered from the home network, and infers the order of priorities for the various services. This technology thus enables natural control that allows people to comfortably use multiple services simultaneously - even services of completely different types - which had been very difficult in the past.

(2) Home network resource management technology

Home networks are often used by several people at once, and this can result in contention for various resources. Even if there is only one user, if that user is accessing multiple services, contention for resources can arise unexpectedly, resulting in reduced service quality; in some cases, the user might be unable to access the services at all. To resolve this situation, NTT has developed a "Home network resource management technology" that uses the carrier network management technologies developed and experienced by NTT through the management of phone and IP networks to centrally manage the usage bandwidth and status of devices on home networks. In this way, it is possible to prevent resource conflicts before they occur by understanding, in real time, how much of the system's resources can be allocated to a given service at any given time.

Future Developments

NTT will continue to expand the scope of applications for Home Service Harmony to achieve safer, more secure, more comfortable service environments at homes that are connected to broadband networks.

It will promote development of various types of program modules to accommodate constantly diversifying home network protocols, and at the same time will promote standardization and open configurations using OSGi and other similar platforms to enable a broader range of providers to offer even more diverse services.

[Glossary]

(*1) Service gateway
A service gateway integrates various protocols used on home networks, discovers and manages appliances, and protects security, among other functions, and is a central element of the home network system. The service gateway can take on various forms; for example, as an independent device, or as a function within a broadband router, set-top box, home server, PC, or other device.

(*2)OSGi(Open Service Gateway initiative)Service Platform
Established by the OSGi Alliance (http://www.osgi.org), this open service platform is designed to distribute various applications and services to devices connected to every type of network, including those designed for homes, automobiles, and mobile devices, and to enable management of such applications and services. In the context of OSGi, program modules distributed as parts are referred to as "bundles."

(*3) Home network protocol
A variety of protocols are used on home networks to enable communication between devices. Among the most common protocols are: UPnP (http://www.upnp.org/), used by PCs and routers; Echonet (http://www.echonet.gr.jp), used by home appliance devices; IEEE1394 (http://www.1394ta.org), used by AV devices; and HomePlug (http://www.homeplug.com/), which uses electrical power lines.

(*4) Internet protocol
A variety of protocols are used on home networks to enable communication via public communication networks. Internet Protocol (IP) forms the basis for these protocols. Others include SIP (Session Initiation Protocol), for IP phones, and POP, IMAP, and SMPT, which are used for e-mail.

(*5) Context
Various information related to users and services, including: current status, such as user location and details of services being used; user's preferences, profile, schedule; status of all services and devices currently in operation; status of the home network, such as network usage bandwidth; and other environmental factors such as weather, season, and time.

(Attachment 1) Configuration of Home Service Harmony
(Attachment 2) Example of coordination of service provision styles

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