

A New Communications Style Based on Linkages between Task Management Systems and Unified Communications (UC)

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Abstract

As the use of task management systems penetrates more widely into the domain of medical care it becomes a significant factor in improving operations by effectively incorporating human communications into the system.

This paper describes the results of verifications of how the linkages between UC (Unified Communications) systems and task management systems can improve the actual quality of medical care using the multifunctional UNIVERGE IP Phone DT750.

Keywords

Unified Communications (UC), presence, information sharing, job process, communications

1. Introduction

Commercial penetration of various means of communications from the telephone to E-mailing, instant messaging and web conferencing has made it an important matter to link UC systems to task management systems. For example, if orders from customers are changed, much coordination work and time becomes necessary. Job processes such as inventory checks at the production site, specifications checks at the engineering department and delivery term checks at the delivery department may thus become isolated from the means of communication. Now that the speed of decision making determines the competitiveness of enterprises, the linkage of task management systems and communications is extremely important. Incorporation of a means of communication that varies according to TPO (Time, Place and Occasion) that cannot be handled by routine tasks is expected to dramatically improve the efficiency of task management. In the following, we will describe by taking specific examples how the linkages of the UC and task management systems can change the style of communications.

2. Traditional Job Systems and Communication

As task management systems are introduced and diffused more in an enterprise, the overall performance of the system becomes more dependent on human communications. The se-

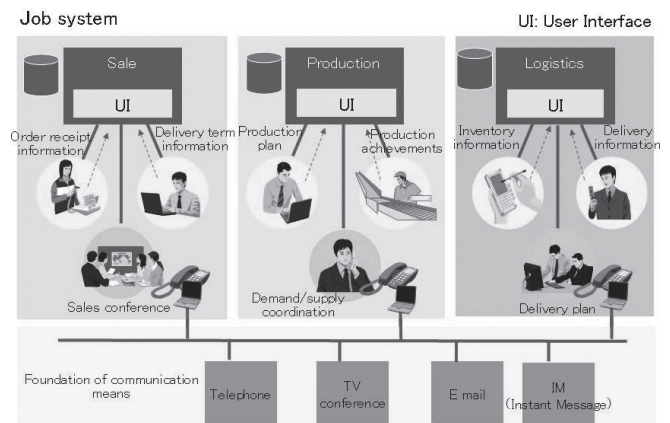


Fig. 1 Selection of job process and means of communication.

lection of suitable devices and means to support communications by considering the needs of each task process such as sales, production or logistics has tended to lead to an increase in the time lost within an enterprise (Fig. 1).

3. Communications Making Use of the UC System

The linkage of UC and task management systems makes it possible to select the optimum means of communications according to the situation and the degree of the emergency affecting the participants (Fig. 2).

For example, if a fault with a high degree of emergency oc-

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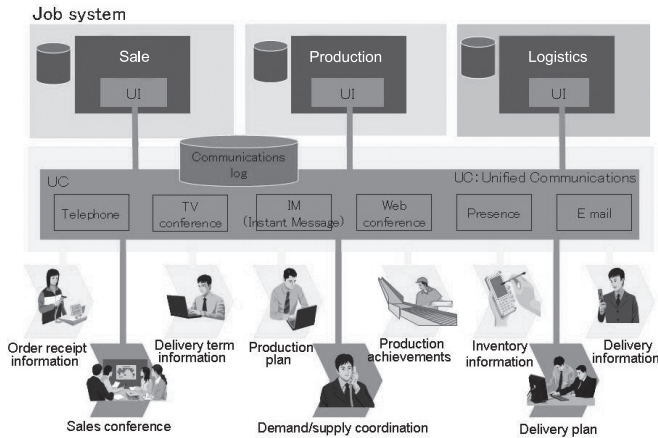


Fig. 2 Selection of an optimum means of communication according to the circumstances.

curs, its early solution can be expected by distributing the fault information simultaneously to the persons concerned via instant messages, confirming the presence of the engineers in charge or starting an ad hoc TV conference.

In addition, the level and quality of communications can be enhanced easily by switching the selected means of communication to another one according to the current situation. For example, seamless switching from telephone communication to TV conference can improve the quality of the communication.

4. Specific Example of Utilization

As a specific example, let us verify how linkage of UC and the task management system at a medical care site changes the style of communication. In the verification, we used the in-hospital portal systems of our medical information solution “MegaOak” and multifunctional telephone “UNIVERGE IP Phone DT750.”

(1) UNIVERGE IP Phone DT750

The UNIVERGE IP Phone DT750 (hereinafter referred to as the DT750) is a multifunctional telephone equipped with a large LCD panel and an XML browser (Fig. 3). Mounting the XML browser to the traditional telephone functions makes it possible to achieve linkages of various applications easily. The DT750 also packages an interactive operation capability based on touch operations, a function for displaying the contents sent from the server by PUSH distribution and a security function (security button).



Fig. 3 UNIVERGE IP Phone DT750.

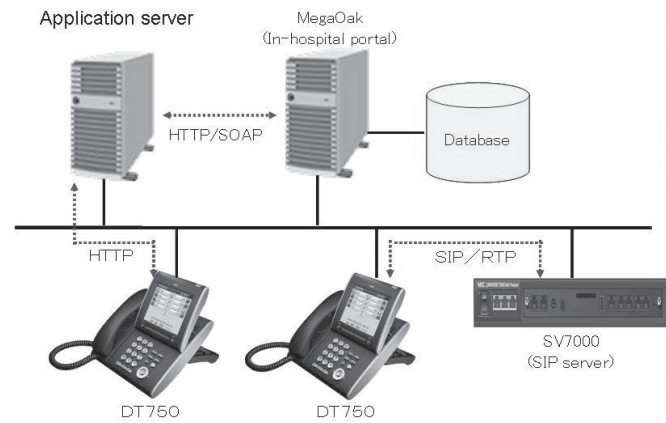


Fig. 4 Verified system configuration.

(2) System Configuration

Fig. 4 shows the configuration of the system used for verification. The DT750 communicates with the SIP server using SIP/RTP and with the application server using HTTP, while the application server and MegaOak (in-house portal) use the versatile HTTP/SOAP interface. The loose coupling of the task management system and applications using the universal HTTP/SOAP interface has made it easy to link them and to add on communications functions. The DT750 can be used as a device linking the task management system and voice communications, allowing for example to access the in-hospital portal via the XML browser running on the DT750 or to place a telephone call with a one-touch operation from the portal system.

(3) Specific Utilization Settings

Smooth communications and accurate information sharing are critical functions in the operation of actual medical care sites. Sharing of presence information of doctors and identification of the current locations of doctors handling emergency patients will improve the efficiency of task manage-

ment at medical sites. If medical information that is hard to be communicated by voice can be easily shared it is expected that communications will also be advanced more accurately and more smoothly.

In the following, we will check the advantages that the verification system is capable of offering with regard to the issues described above in the context of the actual medical care site.

1) Doctor Presence Status

When a doctor arrives at the hospital, presence status is indicated by touching the screen of the DT750 to change the status from “Absent” to “Present.” This causes a simple message and a list of functions on the screen (Fig. 5). The change in the presence status is reflected immediately in the database of the in-house portal system so that all persons concerned in the hospital can share the information (Fig. 6). A person in the hospital can then confirm the “present” status in the shared presence information before placing a telephone call. The kind of wasteful event that occurred frequently in the past, for example, placing a phone call without being aware of the recipient’s absence and to then have to call the same person again later on may be avoided. When a system for identifying the location (location presence information), such as an RFID-based position acquisition system is linked, more accurate communications will be possible according to the situation. For example calling a second doctor if the first intended doctor is in the operation room (in this case, the present status in the operation room is indicated as “performing surgery”).

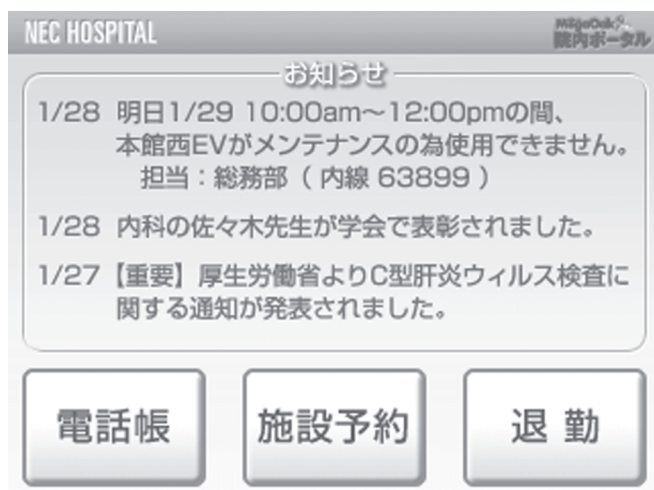


Fig. 5 Image of display after arrival at the hospital.



※ The deeper color indicates the presence situation of the doctor.

Fig. 6 Doctor presence situation.

2) Information Sharing via Voice Communications

Various means of information sharing via voice communications are possible. These include writing down what the other party says in a memo, recording messages, or hearing from another party of the location of desired information in the Internet, etc. and then being able to access it by oneself, etc.

The DT750 incorporates a function for receiving information sent from the server by PUSH distribution, so that it can send required information during talking on the DT750 in order to share it with the other party of voice communications.

Fig. 7 shows a case in which the liaison information of a pharmaceutical manufacturer, received by PUSH distribution, is shared. The user of this form of communication can reference the information sent by PUSH distribution and share information accurately with the other party of a communication. It is also possible to place a call by simply pushing the CALL button on the screen displaying the shared information so that task management efficiency can be improved by avoiding task fragmentation.

3) Examples of Services for Inpatients

The DT750 can also be used as a system to allow inpatients in private rooms to select meals or to order items from the hospital shop. We believe that the addition of such application services to the voice telephone system will improve the convenience of and services for inpatients.

Fig. 8 shows the case of a portal service for inpatients, which provides various services including ordering of newspapers or drinks for the terminals. The user can confirm the

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Fig. 7 Information from a pharmaceutical manufacturer received via information sharing.

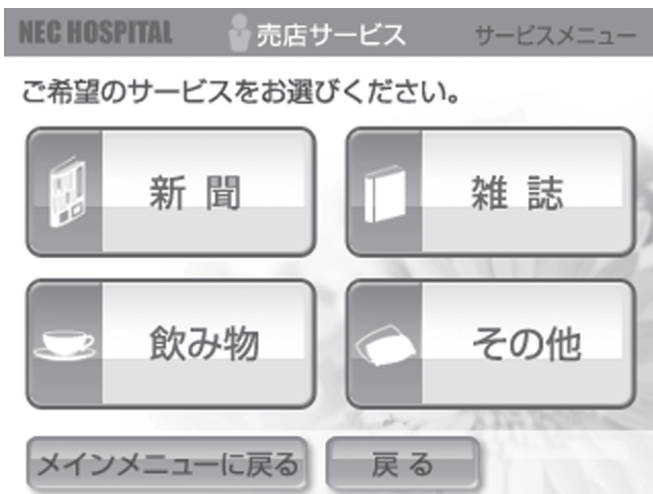


Fig. 8 Portal site for patients.

ordered item by touching the screen so that order mistakes that used to occur due to inaccurate communications can be eliminated. In addition, the optimum means of communication such as telephone, fax or E-mail is selected according to the status of the supplying party (shop) so that services can be provided quickly.

Unlike the PC, the DT750 provides an interface that is easy to operate even by aged persons. We believe that such ease of operation is an important factor considering the projec-

ted trend toward a future increase in the rate of ageing of the population.

Messages distributed in cases of emergency and other notices can be shared in a 1-to-N relationship if they are sent from a central PC by means of PUSH distribution.

Recently, we used and linked the DT750 with an in-hospital portal system at an actual medical care site and verified how such linkage can change communications and improve the task processes. Medical care sites introduce a large number of communications devices, including communications equipment such as nurse callers, PHS and PDA as well as IT systems such as the electronic medical records system, medical support system and medical administration system. We will continue to verify improvements in the communications process at medical care sites by fusing these devices and systems into the UC system.

5. Conclusion

As a consequence of the current diversification of the means of communications, NEC is determined to improve medical care task management by fusing the UC and task management systems and to implement a Ubiquitous Workplace setting in which an optimum task management environment is available anytime and anywhere.

With regard to UNIVERGE, we will continue to expand the core voice network in order to enhance the presence, messaging, video conferencing and server linkage functions by using UC as the foundation for effectively connecting the task management system to site terminals.

*As the products introduced in this paper are mainly sold for the domestic market, some figures feature explanations by the Japanese Language.

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