Fundamental Technologies for Broadband and Ubiquitous Services

Akira Nambu

Director of NTT Cyber Space Laboratories

The research and development activities of NTT Cyber Space Laboratories are targeting new fundamental technologies from the customer's viewpoint to support the evolution of information communication services. As more information sources are digitized and made available across the Internet, it will become possible to create exciting new services by building on these digital media. Thus, media processing technologies are clearly the keys to broadband and ubiquitous services. The media processing envisaged includes video, audio, sound, and language processing, which will encourage person-to-person communication through enhanced information mediation between man and machine.

Media processing technologies are being advanced under the theme of "natural quality" at NTT. One goal is to achieve highly realistic communication that greatly exceeds ordinary flat images and is even more realistic than life. To achieve natural quality, we have settled on several themes such as sound effect and media coding technologies. One result is a stereo echo canceller that includes detection of the sound source direction and automatic gain control; another is a high-quality reproduction system with video coding technology that complies with next-generation standards. Commercial audio and video communication services will be established on these fundamental media processing technologies.

In addition to media processing technologies, an architecture for product development that has flexibility and high potential is required to create actual appliances or services. It must be an advanced software development platform. NTT Cyber Space Laboratories is focusing on open source software (OSS) and is raising the level of technology to create a truly effective platform.

By combining the advanced software development platform with media processing technologies, we can significantly increase the possibility of new IP-network-based services (IP: Internet protocol). To build a truly effective platform of new OSS-based information processing, we need to emphasize OSS components such as database management systems and operating system kernels. Community activities related to OSS are also being promoted simultaneously. These activities will be useful for spreading and promoting the development of broadband and ubiquitous services.

The spread of the Internet will continue and more attractive broadband and ubiquitous services will appear. A good example of a broadband service is the communications/broadcasting convergence service, which is based on IP-network, media digitization, and media processing technologies. To make these services robust and reliable, NTT Cyber Space Laboratories continues to move ahead with research and development to create pleasurable, convenient, and comfortable services based on both media processing technologies and the advanced software development platform.