IP/Digital Multifunctional Telephones with a Modular In Design Allowing a Free Selection/Installation of Input Buttons and Display

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Abstract

The advent of the age of Unified Communications (UC) has lead to a need for various kinds of communication tools that can meet the diversification of communications. This paper is intended to describe the features and advantages of the first generation IP/digital multifunctional telephones that adopt a "Modular Design." This design makes it possible to combine most suitable input button, display panel and handset devices according to the location of the installation and the use scenario.

Keywords

UC, XML, universal design, security, user interface, multifunctional telephone, modular in design, touch panel

1. Introduction

The age of Unified Communications (UC) needs communication infrastructure that can communicate efficiently by integrating various communication tools and linking them to business applications, etc. Today, phone terminals are no longer used exclusively for telephony but are also used as information terminals linked to business systems. As a result, both strong security and easy user interface are required at the same time.

In the following sections, we will describe the features and advantages of the new phone products that support UC, including the UNIVERGE IP Phone DT700 Series of new IP multifunctional telephones (**Photo 1**) and the UNIVERGE Digital Phone DT300 Series of new digital multifunctional telephones for the new UNIVERGE SV8300 and the new UNIVERGE SV8500 communications server.

Photo 1 UNIVERGE IP Phone DT700 Series telephones.

2. Features of the New IP Multifunctional Telephone and the New Digital Multifunctional Telephone

(1) Built-in XML browser which can link with business applications including groupware (IP phones only).
(2) Information protection function using the security button (IP phones only).
(3) New user interface with high operability.
(4) Universal design for friendliness with both humans and the environment.
(5) World first modular in design for improved convenience and appearance.

3. Built–in XML Browser

All of the UNIVERGE IP Phone DT700 Series telephones with LCD embed the XML browser. In particular, the UNIVERGE IP Phone DT750 has a large color LCD (5.7-inch TFT) and a touch panel. They provide the following features (**Fig. 1**).

1) Compatibility with various image file formats and free

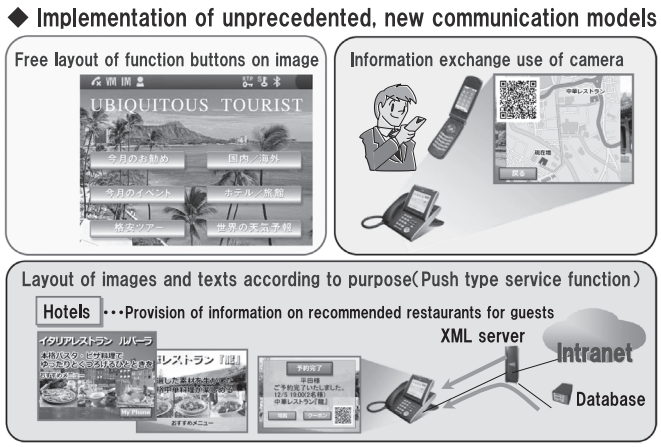

Fig. 1 Features of the XML browser function.

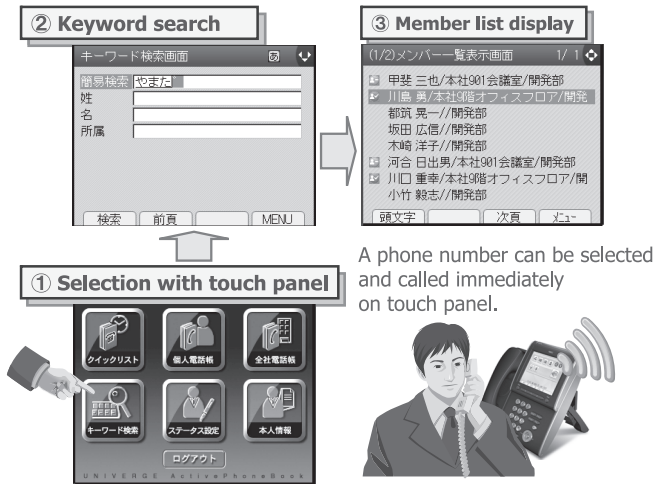

Fig. 2 Example of XML application linkage of UNIVERGE IP Phone DT700 Series.

choice of the application display layout.

2) Push function for various server distribution (Push) type services.

3) Some basic templates are provided to facilitate development of XML applications and their linkages with business applications.

4) XML browser emulator running on the PC for efficient development and debugging of XML applications.

The information on the XML browser emulator and on the definitions of XML contents are opened as UNIVERGE application partner programs [*1] .

As an example of linkage with the XML browser, we introduce a case in which the UNIVERGE Active Phone Book, which is an application for either the PC browser and the wireless IP phone is made available on the UNIVERGE IP Phone DT750 (**Fig. 2**). This application is capable of displaying the presence situation (location and status) of the called person and provides an efficient communications environment according to the situation. For example, connecting the phone if the person is present in the office or sending an instant message if the person's phone is busy.

Such applications can be made available from desktop phones by preparing a section for converting data so that it can be handled by the XML browser. This enables the provision of UC environments according to various business operations.

As described above, the UNIVERGE IP Phone DT700 Series with built-in XML browser makes the business systems that have previously been used via the PC and mobile terminals also available from desktop phones, thereby expanding the field of use of UC to many "GENBA (actual sites)" where PCs cannot be installed, such as in shops and public facilities.

4. Information Protection Using Security Button

When the UC system makes various business applications available from the desktop phones, it becomes necessary to be careful about the protection of information displayed on them.

The UNIVERGE IP Phone DT700 Series of IP multifunctional telephones are provided with a security button as standard in order to prevent information leaks from the phones. Security locking is possible with a simple operation before leaving the desk and going out, etc. Once security is locked, the UNIVERGE IP Phone DT700 Series will remain inoperable until the unlock password is entered, so information leaks from the device may thus be prevented.

5. High Operability in New User Interface

The desktop phones used as information display terminals in the UC system need to be equipped with ample operability in order to capably match their role.

The UNIVERGE IP Phone DT700 Series and Digital Phone DT300 Series adopt a new user interface with intuitive operability.

[*1] Support programs provided for UNIVERGE application partners.

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(1) Icon Display/Shortcut Menus

In case an incoming call is not answered or a voice mail is recorded newly, the corresponding icon is displayed so that the user will not forget to check the incoming call history during absence or to listen to the voice mail. To enable quick access to deal with the case as described above a shortcut menu key is provided to open a shortcut menu according to the displayed icon.

(2) Operability of Menus/Cursor Keys

Less-frequently used functions are made accessible using the Menu button and the available operations are indicated by displayed icons. This improves the ease both of the understanding and operation.

(3) Backlight Capability

Backlights are provided for the display and numeric keys enable operation under low light.

6. Human– and Environmentally–Friendly Universal Design

(1) New Function Allowing Audio Confirmation of Pushed Numbers

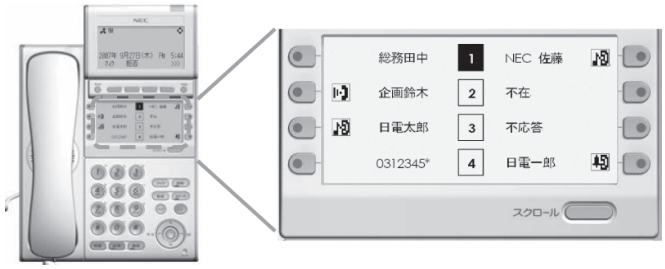
With the UNIVERGE IP Phone DT700 Series, when for example buttons "1" and "2" are pressed, the confirmation of the inputs of "1" and "2" is possible by listening to the actual voice (one, two). The possibility of confirming the pressed numbers is very reassuring to visually-handicapped persons.

(2) Environmentally Friendly Braille Compatibility

Previously, the function buttons have been provided with Braille compatibility by removing and disposing of the standard buttons and attaching the Braille function buttons in their place. The new models can be given Braille compatibility by simply attaching Braille stickers on the tops of the function buttons, which is a more environmentally-friendly measure.

(3) Display Layout and Color Design to Assist Partially Color-Blind Persons

In order to make the screen display easier to view and understand, consideration is taken to the combinations of input button colors and displayed character colors as well as their contrasts. It is also possible to add functions for magnifying or reversing the displayed characters.



DESI-less phone

Fig. 3 Display of DESI-less telephone.

(4) DESI-less Phone with Friendliness to Color-Blind Persons

A phone set called the DESI-less telephone has been developed, which shows the line status such as "busy" or "holding" with an icon display instead of LEDs (**Fig. 3**).

7. A World First Modular In Design System

In addition to the wide range of telephones for meeting a variety of environments, the UC system also needs the capability of dealing flexibly with changes in the operating environment. The traditional telephone types have been determined according to the number of buttons, the display size and the use of a handset cord. As a result, when an office is expanded and the number of buttons becomes inadequate, it has been found necessary to replace the existing telephones by newly purchased telephone models with them.

To deal with this problem, the UNIVERGE IP Phone DT700 Series and Digital Phone DT300 Series have adopted a world first [*2] modular in design. It will be possible from now on to combine the number of buttons, the display size and the handset type freely, according to the location of the installation and the use scenario (**Photo 2**).

For example, when a user has purchased a telephone with 12 input buttons that subsequently becomes inadequate, the user can turn it into a 24-button telephone by simply adding a 12-button module. Various other modules including a wireless handset module and a power failsafe handset module are available for flexible combinations according to the purpose of use.

Modular in design also contributes to the effective use of resources because it can deal with changes in environments and demands without replacement of the whole telephone set.

[*2] As of February 4, 2008. NEC survey.

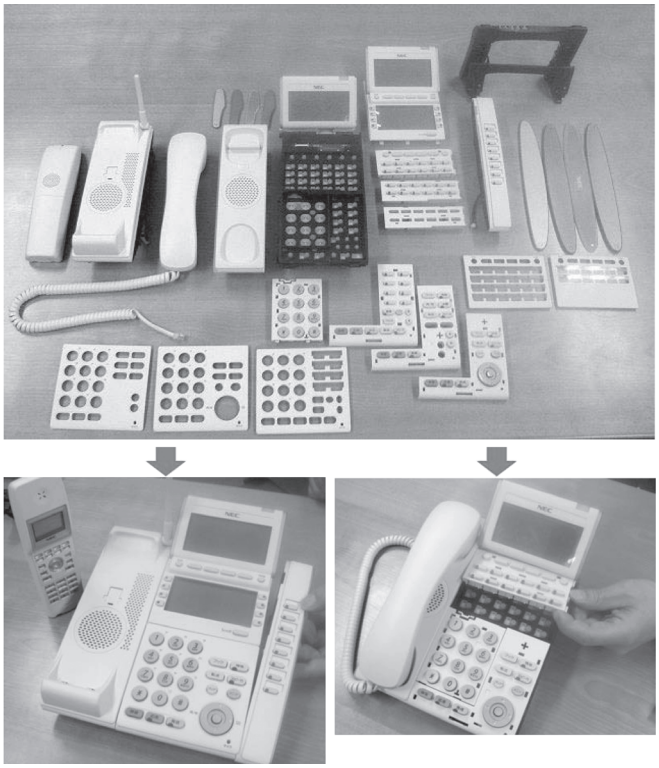


Photo 2 Modular in design construction.

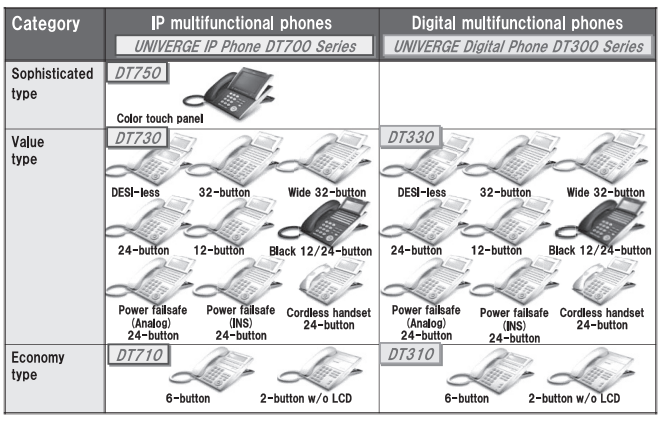


Fig. 4 Lineup of new UNIVERGE terminals.

The UNIVERGE IP Phone DT700 Series and Digital Phone DT300 Series have a wide range of telephones based on combinations of representative modules (**Fig. 4**).

Modular in design also enables replacement of the side and face panels with various designs according to the office interior design and the user's taste. For example, the side panel can be selected from five colors including a wood grain pattern with exquisite and a clear panel that can carry the logo mark of the enterprise.

In this way, the modular design enables unconstrained customization according to user needs.

8. Conclusion

As described above, we offer terminals that can be linked to the UC business systems that have a benefit of high operability and convenience via the UNIVERGE IP Phone DT700 Series IP multifunctional telephones and the UNIVERGE Digital Phone DT300 Series digital multifunctional telephones.

In the future too, we will be continue to enhance (the functions of) our products in order to meet the needs of our customers.

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