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Promoting NTT Group's Medium-Term Management Strategy

In November 2004, NTT Group announced the "NTT Group's Medium-Term Management Strategy." To implement this strategy, we have put together a roadmap for building the next-generation network and developing ubiquitous broadband services.

With this roadmap, we will create a network environment that provides a ubiquitous broadband service that is fast and convenient, safe and secure, and offers connectivity anytime and anywhere - so that our customers can easily and conveniently access our various application services. We believe this will help create a rich communications environment for individuals as well as for communities, make corporate activities more efficient, and generate new business opportunities.

Our intention is to build an open next-generation network that a variety of players outside NTT Group can use to pioneer and develop a variety of services and business models. At the same time, we plan to actively move ahead with alliances with these players in a wide range of forms. Through such initiatives, we are making a contribution toward achieving the goals of the e-Japan Strategy and the u-Japan Policy, so that Japan may have an energetic aging society in which the social problems Japan faces today, such as decreasing birthrate and rapidly aging population, issues of nursing and medical care, employment mismatch, crime and disaster prevention, and energy and environmental problems, are resolved.

I. Trends in the Information and Communications Market: Changes in the Past Year

(1) Fixed-line broadband market: optical access service is becoming prevalent and more applications are available

Fixed-line broadband access services (ADSL, FTTx, CATV) are becoming increasingly popular, with 20.6 million subscribers using some form of broadband service at the end of the first quarter of fiscal 2006. In particular, the expansion of optical access service has accelerated, with the net increase in subscribers exceeding that of ADSL from the fourth quarter of fiscal 2005. The number of optical access service subscribers surpassed 3.4 million at the end of the first quarter of fiscal 2006.

Applications using optical access are also on the rise. Examples include Hikari

Denwa (a high quality IP telephony service), video distribution, and bi-directional audiovisual communications such as videophones.

(2) Mobile communications market: migration to 3G mobile phones is accelerating and more applications are available

In mobile communications, the number of subscribers in the overall market (including PHS) reached 93 million at the end of September 2005. With the migration from 2G to 3G mobile phones accelerating, the number of 3G mobile phone users exceeded 38 million at the end of September 2005.

Furthermore, migration to 3G mobile phones has led to the expansion of broadband communication and increasing multifunctionality in mobile phones, with features such as mobile Internet, video/music distribution, audiovisual communication (videophone), and payment of small amounts using Osaifu-Keitai (mobile phones equipped with payment services). A wide array of applications are being developed and offered that go beyond simple means of communication.

(3) A full-scale convergence of services has begun

As IP-based services become more prevalent, a convergence of services is taking place. The primary broadband service offered by telecommunications carriers and CATV operators is the triple play of Internet access, telephone, and video distribution.

Fixed mobile convergence (FMC) is also progressing, such as services by telecommunications carriers that provide corporate customers with integrated communications systems using one handset functioning as both a fixed and a mobile phone (One Phone integration), services that enable secure and remote access to corporate information systems using PDAs and other handsets, and videophone services between mobile and fixed-line phones. In addition, South Korea is moving ahead with preparations for the early commercialization of mobile WiMAX (WiBro). As more WiMAX-related technologies are developed, it is becoming increasingly clear that fixed-line and mobile communications services will converge even further.

Furthermore, service convergence is developing in a variety of ways, as exemplified by advances in the convergence of telecommunications and broadcasting through IP-based multi-channel TV broadcasts offered by telecommunications carriers and the distribution of content over the Internet by digital terrestrial broadcasters.

(4) Development of new businesses as broadband becomes increasingly prevalent

As broadband services become increasingly prevalent, a recent trend has been the development of new businesses targeted at the creation of new "communities" of individuals on the Internet. The blog search engine business is growing due to the rapid increase in blog usage (473 million as of the end of September 30, 2005), and business opportunities in advertising are expanding as a result of growth in affiliate programs¹ and SNS (social networking sites).² We expect many more new business opportunities to emerge in the future.

(Notes)

1. A system under which an ad is posted on a web site or e-mail newsletter, and if a visitor makes a purchase through such ad or there is otherwise a desired result, a commission is generated.

2. A community web site at which participants introduce their friends to each other and form new friendships.

(5) Changes in the market and competitive structure as the transition to IP-based services progresses

As the transition to IP-based services moves forward, telecommunications carriers in Japan and overseas are changing their networks/business structures and entering into alliances to respond to the fixed mobile convergence as well as the convergence of telecommunications and broadcasting. In addition, new business models continue to develop as witnessed by the emergence of providers offering a variety of content and applications using IP networks.

Also, overseas carriers are proactively engaged in fortifying their international competitiveness in the emerging IP era, including the standardization of the wireless broadband system (e.g., 4G and WiMAX in mobile communications) and IPv6.

In these ways, the information and communications market and its competitive structure are rapidly changing both in Japan and abroad.

II. Measures to Promote NTT Group's Medium-Term Management Strategy

1. Building the Next-Generation Network

(1) Basic concepts

NTT Group will build an efficient and flexible next-generation network enabling the provision of seamless IP-based services, using optical access and broadband wireless access for intra- and inter-prefectural communication, for communication between eastern and western Japan, and for communication between fixed-line phones and mobile handsets. These services will be offered through the collaboration of Group companies, consistent with the terms of fair competition as defined under the current legal framework. With this next-generation network, we will provide broadband Internet access, IP telephony, multicast communication for video distribution, bi-directional video (data) communications, and ethernet services.

(Note) We will, to the extent possible, use ethernet services on the next-generation network to replace existing dedicated line services, but for dedicated line needs requiring a certain level of quality, we will install dedicated line service nodes to allow network sharing at the wavelength multiplexing level. In addition, we are reviewing ways to integrate and consolidate service categories for dedicated line services that use special codes.

The next-generation network will have specific functions for controlling traffic during times of congestion and for restricting unauthorized traffic, as well as for handling cyber-terrorism and physical damage due to natural disasters. By ensuring communications quality and bandwidth appropriate for the various types of services, we will aim to provide safe, secure, and convenient services that combine the advantages of the existing telephone network and the IP network.

The next-generation network will adopt a layered structure model so that it can respond better to technological advances and service diversification. In addition,

subject to satisfaction of certain conditions, including maintenance of security, we will disclose the interface between the network and application management systems in order to allow application service providers (ASPs), video distributors and others to make use of the next-generation network and provide a wide range of application services. The service control functions of the next-generation network conform to the IP multimedia subsystem (IMS), which is compatible with the layered structure model being standardized by the International Telecommunication Union (ITU).

The next-generation network will be an open network that provides reliable connectivity with other IP networks (including ISPs). Specifically, voice communication connectivity will be the same as it is today; furthermore, with respect to video communications (other than voice communications), we will actively participate in efforts by the government and telecommunications carriers to ensure connectivity, while keeping an eye on how services are spreading and how the social consensus forms in relation to quality and other matters.

(Note) With regard to office and home environments, we will enhance the convenience of our customers by installing optical outlets and providing optical cords that are unaffected by bending, so that customers can install these equipment by themselves.

(2) Roadmap for building the next-generation network

Demand for optical access service is growing rapidly. Video-related services are expected to expand in fiscal 2008 due to consumer interest in the Beijing Olympics, and IP retransmission of digital terrestrial broadcasts in high-definition, which is slated to begin that year. Accordingly, it is imperative to build the next-generation network as soon as possible. In the US, the Federal Government is planning to develop an IPv6-compatible network in fiscal 2008.

In light of these circumstances, we will begin field trials in the second half of fiscal 2006, and begin building the next-generation network relay system by deploying relay nodes and optical wavelength transmission equipment on the IP networks of NTT East and NTT West. Following this, in the second half of fiscal 2007, we will begin deploying edge nodes as well as service control functions, and begin providing next-generation network services on a full scale. Existing user nodes and new edge nodes will initially be accommodated together in next-generation network relay nodes; we will overlay the new edge nodes across the network over time by replacing the existing nodes gradually.

We intend to achieve seamless linkage with the mobile network through the deployment of mobile network edge nodes at the time of NTT DoCoMo's introduction of the Super 3G service, and through NTT DoCoMo Group's transition of the ATM (voice) network to an IP-based network.

As for specific measures to resolve the inefficiencies that result from the next-generation network coexisting with the existing fixed-line network, we will put together our plans by fiscal 2010 based on trends in demand for the optical access, next-generation network.

(3) Summary of field trials

Prior to the completion of development work on our new edge node technology, we will commence field trials in the second half of fiscal 2006 in order to carry out a technological review with a view toward full-scale commercialization. While the

field trials will be carried out only in limited areas, or with a limited member of trial users (which will be determined before the end of this fiscal year), we plan to steadily introduce new services including Internet access, IP telephony, video distribution, fixed mobile convergence services, and solutions services for corporate customers as soon as preparations are complete. The services and features currently undergoing technological review include end-to-end quality control functions utilizing active controls across the spectrum from simple voice communications to high-vision class high resolution video distribution; IP-Multicast functions that permit large volume high resolution video transmission; security functions including unauthorized access blocking that provide safe, secure, and convenient services; multi-tier integrated technologies that realize convergence by enabling the provision of multiple services economically and efficiently; functions that combine fixed and mobile communications; open connectivity functions to link applications, and more.

We are conducting our field trials in association with manufacturers of information household appliances and software ASPs. As part of our field trials we plan to disclose our network interface to other carriers and ISPs.

2. Development of Ubiquitous Broadband Services

By enhancing the efficiency of our business operations through the effective utilization of NTT Group's resources, and by responding to the demand for convergence of services and technologies while satisfying the conditions for fair competition under the current legal framework, we will actively promote the development of ubiquitous broadband services.

To this end, we will clearly define the role and responsibility of each company for each network service, upper layer service, and corporate customer service. At the same time, we will strengthen intra-Group collaboration and promote alliances with other companies.

In addition, the holding company will strengthen its function of formulating overall Group strategy, including strategic alliances with domestic and overseas companies.

(1) Network services

In connection with the next-generation network, NTT East, NTT West and NTT DoCoMo Group will build the network and provide seamless integration between fixed line services (intra-prefectural/inter-prefectural, and eastern Japan/western Japan) and mobile IP-based services. Additionally, NTT Communications will provide corporate customers with one-stop services that include solutions services.

In a continuation of current practice, NTT East, NTT West, and NTT Communications will provide fixed line telephone network services for intra-prefectural, inter-prefectural and international calls.

(i) Fixed-line communications

With recent demand increasing sharply, the number of subscribers using B FLET'S optical access services reached 2.3 million at the end of September 2005. By providing faster, more diversified, and more reliable services, we plan for even further acceleration in the expansion of this service and aim to raise the subscriber figure to 30 million by fiscal 2010.

Specific measures include the following: (1) providing faster and more convenient

broadband Internet access, (2) expanding services that will become possible due to IP telephony's multi-channel and multi telephone number functions, (3) providing more high-value added functions such as IP-Centrex, (4) diversifying fee structures (e.g., quasi-flat rates) and work to promote flat rates, (5) enhancing high quality, bi-directional video communications service (videophone) and bi-directional communications service for large data volume, and (6) expanding multicast communications for video distribution which will enable high-quality video-on-demand services and IP-based TV broadcasting services.

In implementing these optical access services, we believe that it is important to promote alliances with other ISPs and other companies to a greater extent than ever before; at the same time, we also believe it is important to form wide-ranging alliances with consumer electronics manufacturers, due to the importance of achieving coordination with user systems that incorporate recent developments in IT-capable home appliances.

(ii) Mobile Communications

NTT DoCoMo Group will offer high-speed downlink packet access (HSDPA) and super 3G services to enable such services as high-speed high-volume video, audio and text distribution and video communications. In addition, based on the "Seikatsu-Keitai" concept (the mobile phone as a multifunctional tool useful for people's diverse lifestyle needs), NTT DoCoMo Group plans to promote diversification of mobile phone handset use by building in credit card and electronic money functions as well as incorporating functions such as GPS (Global Positioning System).

(iii) Fixed Mobile Convergence (FMC)

We will offer our individual customers handsets that serve as both a fixed-line and a mobile phone by having dual connectivity with WiFi and FOMA (One Phone). We are also making preparations for the timely provision of services such as forwarding calls between fixed-line and mobile phones when there is no response, and rate discounts for service packages.

We will also provide flexible, high-level communications services that can move seamlessly between fixed-line and mobile communications by introducing the next-generation network and combining it with WiFi, WiMAX or other wireless broadband technologies.

(2) Upper layer services (Internet connection, portal services, etc.)

In relation to the services that Group companies currently offer-e.g., Internet connection, IP telephony (050 numbers), video distribution (provision of platform and content) and portal services-we intend to improve the efficiency of our business operations by consolidating our facilities and operations as well as our procurement activities into one entity. Also, by vertically integrating these businesses, we intend to promote the construction of a new business model by offering service packages comprised of flexible combinations of upper layer services and creating a common points system. Moreover, integration of these businesses will unify and clarify the point of contact for companies looking to enter into an alliance with NTT Group. By proactively forming alliances with other companies, we will look to promote the development of new businesses such as advertising, e-commerce, and payment settlement businesses, including micropayments.

In preparation for the planned business consolidation of NTT Resonant and NTT

Communications, our upper layer fixed line services will be transferred to NTT Communications by next summer. We will consolidate the facilities and operations in stages to allow our users to make a smooth migration.

(3) Corporate services

With regard to corporate services, we will aim to develop a centralized service and response system for corporate users, and to strengthen our total solutions products and services for fixed/mobile services, for networks, and for software / information systems. In addition, we will look to create new businesses by further promoting alliances with other companies.

In order to provide enhanced solutions using open-source software, which is expected to expand in the future, we will consolidate the open source software-related operations dispersed throughout NTT Group to create a uniform support system from systems development to operations, and we will also increase our ability to develop strategic software. Moreover, in response to increasing diversification in payment methods and growth in applications using IC cards for personal identification, we will strengthen our card solutions that incorporate user authentication technology and encryption technology using IC cards.

To this end, we will review our user account system within the Group by next summer. In principle, NTT Communications will have responsibility for responding to customers, including with respect to network solutions. Moreover, in order to accommodate our customers' increasing FMC requirements, we will strengthen business ties between NTT Communications and NTT DoCoMo Group. NTT East and NTT West will continue to take the lead role in servicing customers that have close affiliation with their localities.

NTT Data will be principally responsible for software / information systems solutions for our corporate customers, while strengthening its ties with NTT Communications and NTT Group software companies.

(4) Convergence of telecommunications and broadcasting

By proactively responding to the convergence of telecommunications and broadcasting, we will aim to increase the market penetration of our optical services, improve the video distribution platform business, and expand our content distribution business by forming alliances with content owners.

In line with the movement toward system reforms to enable IP retransmissions of digital terrestrial broadcasts, we will address the fiscal 2005 research conducted by the Ministry of Internal Affairs and Communications, and continue to work toward commencement of IP retransmission services by moving ahead with efforts to unify our intra-Group video distribution platform, by actively participating in the formulation of technical specifications, and by promoting alliances with TV set manufacturers.

We will also promote alliances with terrestrial broadcasters, for example by jointly establishing sales and operating companies that offer multi-channel pay TV services using optical fiber, and by jointly developing new services that promote the convergence of telecommunications and broadcasting and take advantage of the new opportunities created by the commencement of one segment broadcasting for hand-held receivers. Furthermore, we will promote alliances with broadcasters to improve content for our video-on-demand (VOD) services.

(5) International business

With increasing demand for global services that bring together domestic and international services and with competition unfolding on a global scale, NTT Group will use the expertise it has developed and the fruits of research it has obtained in ubiquitous broadband services to form alliances with equipment manufacturers to actively create business opportunities overseas. To strengthen Japan's international competitiveness, we intend to actively participate in the formulation of international standards and other international initiatives through the International Telecommunication Union (ITU) and the World Summit on the Information Society (WSIS). Accordingly, we will establish an international section within the holding company, which will be tasked with formulating NTT Group's international business strategy and international standardization strategy and coordinating the international businesses of the Group companies.

With respect to China, where the Beijing Olympics (2008) and the Shanghai World Expo (2010) promise growth opportunities, we intend to establish an NTT Group office in Beijing that will be the uniform point of contact for the Chinese government and Chinese businesses. By doing so, we will strengthen our efforts in this market as we work in unified collaboration with local Group subsidiaries.

(6) Providing one-stop services to our customers

Amidst the diversification and convergence of services due to the shift to IP-based networks, we will ensure the availability of one-stop services for customers, and seek collaboration between Group and non-group companies to increase customer convenience in all facets of our business (sales, installation, user support, repairs, etc.).

Particularly, customers have made especially strong requests for a unified billing service for NTT Group services. Although we have already been accommodating the individual needs of our corporate customers, we now intend to increase customer convenience by enabling individual users to pay fixed and mobile phone bills online with a single sign-on. This service is expected to be in place by the end of the first half of fiscal 2006. We are also considering other measures to increase customer convenience. Because completely unifying the payment system for existing services that various Group companies separately offer requires a major system reorganization, we are focusing our efforts on efficiently achieving unification of the payment system in conjunction with the construction of the next-generation network.

(7) Working toward a safe and secure society in line with the e-Japan Strategy and the u-Japan Policy

NTT Group is working hard toward the realization of the goals of the e-Japan Strategy and the u-Japan Policy by assertively addressing social problems such as falling birthrate and aging society, employment mismatch, nursing care and health care, crime and disaster prevention, and energy and environmental problems through the use of ICT (Information and Communication Technology).

More specifically, we are working to make remote medical care possible by using our next-generation network to carry out health monitoring and consulting via video. Additionally, we are developing technologies and providing system solutions so that health-care systems can exchange information with each other.

As demand increases for diversified employment forms tailored to individual needs as a means to eliminate the problem of employment mismatch, we are

making efforts to facilitate telework (working from home using telecommunications), and SOHO (Small Office, Home Office) / home offices that make use of the next-generation network, and to promote the distribution of help wanted and position wanted ads.

Because of natural disasters such as the Niigata earthquake of October 2004 and because of the increasing crime rate, the need for disaster and crime prevention is increasing. We have been working to enhance the reliability of our networks by combining the strengths of our fixed-line and mobile communications systems, to prevent service disruptions when natural disasters occur, and to quickly restore service. We will further strengthen our efforts in these areas, and we will also move forward with efforts to develop home security, off-site monitoring and home control services on the next-generation network using IT home appliances.

With the Kyoto Protocol being adopted in 1997 and worldwide attention being focused on global warming, Japan is taking measures to respond to energy and environmental problems by recycling and reducing waste. At NTT Group, we will contribute to resource and energy conservation by utilizing our information and communications technology.

Figures and descriptions contained in this document relating to future predictions were estimated according to information available at this point in time, and may change in response to trends in the Japanese economy and the information communications world, as well as new services and rate of charges, etc. NTT Group therefore does not guarantee the reliability of the figures and descriptions relating to future predictions in question.

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