

Case Examples of Services and Applications Utilizing Smartphones

● Naoya Matsumura ● Hiroshi Nezu ● Hideyuki Motoyama ● Masayuki Takase

Recently, smartphones and tablets have seen explosive growth in the consumer market. In consideration of their high portability, high functionality and higher cost performance as compared with notebook PCs, the volume of shipments of smartphones is expected to exceed 35 million units in FY 2016. An increasing number of enterprises are considering introducing these new mobile devices in the hope of being able to change work styles, revitalize organizations and revolutionize business. Before such enterprises can introduce smartphones and tablets, however, there are many issues to be resolved such as those related to their security and their introduction and operation costs. This paper presents Fujitsu's services and applications that allow enterprises to safely and effectively use smartphones and tablets.

1. Introduction

The market share of smartphones and tablets is rapidly increasing and the Japanese mobile market is undergoing a sea change. In the Japanese domestic business, mobile devices have come to be used in various situations. For example, mobile devices are used to connect with companies' internal systems so that data and content stored there can be used for face-to-face business meetings. In addition, sales representatives unable to return to the office can connect to their company's internal system from their business location or home and check e-mail or update their schedule in groupware, and on-site operators can check the content of work and shipping addresses.

However, some issues must be resolved before mobile devices can be introduced and used in corporate operations. First, there is a security issue including information leakage caused by theft and loss of devices, access from unauthorized devices to companies' internal systems, and the threat of malware targeting smartphones and tablets. The second issue is the cost involved with the introduction and operation of smartphones and tablets, and this also depends on whether or not companies can use their current facilities and how they should manage assets after introducing tablets and smartphones. In particular, an increasing

number of enterprises are considering the system of "bring your own device (BYOD)," where individuals who subscribe to fixed-rate data services for smartphones can also use them in corporate operations.

In this way, many companies are hesitating to introduce mobile devices due to concerns about their security such as information leakage and the issue of costs such as those for replacing the existing systems and introducing smartphones.

Fujitsu provides an environment that allows companies to use mobile devices with safety, security and convenience in various categories of business and styles of business operations.

This paper presents examples of the services and applications offered by Fujitsu with the focus on the issue of security.

2. Mobile Browser Connection Service

This service, which is on the menu of FENICS II Universal Connect, is a gateway service that provides secure remote access to an internal network via the Internet when using smartphones, tablets and mobile phones in business operations.¹⁾ This service offers a specialized Web browser called the FENICS Browser, intended for smartphones and tablets (iPhones, iPads and devices running Android). The FENICS Browser is

provided with security features including automatic clearing of the cache and cookies at browser closing, restrictions on copy and paste functions, permission only for viewing attachments (prohibition of data storage), prohibition of bookmarking and URL hiding. By ensuring that no information is left in smartphones or tablets, information leakage can be prevented in the unlikely event that such devices are stolen or lost.

In this service, a company's internal system can only be accessed from the FENICS Browser, and this prevents unauthorized access. Specifically, a mechanism is provided to allow a party outside the company to automatically access the dedicated portal screen (login screen) when the FENICS Browser is started. Users only need to input their IDs and passwords, and the FENICS Browser adds to them the mobile device ID information and browser ID information (for smartphones and tablets only) and decides whether a given user or mobile device is authorized to use the service. This allows companies to prevent unauthorized use and access to

their data (Figure 1).

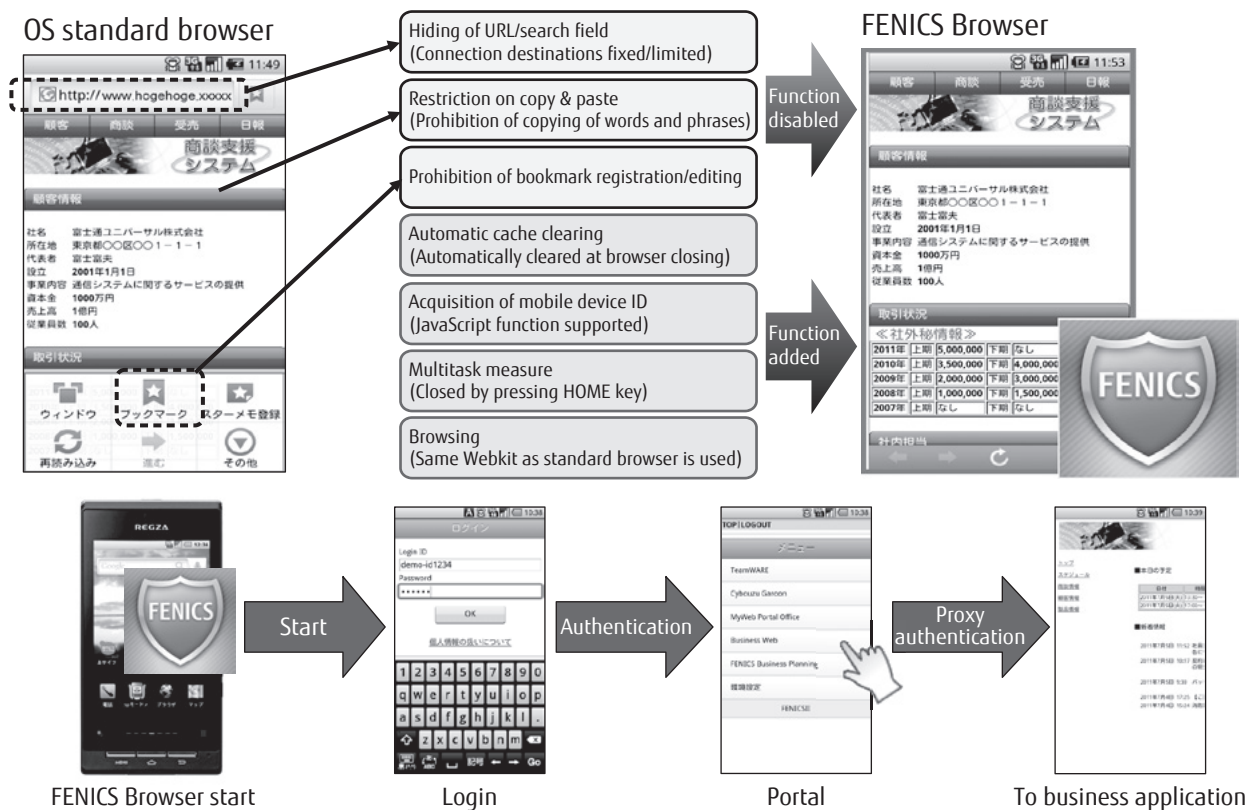
There are optional services including Webmail conversion and groupware conversion services. By converting internal e-mail to a format that makes it viewable and answerable using the FENICS Browser, information leakage from e-mails is avoided even if the mobile device that contains them is lost.

In the groupware conversion service, the e-mail and schedule screens and operability of major groupware products are optimized for smartphones and tablets (Figure 2).

The Mobile Browser Connection Service and the groupware conversion service are put into practice in-house as part of the communications platform of the entire Fujitsu Group²⁾ announced in January 2012.

3. WebAddressBook

The WebAddressBook is a Web-based phonebook application linked with a session initiation protocol (SIP) server to allow companies to control how IP



*Registration of business application login ID and password with "User WEB" required in advance.

Figure 1 Features of FENICS Browser.



Figure 2 Screenshot images of groupware conversion service.

phones and PHSs connect to their internal systems from PC and mobile phone browsers. We have made adjustments to make it usable by smartphones and started offering it.

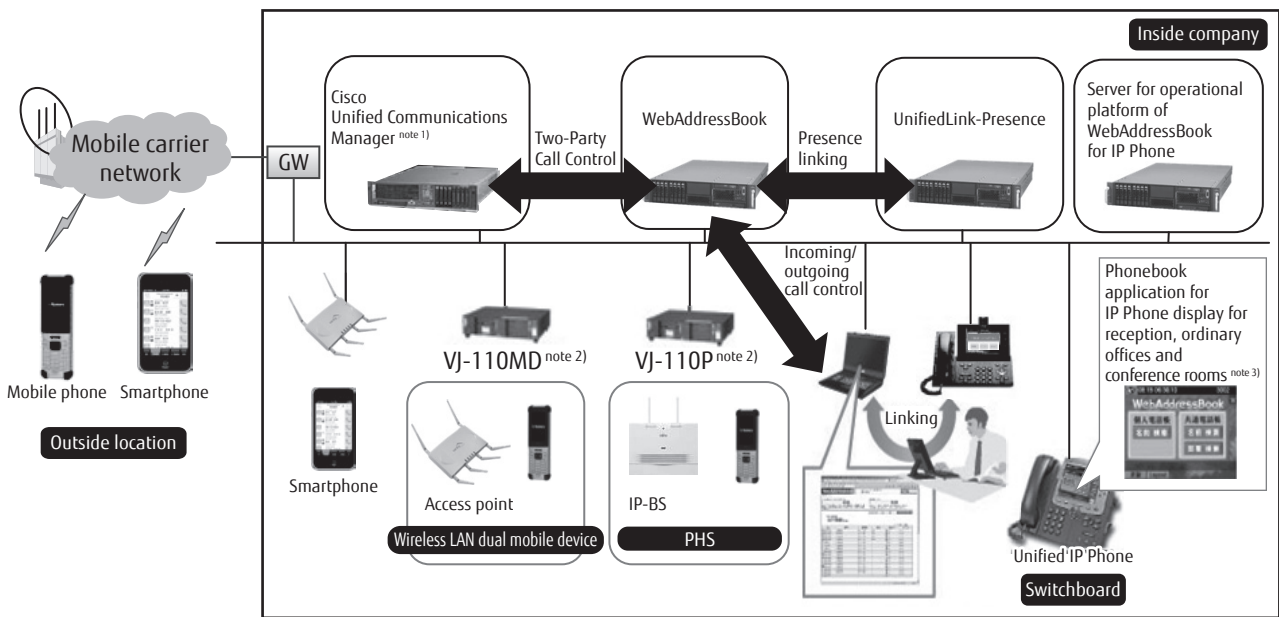
Personal information data is managed by the WebAddressBook, which means that no personal information is left on the mobile device and, even if the device is lost, its use can be prohibited simply by enforcing access control. The user does not need to remember the phone number of the other party. Further, linking the WebAddressBook with the SIP server allows the user to identify the status of the call destination, which prevents unnecessary operation such as call origination when the other party is not present. Call origination also supports a Two-Party Call Control. In such a system, when a caller uses the WebAddressBook to originate a call, the caller's device receives an incoming call once and answering it initiates a call to the destination. This system has the benefit of not leaving the caller's history (a customer's phone number, for example) even in the device of the caller but only leaving the history of incoming calls from the company. In addition, call charges are borne by the company and not by individuals, which allows companies to adopt BYOD. Pick-up operation, in which a user can answer an incoming call for somebody else by performing an operation on the WebAddressBook

screen, is also possible. Personal information on the WebAddressBook can also be centrally managed by the administrator and data shared by all users can be used inside or outside the company (Figure 3).

4. Wireless SIP extension application

As smartphones are becoming widespread, companies have an increasing need to use extension phones in-house, with the aim of making life more convenient for users and reducing costs. This application allows telephone communication to be used both externally and internally with one device. Recent devices running Android come with SIP as standard equipment, and this makes it easier to develop telephone applications.

Up to now, Fujitsu has provided gateways for IP-PBX to allow companies to use wireless LAN dual mobile devices as extensions and an extension application for devices. However, there are major challenges to be overcome before companies can offer voice services by means of wireless LAN. Wireless LANs encounter more packet losses and packet delays than wired LANs because microwave ovens, digital cordless telephones, medical equipment, and such like use wireless LANs of the same frequency band and this generates interference. In addition, the recent increase in the number of people who use mobile routers and smartphone



note 1) Call management product offering various services by linking with telephone call control functions and other application components.

note 2) Gateway device for connecting PHSs and wireless LAN dual mobile devices.

note 3) Shows phonebook function on Unified IP Phone display and allows use as unmanned switchboard of Unified IP Phone alone without the need for PC and use of office phonebook (search and call origination).

Figure 3
WebAddressBook system configuration.

tethering in offices is further degrading the wireless LAN environment.

For that reason, the provision of voice services in real-time communication using packet communication networks requires playout delays to be minimized, constant delays to be prevented, and playout interruptions to be suppressed. Fujitsu has developed its original voice packet control technology based on its past experience and incorporated it in the extension application, thereby achieving a voice quality that compares favorably with that of IP phones and PHSs. We plan to start offering in February 2013 a wireless SIP extension application for smartphones that takes advantage of these technologies.

5. Cisco WebEx Meeting Center

Mobile lines can now offer high speed, high capacity and low delay connection with Mobile Worldwide Interoperability for Microwave Access (Mobile WiMAX) and Long Term Evolution (LTE).

Fujitsu thinks that intra- and inter-enterprise information communication and exchange and information sharing within the group are very important

types of communication, and provides Cisco WebEx Meeting Center, which is Cisco's Web conferencing (video conferencing) solution.

Cisco WebEx Meeting Center is offered in the form of SaaS, and it means that customers do not need to construct a system and allows them to easily and quickly introduce and use mobile devices and smartphones. Software for Web conferencing is automatically installed at the time of first use and users unfamiliar with its operation can easily take part in a conference. It is compatible with iPhones, iPads and Android devices, so users can participate in Web conferences from various places. Web conferencing communications are all encrypted and conferences can be held with security.

Use of Cisco WebEx Meeting Center not only allows real-time Web conferences to be held anywhere with anybody but also makes it easier to reduce the amount of paper used, transportation costs, and venue costs (Figure 4).

6. Conclusion

The smartphone and tablet market looks certain to expand in the future and those devices are expected

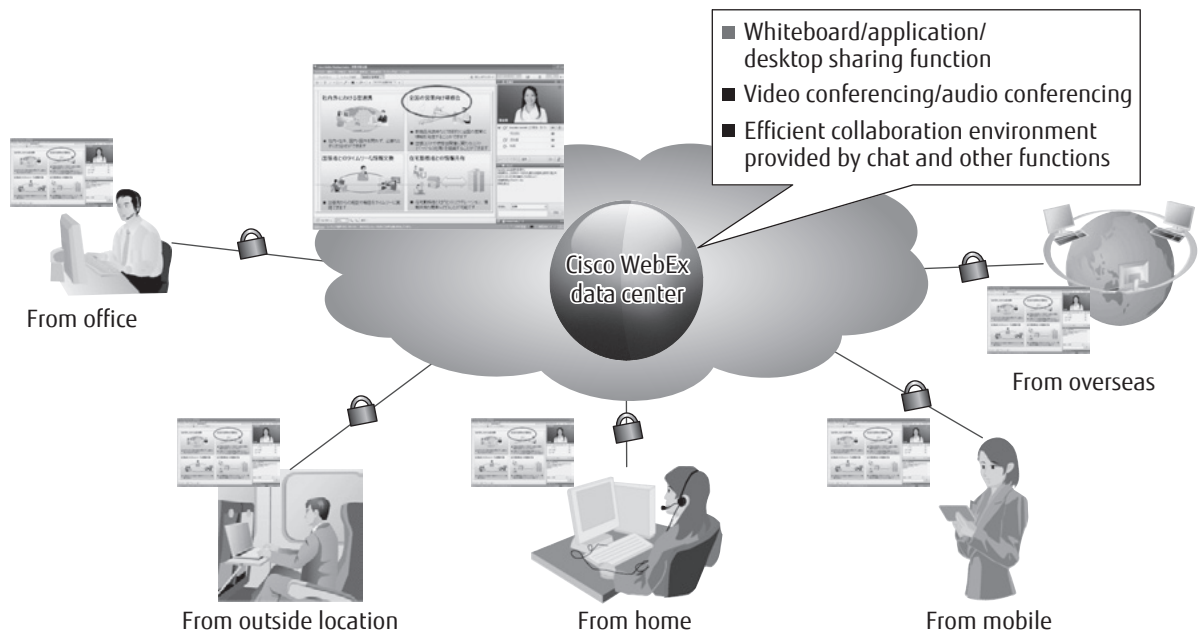


Figure 4
Cisco WebEx Meeting Center.

to be in wide use by enterprises. Major applications in business operations include remote access, in which groupware and internal operations system are used from outside the company, greater efficiency of sales assistance including presentations to customers and sales force automation (SFA) and cost reduction such as a reduction in the amount of paper used for meetings.

Fujitsu intends to integrate the products that have been individually developed up to now into solutions and provide valuable offerings that can be used with safety, security and convenience by users that are

considering using smartphones and tablets in their business operations.

References

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- 2) Fujitsu: Fujitsu Uses Private Cloud for Communications Platform to Integrate Global Communications. <http://www.fujitsu.com/global/news/pr/archives/month/2012/20120119-02.html>



Naoya Matsumura

Fujitsu Ltd.

Mr. Matsumura is currently engaged in planning of products and solutions for unified communications.



Hideyuki Motoyama

Fujitsu Ltd.

Mr. Motoyama is currently engaged in planning and development of FENICS II mobile connection service.



Hiroshi Nezu

Fujitsu Ltd.

Mr. Nezu is currently engaged in planning and development of products and solutions for unified communications.



Masayuki Takase

Fujitsu Ltd.

Mr. Takase is currently engaged in planning and proposal of FENICS II mobile connection service.