

## 30 Years After NEC's C&C Declaration, the Evolution of UNIVERGE Goes On!

As a result of the convergence of IT and networks, both the speed and quantity of information exchange continues to expand by magnitudes. However, the communication mode deemed most suitable for a certain objective and circumstances still depends on the individual. Within the process chain of work, delays of work involving people arise and may be a cause of delays in the entire process.

NEC Group believes that Unified Communications is one key to breaking out of this vicious cycle in communication and innovating workstyle. Following an introduction of the concept of Unified Communications as it applies to UNIVERGE, we would like to introduce our cutting-edge solutions and various platform products and services designed for operation on a global scale. Finally this special issue will present the reader with various case studies of the application of Unified Communication in the workplace.

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### 1 Changes in the Enterprise Environment & Importance of Business Communications

In step with the widespread penetration of the Internet, full-time connections and utilization of broadband networks have become the status quo, and the quantity of information exchanged on a global scale has ballooned. As a result, the business environment in which enterprises operate has undergone rapid change, and it has become increasingly difficult to keep pace and respond to those changes. The commoditization of products and services is contributing to fiercer competition between enterprises.

Let's take a look at some of the recent changes in the environment in which today's enterprises must consider. First is the growing importance of companies to respond to CSR and compliance expectations. Strict observance of laws and regulations such as the Sarbanes-Oxley Act (SOX), protection of the privacy of personal information and environmental protection have become essential practice for business in the eyes of society. The social responsibility incurred by enterprises in the event of some incident or unforeseen accident grows heavier every year. The consequences of an incorrect response go beyond cost-related risks. There is a danger of losing customer trust, and the potential for serious damage suffered by enterprises. For this rea-

son, measures to avoid risk are indispensable to enterprises, and fundamental to achieving such measures is the creation of a workplace that fosters the free flow of communication.

The second change is growing necessity for a new organizational structure and related systems that are receptive to a diversity of human resources and workstyles. For a society facing challenges of a declining birthrate, an aging population and globalization, it becomes necessary to employ a variety of human resources. In order to cultivate employees who possess difficult-to-acquire work experience and skills in a strategic competitive strength, companies are starting to build new systems and work environments such as work-at-home programs that take into consideration the work-life balance. Also responding to market needs, flatter organizations that transcend traditional position and department frameworks and accelerate decision-making as well as project-type activities are being increasingly pursued. Realizing these approaches to a new style of working will require an IT-Network convergence environment that enables "anytime anywhere" communications.

The third change to note is how performance of the overall business process depends heavily on the work performed by people. While the automation of business management using systems such as ERP (Enterprise Resource Planning) continues to progress and optimize business processes, human re-

source-centric work processes that are performed on the periphery of systems are untouched. Delays in business processes caused by human latency have become an issue. For example, when e-mail containing important information piles up and is not processed on a timely basis, this delay can in turn delay the business process like a snowball. In order to resolve this situation, it becomes necessary to have an approach that facilitates the seamless linkage of interpersonal communication and the business process.

The key to the resolution of these problems is preparing an environment that enables people to recognize changes and facilitates their ability to respond smoothly and in a timely fashion. "Interpersonal Communications" will play a central role in achieving this. Costly work delays can be eliminated by sharing information among people who evaluate and make decisions through the transmission of vital information that communicates change to the concerned person using the most appropriate mode of communications. Through the establishment of such communications, the entire business system including the human element can be optimized.

## 2 UNIVERGE Evolution Supports the Business Communications Revolution

UNIVERGE - a solution that revolutionizes work style through enhanced enterprise communications, is provided to businesses by the NEC Group. Let's begin by looking back on our past development of UNIVERGE.

In November 2003, NEC introduced the world to UNIVERGE - at that time, a lineup of hardware products that were the fusion of NEC's long experience in IT and network technologies and aimed at the implementation of enterprise communications systems. In January of the following year, NEC Broadband Solution Center (BBSC) opened in Shinagawa, and began undertaking verification, evaluation and demonstration of the results of newly proposed systems that utilizing these products. Developed based on the experience and know-how gained through actual trials at BBSC and in step with the rapid transition of corporate networks to broadband, "UNIVERGE Broadband Office" solutions were revealed to the industry in June 2004 as a solution to support increased communication efficiency and boost the intellectual productivity of white collar office workers. The office work revolution realized by Broadband Office also contributes to responsible environmental management. As a result of the paperless office, efficient use of office space through "free address layout" (non-territorial office), minimizing people movement by web-conferencing, and other measures, CO<sub>2</sub> emissions are reduced approximately 41% (based on actual results taken and calculated by NEC in 2004.)



Fig. 1 UNIVERGE Ubiquitous Workplace.

Then In April 2007, the scope of the application of our innovative work style concept which had been focused primarily on the office environment was expanded to include every conceivable "GENBA" including retail shop floor, the factory floor, and warehouse floor. This was the debut of the UNIVERGE Ubiquitous Workplace," which provided each individual working on the floors and frontlines of business with an environment where they could perform their jobs in safety and security (See Fig. 1.)

UNIVERGE Ubiquitous Workplace realizes an environment that enables anyone from anywhere to simply and securely share information and to conduct communication visually. With this aim in mind, NEC assembled a solution that featured "Secure Mobile" and "Visual Communication" technologies. Secure Mobile is the creation of an environment that enables employees on the move to securely access necessary information from all locations. Moreover, it eliminates the need for employees to physically carry sensitive information with them. Visual Communication is about providing an easy-to-use user interface that enables anyone in the "filed" to participate in collaborative activities regardless of their communication technology skills - the realization of communications with "presence" that extends to the expression of the "GENBA" atmosphere. In this way, UNIVERGE Ubiquitous Workplace uses enterprise communications and supports innovation of workstyles in every imaginable "GENBA."

Through the provision of products and solutions for enterprise communications as described above, UNIVERGE has been proposing ways to cut costs and improve productivity, honing the competitive edge of companies. At the same, there has been remarkable diversification of the modes of communication in recent years. In addition to e-mail, businesses are beginning to use blogs, SNS (Social Networking Service) and other means of communication. As communication devices used in the "GENBA," mobile phones and smart phones also are growing in sophistication with access to this diversification, it is becoming necessary for users to sift and identify more and

more information according to its importance and urgency. These communication modes and their increasing pattern of usage have become one of the factors contributing to the human latency in business processes.

Since its conception, UNIVERGE has proposed user interfaces that integrate communications. However, in response to the increase in communication modes and devices and consequent appearance of new delays in the business process, NEC has been endeavoring to enhance and expand the communication platform, and create "Unified Communications" (UC).

### 3 Unified Communications – Expected Benefits

This next section will examine some of the potential benefits to be reaped by using Unified Communications. Fig. 2 shows a model that expresses a corporate business process in terms of quantity and cost. It is divided into the portion of the work process that can be completely automated and work that is still dependent on human resources. As shown in the chart, significant cost reductions can be achieved by systematization of work that can be automated with ERP, etc. However, the category of work that is dependent on human resources remains unaffected by introduction of such systems, and from a cost perspective, this category accounts is currently growing relative to other types of work.

The introduction of Unified Communications will speed vital information to the people who need it, streamlining communications and boosting the efficiency of work that is reliant on human resources. Because areas of work that previously were untouched by systematization are made more efficient and work-related costs are optimized, a margin of extra time is created in the process, empowering people with extra time to engage in more creative work. The exploitation of Unified Communications can make a major contribution to the generation of innovation by enterprises.

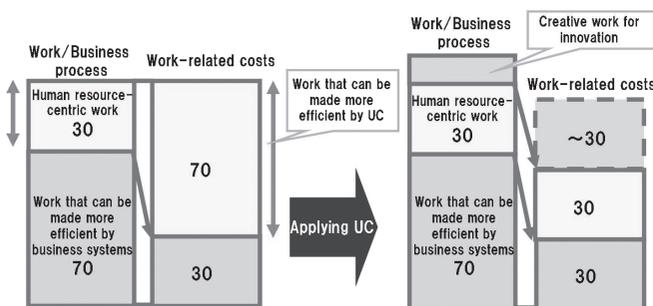


Fig. 2 Model showing the benefits of Unified Communications.

### 4 The Future of Enterprise Communications and UNIVERGE

In 2007, NEC commemorated the 30th anniversary of the declaration of its C&C (Computers & Communications) concept. In 1977, Koji Kobayashi, then-chairman of NEC Corporation, put forward his vision of "the convergence of computer and communications technologies," stating that "early in the 21st Century, it will be possible to talk and see between any persons, at any time, at any place on the earth..."

Today in the first decade of the 21st century, this dream is rapidly taking shape. The shift toward IP, software-centric solutions and other technologies necessary to realize the necessary communications is steadily becoming a reality, while web services are driving the convergence of systems and devices via the Internet. In the case of IT systems, functions developed for a variety applications are componentized, retrieved and combined with others according to respond to specific objectives, and evolving to the limit of their potential. In the future, both of these domains of technology will be linked with a new "&", further propelling the progress of a Ubiquitous Society boasting "anywhere communications."

UNIVERGE is developing as an enterprise communications platform for the coming Ubiquitous Society. Constantly conscious of the roles and the current status of the people who work in enterprises, it will provide an effective solution that links people with people and people with systems. (See Fig. 3.)

At NEC Group, we are providing customers with UNIVERGE solutions under a global concept called UNIVERGE 360. For more detailed information about this concept, please

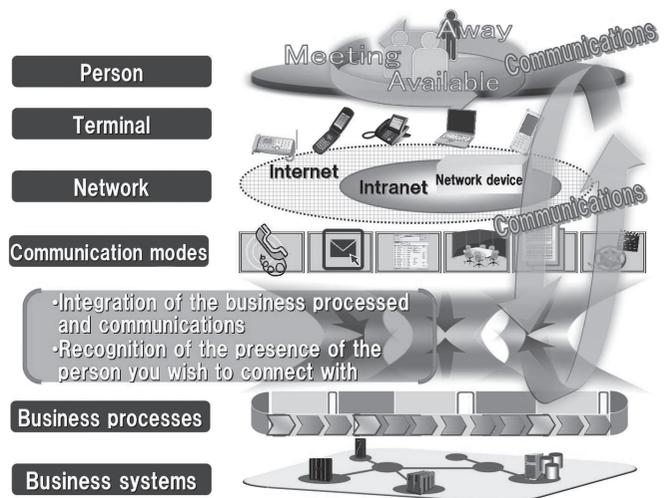
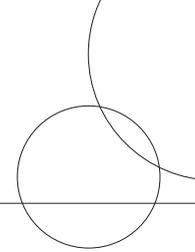


Fig. 3 UNIVERGE provides an approach to linking people and business.



refer to page 15~18 “UNIVERGE Pursuing “People-Centric” Communications Environments” described in the next section; however, the aims are summarized here: “UNIVERGE provides a communications environment that connects people according to their unique roles of responsibility securely, with appropriate timing, without error, efficiently and with certainty, and supports the swift and smooth performance of work.”

## 5 Special Issue Contents

Under the broad theme of “UNIVERGE, Tap into the Future with Unified Communications,” this special issue includes various papers about how NEC Group is tackling the advance of Unified Communications. They are organized into five parts: “Concept,” “Solutions,” “Platforms (Products/Software),” “Services” and “Case Studies.”

In the “Concept” part under the heading “UNIVERGE Pursuing “People-Centric” Communications Environments (pp. 15~18),” we will explain the direction of Unified Communications as advocated by our company as a solution concept to respond to business communications issues.

### (1) Solutions

In the “Solutions” section, there are 4 papers:

- 1) “A New Communications Style Based on Linkages between Task Management Systems and Unified Communications (UC) (pp. 19~22)” takes a look at the kind of work process that can be improved by the integration of business systems and communication system in the frontlines of medical care.
- 2) “Security Solutions for Communications Platforms in the Ubiquitous Age (pp. 23~28)” examines the demands on security management created by the evolving communications environment and introduces concrete solutions to respond to this situation.
- 3) “Unified Communications Applications (pp. 29~33)” provides an explanation about the characteristics (relevance and continuity) of combining communication tools and business systems, and shows some case studies of Unified Communications applications and the direction of future development.
- 4) “Global Efforts toward Unified Communications (pp. 34~38)” introduces examples of Unified Communications projects undertaken by enterprises in North America, Europe and Australia.

### (2) Platforms (Products/ Software)

In the “Platform (Products/Software)” section presents 3 papers:

- 1) “New Communications Servers Supporting Unified

Communications (pp. 39~43)” introduces the functions and features of NEC Group’s communications servers UNIVERGE SV8500 and UNIVERGE SV8300. Also while describing UNIVERGE OW5000 collaboration middleware that integrates IT systems and IP telephony systems and our methodology for interfacing with Microsoft<sup>(R)</sup> Office Communications Server 2007, the paper will explain the unique characteristics and merits of introducing this platform.

- 2) “IP/Digital Multifunctional Telephones with a Modular In Design Allowing a Free Selection/Installation of Input Buttons and Display (pp. 44~47)” describes the features and merits of the UNIVERGE IP Phone DT700 Series and the UNIVERGE Digital Phone DT300 Series. It also explains how the UNIVERGE IP Phone DT750 Series equipped with large color LCD and XML open interface support offers the advantage of integration with IT systems.

- 3) “Unified Communications Platform (pp. 48~53)” introduces how communications services are activated from business systems using SOA (Service Oriented Architecture) on the Unified Communications platform. Also while touching on UC shared functions provided by the Unified Communications platform and the UC terminal user interface, the paper will explain the features of NEC Group’s next-generation UC platform Spherical.

### (3) Services

In the “Services” section presents 2 papers:

- 1) “Activities toward Wireless LAN Operation Service (pp. 54~58)” introduces a proposal for an operation model to maintain the conditions required to respond to the various issues that can affect the sustained performance and communications quality of wireless LAN. In the world of Unified Communications which is created with the mission of preventing interruptions to the work process, the maintenance of constant, reliable connections is essential. Here the wireless LAN system operation service which is expected to serve as the access platform supporting Intranet Unified Communications is introduced.

- 2) “Acceleration of Unified Communications with NGN and SaaS (pp. 59~64)” first provides an overview of NGN which will revolutionize networks and SaaS (Service as a Service) which will transform the application model, and then while examining the impact of these two trends on Unified Communications, the paper will explain NEC’s approach to these shifts in the paradigm.

### (4) Case Study

In the “Case Study” section, “NAMAKIZU-SOKURAN System: UC to Reform Staff Consciousness (pp. 65~69)” will introduce the impact of using Unified Communications at NEC Tohoku, Ltd. (a member of the NEC Group) from the

perspective of the theme described in the title of the paper. Linking a core quality management system and Unified Communications, the solution facilitates swift response when product quality issues are identified.

With the aim of facilitating a swift and appropriate response to the changing enterprise environment, NEC is proposing next-generation communications and innovations for the way people work, and is supporting activities that maintain and reinforce the corporate competitiveness of our customers on a global scale.

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