

# Summary of IP-Centrex System Corporate Implementation Project

## - Creation and Implementation of Information and Telecommunications Converged Products -

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The main purpose for the corporate implementation of VoIP systems used to be for the reduction of communication costs through the building of an integrated network of data and voice. However, because a major corporation announced in 2002 that they would be implementing an IP-Centrex service, expectations rose not only for reductions in communication costs but also for dramatic reductions in operating costs. This resulted favorably for the implementation of IP-Centrex and IP phones. On the other hand, many corporations that had already implemented VoIP, for the purpose of reducing costs, started to examine implementations for the purpose of raising their business operating efficiency through linkups with business applications, improving productivity, as well as enhancing customer relationships.

In order to convert communication networks completely into IP networks, however, it is essential that operating services be verified in their actual environments and verification of the effects resulting from linkups with business applications substantiated.

This paper introduces the full-scale implementation undertaken by Oki Electric as well as the outcome of the results with regards to corporate IP-Centrex.

### Inauguration of the IP-Centrex System corporate implementation project

Oki Electric integrated networks for voice communications (TDM and a dedicated analog network) and networks for data communications (IP-VPN networks) into a data and voice network (VoIP network) in

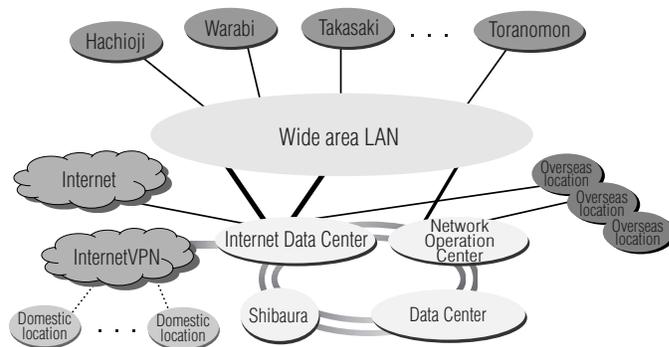


Fig. 1 Data and voice-integrated network of Oki Electric

April of 2002, thereby realizing a dramatic reduction in communication costs, as well as reducing operating and management costs (40% reduction in communication costs; 80% reduction in operating and management costs) (Figure 1).

In order to accelerate the information and telecommunications converged business, Oki Electric announced the IP CONVERGENCE<sup>®1)</sup> Server SS9100/AS8700 (an appliance server loaded with an information converged-type IP telephony server/information and telecommunications converged application group (Adaptive Communications<sup>™2)</sup>) and SipAs<sup>™2)</sup> on WebLogic<sup>®3)</sup> Server (Web & SIP integrating application server that integrates a multipurpose J2EE server and SIP application server) in 2004.

An opportunity for the Oki Electric group of companies to implement a large-scale IP-Centrex system in pursuit of further reductions in communication and operating costs became apparent in 2004 as some locations were entering the replacement period for existing PBX systems. An IP-Centrex System Corporate Implementation Project was launched for fiscal 2004, to use this large-scale system implementation for utilizing the corporate internal network as a testbed (a place for realizing the expected effects) in order to measure the effects of the information and telecommunications converged applications and by offering the corporate internal system as a showcase example, to introduce the overall feel of implementation (effects) and solutions to customers.

This project was comprised of three sub-projects: (1) An SS9100 implementation sub-project that deals with building an IP-Centrex system in the Oki Electric group of companies by using the IP CONVERGENCE Server SS9100/AS8700 (hereinafter referred to as "SS9100" and "AS8700"), (2) An operation sub-project that integrates the operational management of the network and (3) An application created sub-project that deals with the creation and commercialization of solutions linked up with business applications by using the SS9100, the AS8700 and SipAs<sup>™</sup> on WebLogic Server (hereinafter referred to as "SipAs").

### (1) Objectives of the IP-Centrex system corporate implementation project

The IP-Centrex system corporate implementation project is conducted for the following three objectives:

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\*2) Adaptive Communications and SipAs are trademarks of Oki Electric Industry Co., Ltd.  
\*3) BEA WebLogic is a registered trademark of BEA Systems, Inc.

### 1) Building IP-Centrex systems

Further reductions are possible in communication, operating and management costs by realizing a ubiquitous environment on a corporate level by converting the corporate network, which is on a company-wide scale including overseas locations, into an IP-Centrex network. Extraction of issues at the time of the company-wide scale implementation, as well as verifications, will also be made.

### 2) Performing network operation duties

The maintenance, operational and management duties for integrated multimedia networks (voice, data and video), performed by the implementation of the IP-Centrex system, are reflected on the business development of service businesses as well as their results.

### 3) Realizing customer values (improving operating efficiency) with AP@PLAT®<sup>1)</sup>

A place for creating and verifying information and telecommunications converged solutions is to be established based on AP@PLAT® and commercialization of solutions are to be accelerated based on feedback from the results of actual operations.

## Summary of the SS9100 implementation sub-project and operation sub-project

### (1) Objectives of the SS9100 implementation sub-project and operation sub-project

An IP-Centrex system that incorporates the latest network is to be established within the Oki Electric group of companies to attain the following four aims and to reflect the experience to the solutions and services.

- 1) Achieve convenience and efficiency through network conversions to IP-Centrex
- Achieve a mobile environment that includes Oki Electric, affiliated companies and overseas locations.

- Improve the operating efficiency (reduce the losses arising from wasted traveling time and loss of communications) by using the software phone (video conferencing, the sharing of applications and displays, "Presence").

### 2) Improve operating and servicing efficiency

- Reduce costs by unifying operations and maintenance (outsourcing)
- Reduce costs by improving operating efficiency, adjusting the number of installations and relocating installations through hierarchical management.
- Establish a network operational management service menu for integrated multimedia networks.

### 3) Reduce communication costs

- Reduce communication costs by using the "050" network.
- Reduce communication costs by using the automatic switchover function provided by the FOMA Dual phone.
- Reduce facility implementation costs.

### 4) Smooth migration from existing PBX machines

- Verify the adaptability of terminals according to the environment of the location and type of work.
- Verify the applicability of solutions for anticipated issues.

### (2) Plan for the SS9100 implementation sub-project

The SS9100 will be implemented in fiscal 2004 starting with specific organizations, including locations where existing PBX machines are due for replacement, while full-scale system implementation of the Oki Electric group of companies (including overseas locations) will take place in fiscal 2005. An image of a company-wide allocation plan and the implementation of the IP-Centrex system (Figure 2) are provided.

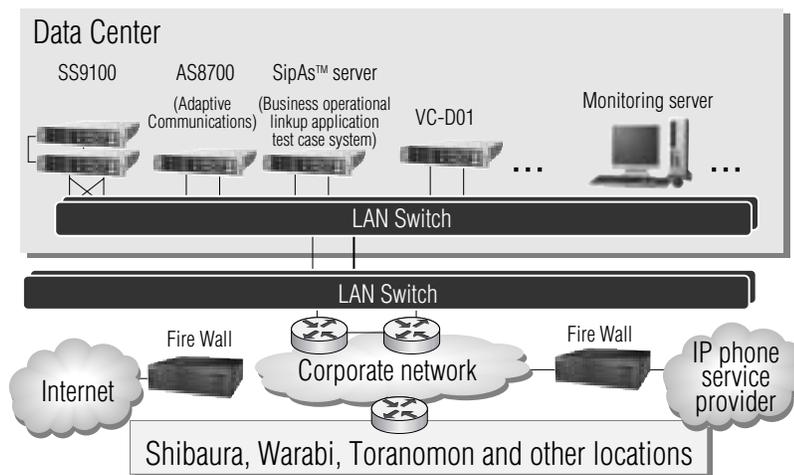


Fig. 2 Company-wide IP-Centrex system

### <Development plan for the Oki Electric group of companies>

- Fiscal 2004: Nationwide implementation to specific organizations (starting with the Toranomon District, Shibaura District, Warabi District, Takasaki District and the Chubu Regional Office and Matsuyama Branch Office).
- From fiscal 2005: Allocation throughout Oki Electric group of companies.

### Summary of an application linkup sub-project

#### (1) Objectives of the application linkup sub-project

The objectives are to allow individual Oki Electric employees to experience the improvement in efficiency of business operations, create competitive products and improve the ability to appeal to customers.

#### (2) Plan and summary of the application linkup sub-project

SipAs is to be considered as the common foundation of applications in fiscal 2004. AP@PLAT products applicable for the corporate environment will be implemented, while linked up with internal business operations.

#### <Corporate internal applications for fiscal 2004>

- AP@PLAT products:
  - Adaptive Communications.
  - Knowledge community network.
- Linkup with corporate internal business operation systems:
  - Linkup with web services.
  - Integration of alert notification and communications.

#### (3) Adaptive Communications

##### <Purpose of corporate internal application>

Com@WILL™ and Presence View™<sup>4)</sup> are used as telephone terminals, while their effectiveness (business operation efficiency) is evaluated by the SS9100 implementation sub-project. The application linkup sub-project collects opinions from users in the company to use them as feedback for products for the creation of new products and is put toward differentiating software phone functions, while a practical corporate utility scene and collected quantified data are provided to customers as value.

##### <Summary of the solution>

Adaptive Communications were developed for the purpose of creating new customer value and businesses by offering sophisticated office communications that can realize innovative work styles through the linking up of the SS9100 and the AS8700. Implemented in this project are the three applications, Com@WILL, Presence View and Contact Capture™<sup>4)</sup> (even though a summary will be provided in this paper, details of Adaptive Communications can be found on pages 14 to 19 in

another article in this special issue).

#### 1) Com@WILL

This sophisticated software phone utilizes the SS9100 system. Besides regular voice communication functions it features teleconferencing, video conferencing, chatting, title displays, buddy lists, sharing of applications, file transfers, linkups with Outlook® and Excel®<sup>5)</sup>, as well as messaging functions (text and voice), provided by the software phone and news display function (Figure 3).



Fig. 3 Featured functions of Com@WILL

#### 2) Presence View

This is a client environment wherein “Presence” of employees, web telephone directory, messaging and news functions that are linked up with Com@WILL can be used from a web browser without the installation of any special software. Further, a nearby telephone set can be linked up with a web browser, which makes it possible to initiate telephone calls with a click operation on the screen.

#### 3) Contact Capture

This application is used to initiate telephone calls from a web browser in a simple manner. Phone calls can be initiated through a simple operation using listed names on a web page. This makes it possible to abbreviate the process of finding the telephone numbers and dialing. Any type of web page can be used to link up with this function and it is not necessary to make any special modifications to accommodate this function.

#### (4) Knowledge community network

##### <Purpose of corporate internal application>

Implementations are made in organizations involved in promoting business operations across corporate organizations. Short-term problem solving in the early stages is sought by stimulating communications between members in charge of planning, sales and SE from their respective organizations.

<sup>4)</sup> Com@WILL, Presence View and Contact Capture are trademarks of Oki Electric Industry Co., Ltd.

<sup>5)</sup> Outlook and Excel are registered trademarks of Microsoft Corporation of the United States, in the United States and other countries.

Further, there is an aim to also build up an even more robust product by developing additional communication functions that are thought to become necessary for using in community environments.

#### <Summary of the solution>

Knowledge management conducted in the current office work environment centers around the sharing of information, primarily in terms of content. This means that it is not necessarily up to par with the rapidly changing market environment. Neither is tacit knowledge of well-informed persons adequately shared within the company on an organizational level. For this reason, a “place for sharing knowledge” and a “place for mutual communications” were provided, based on “AP@PLAT”, the information and telecommunications converged solution concept. Further, the real-time characteristics of these are enhanced to develop a Knowledge Community Network System that will accelerate the evolution and sharing of knowledge.

By using the knowledge community network system, in the short term, it is possible to save time and reduce costs by making it possible to resolve problems early, while in the long term it is possible to secure new business opportunities by improving the ability to execute business strategies and through the evolution of knowledge.

This system has been realized by linking up with the SipAs of Oki Electric and “REALCOM KnowledgeMarket<sup>®</sup>”<sup>6)</sup>, a knowledge management software product of REALCOM Inc. (Figure 4) (even though a summary will be provided in this paper, details about the knowledge community network can be found on pages 46 to 49 in another article in this special issue).

#### (5) Linkup with internal business operation systems

##### <Purpose of corporate internal application>

Various aspects, associated with the improvement of business operations and productivity, have been evaluated with the objective of verifying the environment for converging corporate internal business operation systems and communications.



Fig. 4 Linkup with REALCOM KnowledgeMarket

#### <Linkup with web services>

A development guide that is linked up with the voice for corporate internal business operation systems will be prepared by linking up a corporate internal web telephone directory system (PANDA) and web service functions (phone by 3PCC and “Presence” display) available on the SipAS server to expand into other corporate internal business operation systems.

#### <Integration of alert notifications and communications>

A diverse range of alerts that bother staff with notifications and prompts urging prompt processing, which come through electronic mail (automated or manually issued) and phone, depending on the degree of urgency, are present in corporate internal business operation systems.

For this reason a mechanism is realized that determines the “Presence” of the user and the urgency of the issue before notifying the alert information at a specified time and according to the preferred method (telephone, instant messaging, electronic mail, etc.).

This mechanism can be applied to requisition approval and case retention alerts within the business negotiations management system, resulting in an improved efficiency of business operations and productivity.

#### Conclusion

Oki Electric is planning to substantiate the information and telecommunications converged solution as their contribution to customers and for the creation of new businesses by providing know-how and practical advantages acquired through the IP-Centrex System corporate implementation project, which can improve business operation efficiency and productivity.

The SS9100, the AS8700, Adaptive Communications and Knowledge Community Network that were introduced in this paper are on permanent display at the Oki Electric Showroom in Toranomon. We suggest that you gain a direct, personal experience with the convergence of information and telecommunications.

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<sup>6)</sup> REALCOM KnowledgeMarket is a registered trademark of REALCOM Inc. (<http://www.realcom.co.jp/>). All other company and product names mentioned in this paper are, in general, trademarks or registered trademarks of their respective companies.