

Exciting Innovations for Future Global Business Expansion

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NTT Network Innovation Laboratories is conducting advanced research towards technical innovations that will greatly expand our business area in about five to ten years, in cooperation with the other core technology research laboratories in NTT. We have made and continue to make technical innovations in areas such as optical, wireless, and Internet communications, which are raising living standards and improving people's lifestyles.

The main focus of our research is broadband technology and ubiquitous technology. We are now developing photonic network technologies that have high capacities and high interoperability for the next generation of network services. An outstanding example is generalized multiprotocol label switching (GMPLS) technology, which can reconfigure wavelengths and perform routing on demand. This has enabled us to optimize the use of JGN-II (Japan Gigabit Network-II) operated by NICT. Moreover, services that use RFID (radio frequency identification) tags have enormously expanded the uses and scope of ubiquitous technology, and we are now developing an active RFID tag with state-of-the-art transmission capabilities, compared with the passive ones currently being used in JR's Suica system. Additionally, we are now developing the core technology for these active RFID tags, which will include asset management and position detection. The time spacing of the radio transmission and the power consumption are currently being tested, considering customer usage requirements. Furthermore, we have developed an ultrahigh-definition digital-cinema delivery system that implements DCI (Digital Cinema Initiatives) specifications for a 4K format of 4096×2160 pixels for a total resolution of eight million pixels. DCI is a joint venture involving the seven most famous film studios in Hollywood.

When we consider R&D systems from a business perspective, it is important for us to conduct and promote trial manufacturing projects to gauge the market early—during the development stage—and more accurately predict the coming trends. For example, for the ultrahigh-definition digital cinema, we must

consider limits on the production side, such as whether the movie quality can be fully expressed, and the limits of what can be screened since there are currently no systems that can process digital 8-megapixel signals in real time. We expect this system to become the benchmark for high-quality network services. If we can produce such a system, we will gain peoples' confidence, even in fields other than entertainment, such as education or medicine.

When we develop network infrastructures, it is essential for us to observe how they influence the world in general and peoples' daily lives. After carefully evaluating the technical aspects and accurately predicting future requirements, we will develop innovative technologies that will not add to the confusion and stress in peoples' daily lives. Furthermore, we will always consider the social concerns of the users in addition to those of the service provider. Japan's decreasing birthrate and rapidly aging population have created a turning point in society. In collaboration with other worldwide organizations, we are working to originate inspired and indispensable technologies for the information and communication infrastructures of both Japan and the world and to design services whose benefits will be available to everyone. We at NTT Network Innovation Laboratories are determined to consistently create outstanding technologies and ideas with your cooperation and support.

