

From the Speech at Network Summit 2004 (2004/09/15)

“New Management Style in a Ubiquitous Society” From Practice of NEC Shinagawa Broadband Solution Center

By Saburo TAKIZAWA

Senior Vice President and Member of the Board

1. The World's Most Advanced Ubiquitous Environment

A ubiquitous environment is a society where everything and everywhere are always connected with a network. Japan is rapidly becoming a ubiquitous environment with the evolution of broadband and mobile networks.

Currently the number of a broadband network service subscribers is growing and expanding rapidly, and has exceeded 16 million persons (as of September 2004[1]). This service exceeds South Korea which is one of the leading nations in broadband, and is the fastest in the world as well as the most affordable[2].

Also in the realm of mobile networks, Japan has the highest ratio of Internet service contracts[2] for cellular phones. Moreover, new 3rd generation cell phone services, which can be thought of as mobile communications going broadband, are beginning to spread in earnest, while the terminals (handsets) themselves have evolved to gain various capabilities such as banking functions and camera functions. It could easily be said that the mobile terminal has indeed evolved into a ubiquitous terminal.

What's more, Japan has also gained the world's No.1 market share in major fields in the digital consumer electronics market such as digital camcorders and cell phones equipped with digital camera.

Added to this, due to the advent and spread of terrestrial digital broadcasting, the convergence of broadcasting, broadband, and mobile service domains is anticipated for the future.

Furthermore, in regards to governmental IT policy, the Japanese Ministry of Internal Affairs and Communications (MIC) has launched the u-Japan



Photo 1 Saburo Takizawa during speech.

concept. By realizing this concept, the ministry is predicting that the ubiquitous network related market, including the ripple effect to peripheral businesses, will expand to 120,500 billion yen by the year 2010[2].

Japanese enterprises should take maximum advantage of this world-leading ubiquitous environment. NEC believes the companies that master this ubiquitous environment for their own business purposes will be the true winners (**Fig. 1**).

2. Collaborative Management Realized in Broadband Office

In the absence of a precedence model of utilizing the world's most advanced ubiquitous environment for one's business, Japanese companies must “Improve intellectual productivity,” “Speed up enterprise management,” and “Improve customer satisfaction”

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as front runners in order to achieve predominance in the global market. Up until now companies have introduced IP phones for the purpose of reducing operation and maintenance expenses. However, from now on to be winners in an increasingly competitive environment it will necessary to use broadband “aggressively and proactively” (Fig. 2, Fig. 3).

And regarding the future management style, surveys show that corporate managers feel a strong need for companies to concentrate on their core competence, and create new value through collaboration and cooperation with other companies to transform into “collaboration type management styles” that can dynamically meet the demands of market change.

The “collaboration type management” which NEC envisions is in the following areas.

First, there is “collaboration within the company (inB),” in order to achieve “improved intellectual productivity” and “cost reduction.” Secondly, there is “collaboration with customers (BtoC)” to realize “improved customer satisfaction.” And third, there is “collaboration between companies (BtoB)” to create a “dynamic value chain between companies.” And an environment that brings together the office foundations that support these types of collaboration in a safe, worry-free and stress-free manner, is what we call the “broadband office.” This broadband office is what will bring about a revolution in work style and contribute to the growth of the company (Fig. 4).

From now on, we intend to advance the change in business style through further application of ubiquitous technologies into businesses themselves.

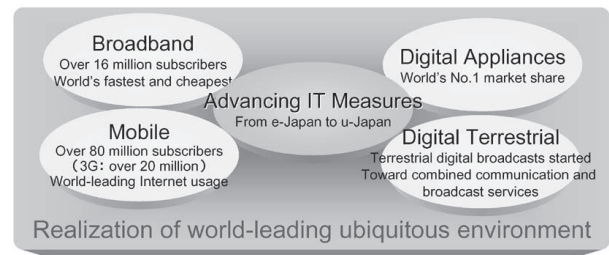
(1) Collaboration within the Company (inB)

In the broadband office, “improved intellectual productivity” will be achieved in our company through four keywords (Fig. 5).

The first is “My own workplace.” It is a system in which an information portal can be customized flexibly according to the user’s field of industry and business. Moreover, a unified messaging system that integrates various tools such as e-mail, fax, softphone and voicemail, will help realize more comfortable communications.

The second is “always collaboration.” By utilizing a web teleconference system, people and information will be dynamically linked, providing a real-time communication environment. It is especially effective in sales-related operation activities to facilitate cooperation between the front office and the backyard.

The third is “anyone is a specialist.” By processing paper and other documents digitally, we are



Those who master this environment will be the winners

Fig. 1 At the forefront of a ubiquitous society.

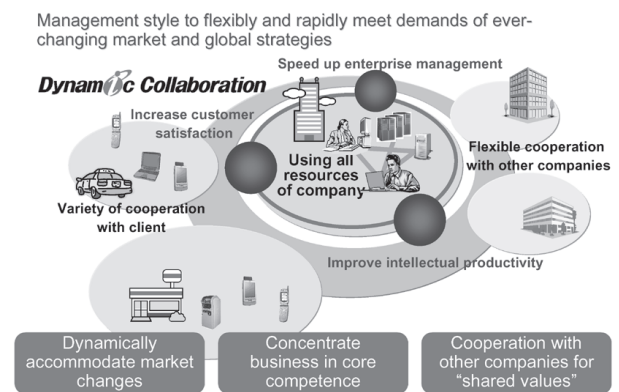


Fig. 2 Collaborative management.

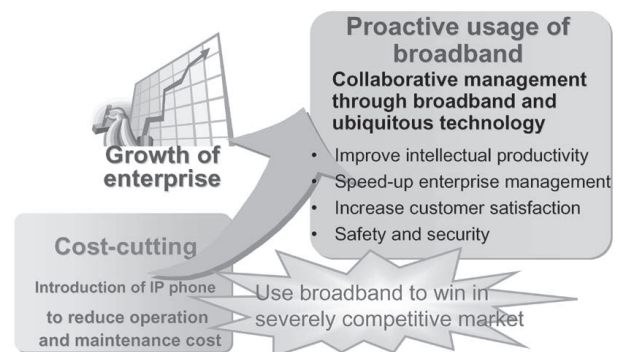


Fig. 3 Proactive usage of broadband.

promoting the paperless office. And through centralized management of this digital data at the center, it is possible for employees to share information in a secure environment. Moreover, employees are able to quickly retrieve the information they need using a keyword search function that allows search of even digitized handwritten documents, as well as high-speed document browsing software.

Fourth up is “anywhere is my office.” Through encryption of hard disks in terminals, user authentication, and encryption of communications such as SSL and IPsec, it is possible for employees to access confidential information with high security assurance even from remote locations just like using the system within the office.

(2) Collaboration with Customers (BtoC)

Collaboration with customers, through broadband solutions in conjunction with CRM (Customer Relationship Management), contributes to “improved customer satisfaction.”

Specifically, this will be used in on-site sales situations where a salesperson, upon visiting a client, will use a web teleconference to connect the client directly to specialists within or outside the company.

Moreover, at the IP contact center, customers will be provided with warm service with a sense of presence as though the call center is right nearby, through a communication system and broadband environment which combines sound, data and video images.

(3) Collaboration between Companies (BtoB)

In Japan, the BtoB EC market achieved for fiscal year 2003 results that surpassed predictions by 30 trillion yen. And although initially penetration was lopsided and mainly in the automobile and digital information related manufacturing industries, in fiscal 2003 it spread into manufacturing overall[3].

In corporate collaboration, two or more companies draw up a cooperative contract, sharing mutual resources according to the scope of that contract. When it comes to sharing IT resources, if a broadband solution is utilized for the interface between companies, a dynamic and secure shared virtual workspace can be built just like a single company. The broadband office realizes a “dynamic value chain between companies.”

(4) Safe and Secure Office Environment

In the broadband office, security solutions realize a safe and secure office environment (Fig. 6).

Outside the office, fortified security will offer thorough protection for employees and the office both

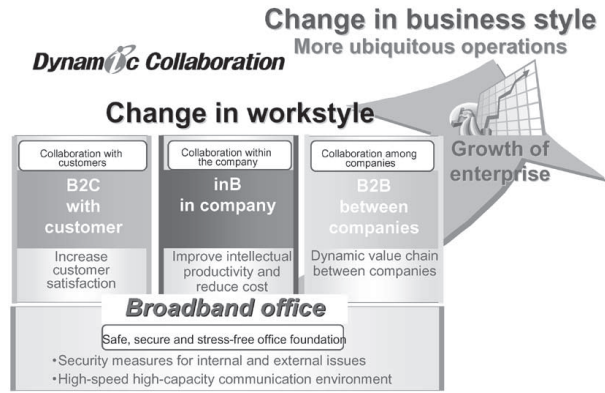


Fig. 4 Corporate growth attainable through collaborative management.



Fig. 5 NEC's concept of the broadband office.

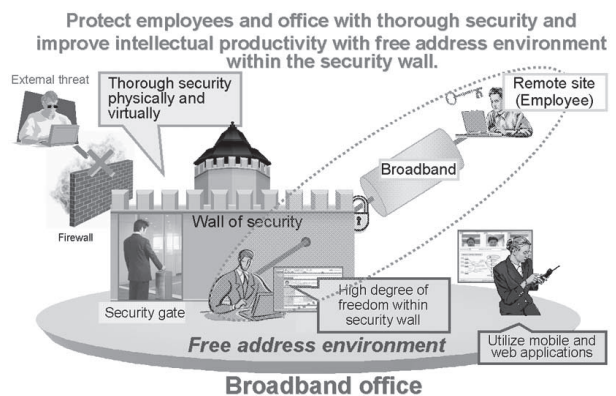


Fig. 6 Safe, comfortable, stress-free office.

physically and virtually. And inside the office, employees will use mobile terminals and web applications in a free address environment. This is the safe, comfortable and stress-free broadband office.

Specifically, in wired networks QoS for IP telephony and secured VLAN will be used, and in wireless network environments encryption by authenticated wireless LAN and control of rogue access points will make solid office security measures possible.

3. Practice in NEC Broadband Solution Center

NEC established the NEC Broadband Solution Center in Shinagawa in January of 2004 (Fig. 7). Here is located a model office for own practicing and experimentation with the “broadband office,” and 450 sales and SE personnel are actually working here. What’s more, there is a showroom where we give customers the opportunity to see, feel, and experience a broadband office first hand. Both are renewed every three months so that the latest solutions can always be studied.

About 8,500 visitors (as of Sept. 15, 2004) have come in the eight months after its opening. Among the visitors, 51% of them were in senior managerial positions, reflecting the high expectations felt by companies toward the broadband office. And 21% of visitors are new customers, allowing NEC to enjoy substantial benefits in terms of new business.

In the model office, the seating was reduced down to 70% of the number of employees. The remaining 30% of employees perform their jobs at outside locations through secure remote access, with the same comfort and security as actually being in the office. As a result of using remote access, the number of return trips from an outside location to the office were curtailed by about 50%[4]. Moreover, a free address system was applied to employees’ seats within the company. Employees are thus always able to use the wireless LAN, notebook PC and softphone, and freely choose the seat that is the most comfortable or convenient for the specific project being worked on (Fig. 8).

Through thorough digitization, document data is leading to a paperless office, allowing the centralized management of information as well as information sharing among employees. Even when viewed independently, the effects of the paperless trend have resulted in an approx. 66%[4] reduction in the number of sheets that were copied or printed out.

Through practice, the usability of IP phones and softphones was what were most concerned about, so we are trying out a number of different tools. As for



Fig. 7 NEC Broadband Solution Center.

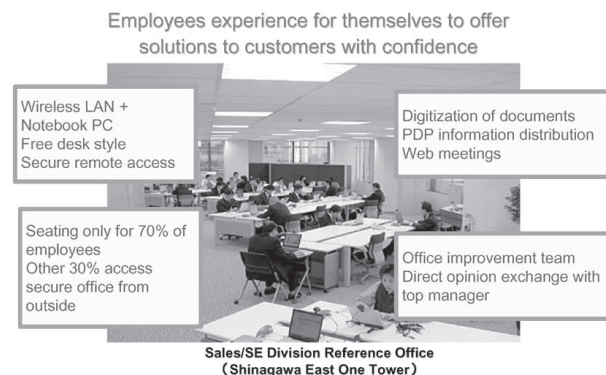


Fig. 8 Activities at reference office.

the position on the screen that the softphone will appear in, or the optimum type of wireless microphone/earphone, we considered not only usability from our perspective, but also the opinions of our customers, to search for the best items. The solution arrived at was the Bluetooth compatible wireless microphone/earphone that we are using now. In terms of positive effects brought about by using IP phone and softphone, the wasted time associated with telephone calls (time required to transfer a call or wasted calls made while the other party is out of the office) was reduced by about 77%[4].

In order to cut down on the time and expense it takes to move people to hold a meeting, we emphasized the use of web teleconferencing. In order to promote this, we removed all seats from the conference rooms in a deliberate effort to make the rooms uncomfortable. As a result, this led to web teleconferencing being eagerly adopted, allowing us to reduce transportation costs related to meetings by 55%[4].

Furthermore, an office improvement team composed mainly of younger office staff was formed for every floor. By granting each team the authority to purchase office fixtures to make the office more comfortable and functional, the speed of office improvement is competitive on each floor. Now, individuality is being demonstrated on every floor and there is a feeling that the office is evolving day to day.

Regarding section transfers for personnel that occurred after July of 2004, thanks to the free address environment, the floor moving expense per capita associated with personnel moving to a different floor was curtailed by about 81% compared to our head office.

Another benefit of the broadband office was the positive impact on the environment. According to trial calculations by NEC's Central Research Laboratories, it was found to be possible to reduce the amount of discharged CO₂ by about 41% or more as a result of the workstyle change at the NEC Broadband Solution Center.

In addition, there is also a qualitative effect. In other words, employees are working with more vim and vigor than ever before. The NEC Broadband Solution Center is always energized, proactively taking in new technologies and new systems. And we are certain that this will lead to the further improvement in performance for NEC.

4. UNIVERGE Solution

In June of 2004, a new solution was announced for the purposes of promoting change in the company's workstyle, and to realize increased operating efficiency and improved intellectual productivity. Namely, the UNIVERGE solution (Fig. 9). The UNIVERGE solution converges IT and network technology, which are the strong points of NEC, with the experience gained at the NEC Broadband Solution Center applied to it.

The product group that realizes the UNIVERGE

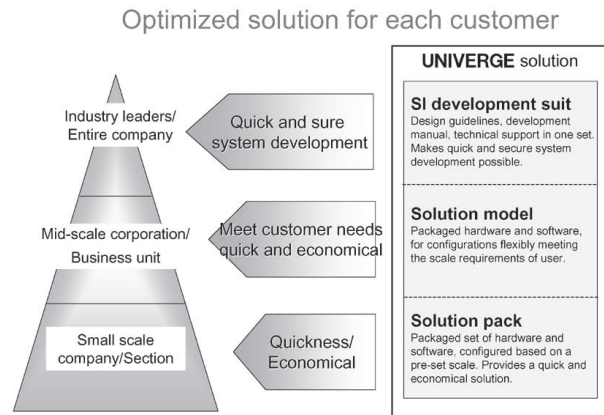


Fig. 9 UNIVERGE solution overview.

Expansion of broadband office

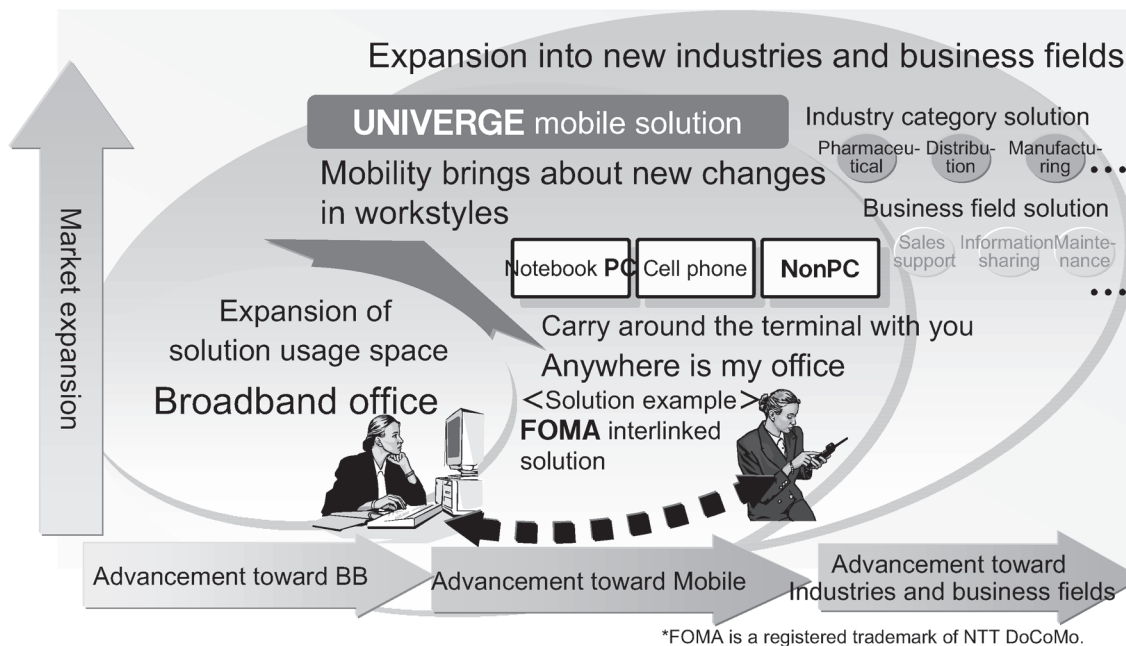


Fig. 10 Advancement to mobile solutions.

solution consists of many of NEC and partner products, and so that customers can use these products without worry, NEC guarantees interoperability of these products when used in combination. In order to meet a broad range of demand by customers regarding solution introduction, we offer it in three different forms to be selected according to the scale and flexibility needs of the customer: SI development suite, model, and pack.

The “UNIVERGE Support Center” has been established as the back support of the sales force, offering a high degree of support so that customers may use the UNIVERGE solution in comfort.

Furthermore, in order to offer a broader range of services, the “UNIVERGE Partner Program” was established to enable us to offer optimum solutions together with our many sales and application partners. Cooperative efforts with partners are already underway in regards to approx. 250 applications.

In order to cater to not only to the domestic but also the global market, we have developed a system that makes it possible to offer the same solutions in various areas of the world so that globally active enterprises can feel confident about adopting our solutions.

Furthermore, the UNIVERGE solution expanded its domain to become a mobile solution in September, 2004 (Fig. 10). From a product selection centering on fixed-line broadband solutions, expansion is taking place as a mobile type broadband solution used in conjunction with cell phones, notebook PCs and PDAs. What’s more, the solution will continue to grow in ways that utilize the electronic settlement-of-accounts service and camera functions that are specific to mobile phones.

Among the solutions that NEC is emphasizing most is the UNIVERGE FOMA interlinked solution (Fig. 11). This consists of a FOMA dual terminal (handset) equipped with IP phone function used in conjunction with the UNIVERGE solution, enabling a single phone to be used within the office as a wireless IP phone terminal, and as a FOMA mobile phone when outside the office. Also, when outside the office it is possible to check information on a meeting while traveling, and make “Anywhere is my office” by using a web meeting application. In the office, by combining the wireless IP phone function and presence function, it will contribute to improved operating efficiency.

In the future, the UNIVERGE solution will strengthen cooperation with different types of

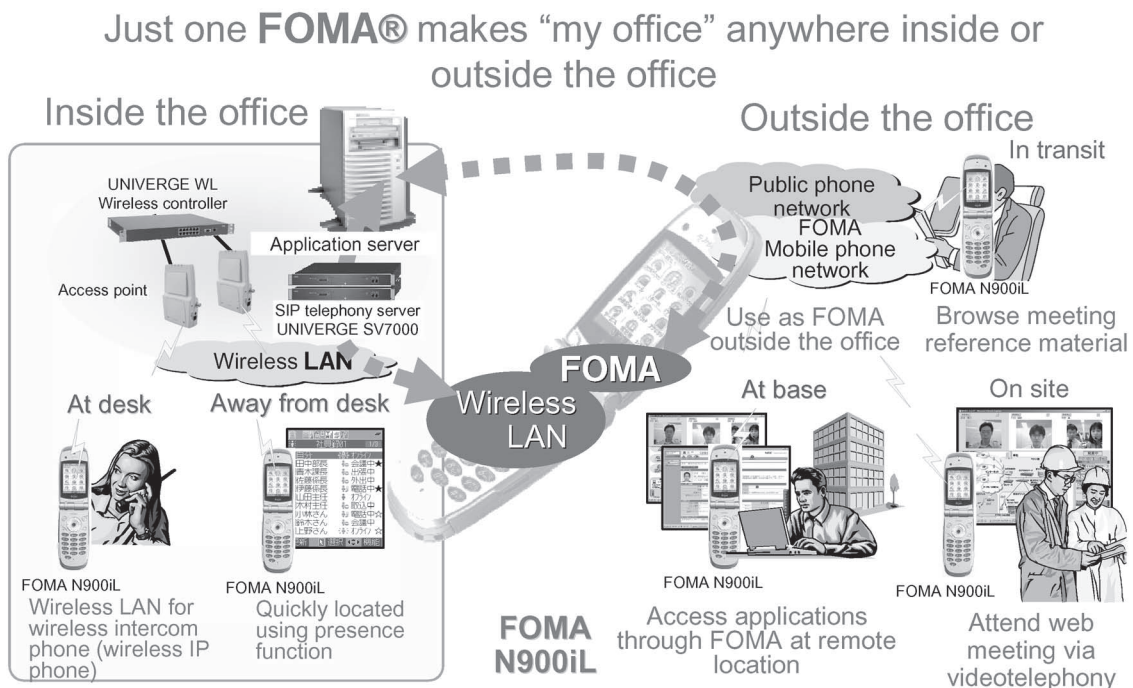


Fig. 11 UNIVERGE FOMA interlinked solution.

industry to offer more operating solutions in addition to mobile, thereby expanding the domain of the broadband office.

Look forward to the future of UNIVERGE solutions.

And if you have the opportunity to visit the NEC Broadband Solution Center, please come and experience the broadband office for yourself. We hope to see you soon.

*All trademarks, product names and other proprietary titles mentioned herein are property of each owner.

REFERENCES

- [1] "Number of users of Internet connection service" by Ministry of Internal Affairs and Communications.
- [2] 2004 Edition Information Communication White Paper
- [3] Information Economy Outlook 2004
- [4] Comparison of expenses before (Nov. 2003) and after (June 2004) moving employees (450 persons) who work at the NEC Broadband Solution Center.