

New Communications Servers Supporting Unified Communications

MASUKO Mitsuru, SANNOMIYA Hiroki, KAWABATA Atsushi
ITAGAKI Yoshio, YONETSUKA Nobuo, HANEDA Hiroyasu

Abstract

The age of Unified Communications (UC) requires high-reliability communications infrastructures that can achieve efficient communications by integrating various tools including e-mailing, teleconferencing and web conferencing with telephony and is capable of linking various kinds of groupware, UC products and business applications.

This paper is intended to describe the features and advantages of the UNIVERGE SV8500 and UNIVERGE SV8300 communications servers and the UNIVERGE OW5000 collaboration middleware, all of which have been released newly based on the technological and product development capabilities of NEC, the market leader in telephony servers.

Keywords

Unified Communications, IP telephony server, IP Centrex, high reliability collaboration, application linkage, Application interface (API)

1. Introduction

The age of Unified Communications (UC) requires high-reliability communications infrastructures that can achieve efficient communications by integrating various tools including e-mailing, teleconferencing and web conferencing with telephony and linking various kinds of groupware, UC products and business applications. The real-time collaborations of the IT environment and IP network environment enable the selection of the optimum and combined means of communication according to the status and situation of the party to be called and ensure optimum information exchange with reduced wastage at any time. This will make possible a stress-free work style and contribute to an improvement in intellectual productivity.

In the following sections, we will describe the features and advantages of the UNIVERGE SV8500 large-/medium-capacity communications server and UNIVERGE SV8300 small-capacity communications server that support UC. We will also discuss the UNIVERGE OW5000 collaboration middleware that facilitates development of applications linked with the IT and IP network environments.

2. UNIVERGE SV8500

UNIVERGE SV8500 (**Photo 1**) features integration of various IP telephony functions on an open IP platform. In addition, advanced integration of IT and networking has made it a communications server that supports UC with its capabilities of linkages with various media and applications beyond the boundaries of IP telephony.

2.1 Flexibility in Full-IP Implementation

This server can be provided in a flexible circuit configuration according to user needs such as step-by-step migration to



Photo 1 UNIVERGE SV8500.

New Communications Servers Supporting Unified Communications

IP while utilizing existing equipment effectively based on the plan of the enterprise introducing it. The i-Netfusing system*1 that uses the multiprocessor technology and NEC's original technologies enables it to accommodate up to 120,000 extension lines.

2.2 High-Reliability System

The hard disk (driving part) is eliminated from the control block in order to reduce the fault occurrence rate (the MTBF of single configuration is no less than 7 years). All of the modules including the CPU are implemented in cards so that they may be replaced without interrupting the operation even in the case of a fault. When the system is configured in dual redundancy, the operability can be improved further with high-speed data transfer between the CPUs, thereby enabling system switching in less than 10 seconds while retaining the call status. Thus, high operability has been achieved.

In addition, the SR-MGC function*2 and the Location Diversity function*3 secure communication both internally and externally, even in the case of a fault with the IP network or system. It can also achieve high reliability in the IP Centrex system operation because even if a fault occurs in the middle of a communication, the terminals can retain calls as long as they receive the voice packets (RTP).

2.3 NGN Compatibility

NTT Corporation started partial service of NGN (Next Generation Network) in 2008. As UNIVERGE SV8500 inherits the achievements of UNIVERGE SV7000 that has already passed the connection verification in the NGN field trial, it will be ready to provide advanced functions and services such as high-quality codec and a video conferencing connection in the enterprise-oriented NGN services that are scheduled for future deployment.

2.4 Accommodation of UC-Compatible Terminals

UNIVERGE SV8500 can accommodate advanced functional terminals such as the UNIVERGE IP Phone DT750, which is a large-screen desktop telephone with an XML browser provided as standard, the UNIVERGE Soft Client SP350



Photo 2 UNIVERGE Soft Client SP350.

(Photo 2), which is a Softphone capable of data conferencing with up to 8 participants (video conferencing, data sharing, etc.) and various wireless IP phones that enable excellent collaborations in a mobile environment.

2.5 Migration

At NEC, we propose a convenient form of migration to the new system while effectively continuing to utilize existing equipment that has already been introduced to the customers. UNIVERGE SV8500 is also designed to accept maximal diverted use of the telephone sets, circuit packages and software used in the installation of UNIVERGE SV7000 and UNIVERGE APEX7600i. This can minimize the disposal of existing equipment, enable environmentally-friendly migration and reduce the system installation costs of customers.

The result is a step-by-step migration of the UC environment requiring minimal investment without any wastage of resources.

3. UNIVERGE SV8300

UNIVERGE SV8300 (Photo 3) is a communications

*1 i-Netfusing system: A method in which multiple systems function as if there is a single system to implement similar services and operability across multiple systems.

*2 SR-MGC: A function that uses backup servers in local locations to protect the communications within each location in case of a fault.

*3 Location Diversity function: Function for the server backup across the centers in the IP Centrex system.



Photo 3 UNIVERGE SV8300.

server that can integrate various communication tools including telephone, fax, e-mail, voice mail and voice message to enable quick and efficient communications regardless of the terminal used, and can also enable highly productive business collaborations with various partners.

3.1 Full-IP System for SMB

With an optimal configuration that can be accommodated in the 1U (unit) size of a 19-inch rack, UNIVERGE SV8300 offers full IP implementation and enables installation of the basic UC functions such as IP phone and instant messaging^{*4}. The multiprocessing on the IP network has improved the processing capabilities significantly from the previous model and a system with up to 1,536 extension lines can be built. When a line/trunk module with a 2U size is added, the circuit configuration may be modified flexibly according to user needs.

3.2 All-in-One Implementation with Built-in Auxiliary Devices

The routers, PoE switching Hubs and unified messaging systems that have previously been implemented in separate devices are now implemented as cards that can be built into the server. This arrangement improves the reliability in the case of power failure, etc. and makes it possible to build systems with higher cost efficiency than before.

3.3 Provision of a High Reliability Distributed Operations Environment

The remote units installed in remote locations such as branch and small offices are connected with NEC's proprietary RCCS (Remote-unit Call Control Signaling)^{*5} technology to enable IP Centrex operation with high reliability. The IP Centrex operation is possible with significant reductions in of operation/maintenance labor as well as in management costs and operations. If a fault occurs with the IP network, the units installed at remote locations are able to function autonomously in order to secure communications inside as well as outside these locations.

3.4 Environmentally Aware Product Design

UNIVERGE SV8300 complies with the European RoHS Directives^{*6} that restrict the use of hazardous substances such as lead and cadmium. It has also succeeded in reducing power consumption by up to 37% compared to the previous model (in comparison with the non-IP, 192-port configuration). The large-scale integration and reduction of the number of components using the latest DSP technology also supports our positive contribution to environmental issues.

It is one of the Eco Symbol products that meet the environmental consideration standards defined by NEC (<http://www.nec.co.jp/eco/ja>).

4. UNIVERGE OW5000

UNIVERGE OW5000 is a middleware that enables collaboration between the IP telephony environment of UNIVERGE SV8500 or SV8300 and the IT services by means of open application interfaces (API) such as SOAP^{*7} or CSTA^{*8}. It also enables linkage with Microsoft^(R) Office Communications Server (OCS) 2007 and IBM Lotus Sametime, which provide real-time communication services to users, as well as with other business applications and groupware.

*4 SMB: Small and Medium Businesses

*5 RCCS (Remote-unit Call Control Signaling): NEC's proprietary control system for distributed operations of units with high reliability.

*6 European RoHS Directives: Directives given by European Union (EU) for restricting the use of specified harmful substances in electronic and electrical equipment.

*7 SOAP (Simple Object Access Protocol): Protocol based on XML and HTTP for used in calling data and services in other computers.

*8 CSTA (Computer Supported Telecommunications Applications): Protocol for CTI, standardized by ECMA (European Computer Manufacturers Association). It is adopted by Microsoft^(R) OCS 2007, etc.

New Communications Servers Supporting Unified Communications

The use of UNIVERGE OW5000 makes it possible to develop linked applications easily without being concerned about the specifications and standards of voice-related systems such as the call control system.

4.1 Linkage with Office Communications Server 2007

Microsoft^(R) Office Communications Server (OCS) 2007 is capable of real-time presence, instant messaging, video conferencing and application sharing functions. Linking OCS2007 with UNIVERGE SV8500 or UNIVERGE SV8300 through the CSTA interface makes it possible to add on a wide range of telephony functions required for the office.

For instance, when the call status of the extension lines accommodated in UNIVERGE SV8500 or SV8300 is added to the real-time presence information, extension telephones can easily place outgoing calls by a simple operation using Office Communicator 2007 (Fig.).

In addition, the possibility of using the pilot station of hunting group to build a UC environment concurrently with the use of existing telephone operations by using wireless IP phones and mobile terminals such as PHS terminals can improve convenience without deteriorating the current level of telephone operations. In-house communications and job efficiencies are

thereby improved.

4.2 Linkages with Business Applications and Groupware

SOAP is an Internet-based standard technology. When the web service client is linked with the extension telephones accommodated in UNIVERGE SV8500 or SV8300 by means of the SOAP interface, it becomes possible to utilize various telephone services including call origination, call answering and call transfer.

For example, after extracting customer phone numbers from a business application handling customer information, clicking on one of the phone numbers can start a call to that customer. This means that a sales support system that makes full use of customer databases can be constructed to support business applications.

5. Conclusion

In the future, we will utilize our technology and product development abilities to lead us to a top share in the telephony market. To this end, we will enhance the functionality of the UNIVERGE SV8500 large-/medium-capacity

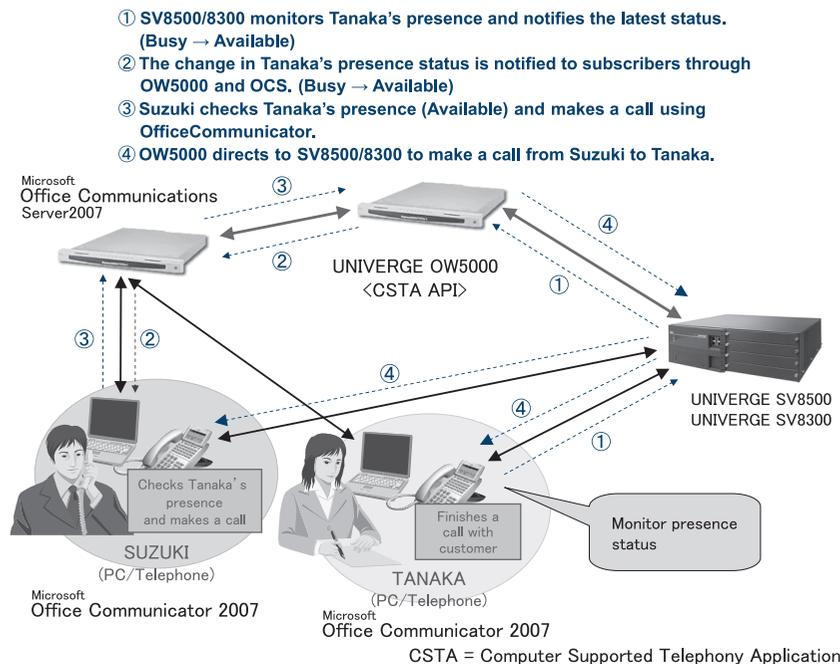


Fig. Linkage with Office Communications Server 2007.

communications server, the UNIVERGE SV8300 small-capacity communications server and the UNIVERGE OW5000 collaboration middleware as well as improving their linkages with other systems.

These products offering high-reliability communications infrastructures will form the core of our environmental provisions, in which every customer may enjoy the benefits of UC, from the SMB domain to large enterprises and from administrative offices to actual work sites.

*Microsoft is a trademark or registered trademark of Microsoft Corporation in the United States and other countries.

*IBM, and Lotus Sametime and Notes are registered trademarks or trademark of International Business Machines Corporation.

*Other brand names and product names mentioned in this report are trademarks or registered trademarks of their respective owners.

Authors' Profiles

MASUKO Mitsuru

Manager,
UNIVERGE Support Center,
UNIVERGE Solutions Promotion Division,
Enterprise Solutions Operations Unit,
NEC Corporation

SANNOMIYA Hiroki

Manager,
UNIVERGE Support Center,
UNIVERGE Solutions Promotion Division,
Enterprise Solutions Operations Unit,
NEC Corporation

KAWABATA Atsushi

Assistant Manager,
UNIVERGE Support Center,
UNIVERGE Solutions Promotion Division,
Enterprise Solutions Operations Unit,
NEC Corporation

ITAGAKI Yoshio

Manager,
Network Development Division,
NEC Infrontia Corporation

YONETSUKA Nobuo

Manager,
Network Development Division,
NEC Infrontia Corporation

HANEDA Hiroyasu

Manager,
IP Telephony Systems Development Department,
IP Business Division,
NEC Engineering, Ltd.