

Complete Conversion of Sales Locations into IP Networks and Achievement of 300-Agent Telemarketing System within 50 Locations Using “CTstage®4i for .NET”

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Mizuho Business Financial Center Co., Ltd. (hereinafter referred to as the “Business Financial Center”), established as a wholly owned subsidiary of Mizuho Bank, Ltd., to handle financing for small to medium businesses and sole proprietors, received the consignment of a business operation in October 2003 as a business agent of Mizuho Bank, Ltd.

The Business Financial Center started looking into restructuring their telemarketing system by taking advantage of their expanding network of sales locations as their momentum. The CTI and IP communication system, “CTstage®4i for .NET”, was adopted as the core and the CTstage4i (software switch model) was selected as the telecommunications server (refer to Basic Terminology Descriptions) for their system, while an IP contact center consisting of 300-agent spread across 50 locations was built.

This paper introduces a case example of a telemarketing system for the Business Financial Center.

Background of systemization

The Business Financial Center, a subsidiary of Mizuho Bank dedicated to financing small to medium-size businesses, solicits and consults over the phone.

With the restructuring of their system they sought to enhance their business activities through the expansion of their organization, increasing staff familiar with financing operations. They are planning to increase the sales of their loans that are guaranteed by the Guarantee Association, as well as their loan product that requires no collateral, utilizing the automated assessment model “Quick Partner”.

Arising from the aforementioned background the Business Financial Center started the full-scale restructuring of their telemarketing system with the following requirements:

- A coverage of 50 locations with 300agent positions.
- IP voice calls to be available from these locations.
- Start up of these sales locations to be phased and sequential.

System outline

The system is configured primarily with the following subsystems (Figure 1):

(1) Telecommunication server

The telecommunication server is the core of the system comprised of a group of “CTstage4i” servers, which provide voice call control services for calls made between telephones using PSTN and IP telephones, as well as personal computers at sales locations. It is centrally installed at the Computing Center of Mizuho Bank.

(2) IP telephones

IP telephones are SIP-based hardware phones. These devices, which have a headset connected, are used by agents to make calls to customers.

Although the use of software phones available from CTstage were also considered as call devices, hardware phones were selected for this system because they are not affected by the load of a client's personal computer and since the assurance of a more stable voice quality was emphasized.

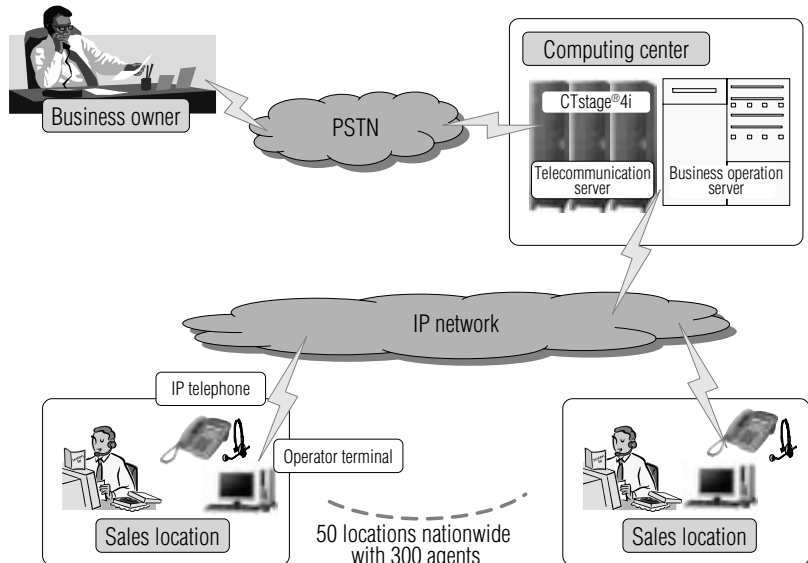


Fig. 1 System outline diagram

*1) CTstage is a registered trademark of Oki Electric Industry Co., Ltd., in Japan, USA and China.

(3) Operator terminal

Operator terminals installed at the sales locations of the Business Financial Center are “general-purpose personal computers” used for processing telemarketing business operations and controlling all calls made and received.

(4) Business operation server

CTstage inherits the existing functions and uses the CT-API, which is disclosed and provided, as the control for ActiveX^{®2)}. Development environments with ample expandability and flexibility are offered to users and partners with past performances that include, for example, an environment that makes it possible for people who are not expert in audio technology to develop voice applications through means similar to those for creating web content. Furthermore, since the business operation server is comprised of multiple servers, such as a database, web server, authentication server, as well as an integrated operational management server and because the system was to be established as an extension to the existing corporate internal system, the business operation applications, including telecommunication call control processing (using the CT-API), were developed by Mizuho Bank.

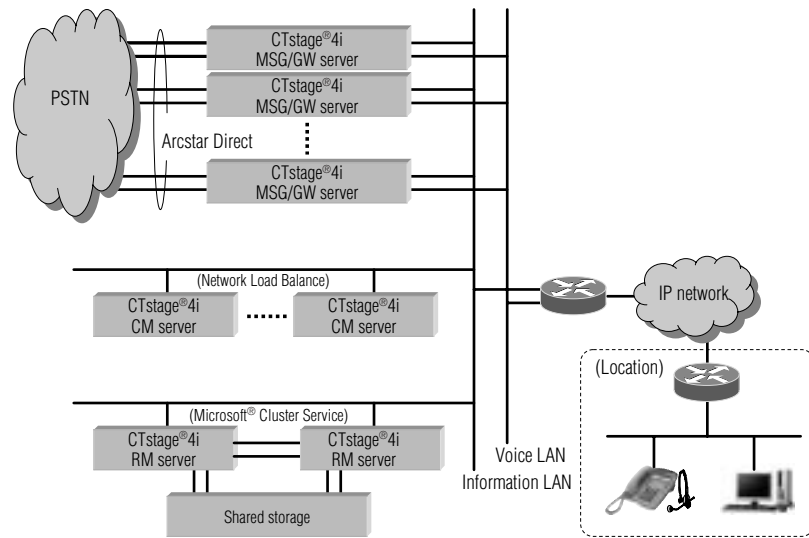


Fig. 2 Call initiation/reception server configuration

- **Resource management server (RM)**

This server has a database and manages the system, such as the maintenance of information as well as the status of extension lines and agents.

Furthermore, the RM raises its availability for system applications, such as the database, CTstage services and operation center (management tool), with the MSCS (Microsoft^{®2)} Cluster Service) function.

Configuration of “CTstage^{®4i}” call initiation/reception server

The “CTstage4i software switch model” is provided with the CTstage4i series that realizes a SIP-based switching function with software running on a server. The “CTstage4i software switch model” is comprised of the following CTstage server functions (Figure 2):

- **Messaging gateway (MSG/GW)**

This server provides a gateway for the PSTN and voice IP conversion process, as well as messaging processes, such as the IVR function. Furthermore, in order to ensure that degeneration is possible when a malfunction arises the MSG/GW is set up in a redundant configuration.

- **Call management server (CM)**

This server processes the protocol with IP telephones as well as gateways (GW) and provides PBX and ACD logic for determining switching destinations.

Since the call management servers have redundant configurations and because individual servers are structured in such a way so as not to retain the current status when a particular CM malfunctions, it is cut off automatically from the rest by the NLB function of Windows^{®2)}, then the system operates by degeneration thereby raising the level of reliability for the entire system.

Call initiation/reception server functions

The telecommunication server of this system primarily provides the following three functions:

(1) Outbound (call initiation) function

A function for placing calls to customers is provided by the telemarketing operation process (business operation application) via the telecommunication server.

For example, by clicking on an item in the customer list, displayed as a result of a search on the contact search operation screen, automatically initiates a call. There is no need to go through the dialing operation each time, thereby reducing time and effort while also preventing erroneous calls.

Furthermore, similar to the operation of ordinary phones on extension lines it is also possible to hold calls or transfer calls on the business operation screen with mouse operations.

(2) Inbound (call reception) function

The Business Financial Center discloses the toll-free numbers of each branch office (sales location), however, incoming calls across the board for all locations are diverted to the telecommunication server.

The agents who accept the incoming calls made to corresponding branch offices are determined based on the dialed number and the workload between agents

*2) ActiveX, Windows and Microsoft are trademarks or registered trademarks of Microsoft Corporation in the United States and other countries.

through the internal ACD function. Notification of the call is sent to the terminal of an agent in standby and a message is displayed on a popup window with a ring tone.

The agent can also take the call while reviewing financial information or the sales history of the applicable company displayed by the telemarketing operation process.

Furthermore, a received call can also be transferred to a specific agent on the operation screen with a mouse operation.

Also, when a call is received outside business hours or on bank holidays, the internal IVR function can respond to such a call and provide voice guidance, indicating that the call was made outside business hours.

(3) System management function

CTstage4i performs centralized management of system information from individual servers with a SQL Server running on the RM server. The CM, MSG and GW servers reference system information from the RM server and register the status changes with the RM server.

Since management of system data is implemented by ASP.NET, operations from operator terminals can be

conducted using a web browser (IE).

The following functions are provided as manager tools at the Business Financial Center (**Figure 3**).

① Contact center monitor

- The number of agents in standby or the number of agents engaged in calls at the location, as well as the status for each agent (standby, engaged with a call or away from their position), along with the operating status, such as the elapsed time, are all displayed in real-time.

(Current status for agents in all locations can be displayed at headquarters.)

- Monitoring by the manager of calls being handled by agents of the location.

② Operation center

- Registers agents and makes changes to the authority assigned to agents.
- Allows additions and changes to sales locations, IP telephones and operator terminals.
- Allows additions and changes to the IVR schedule (holidays and business hours), etc.

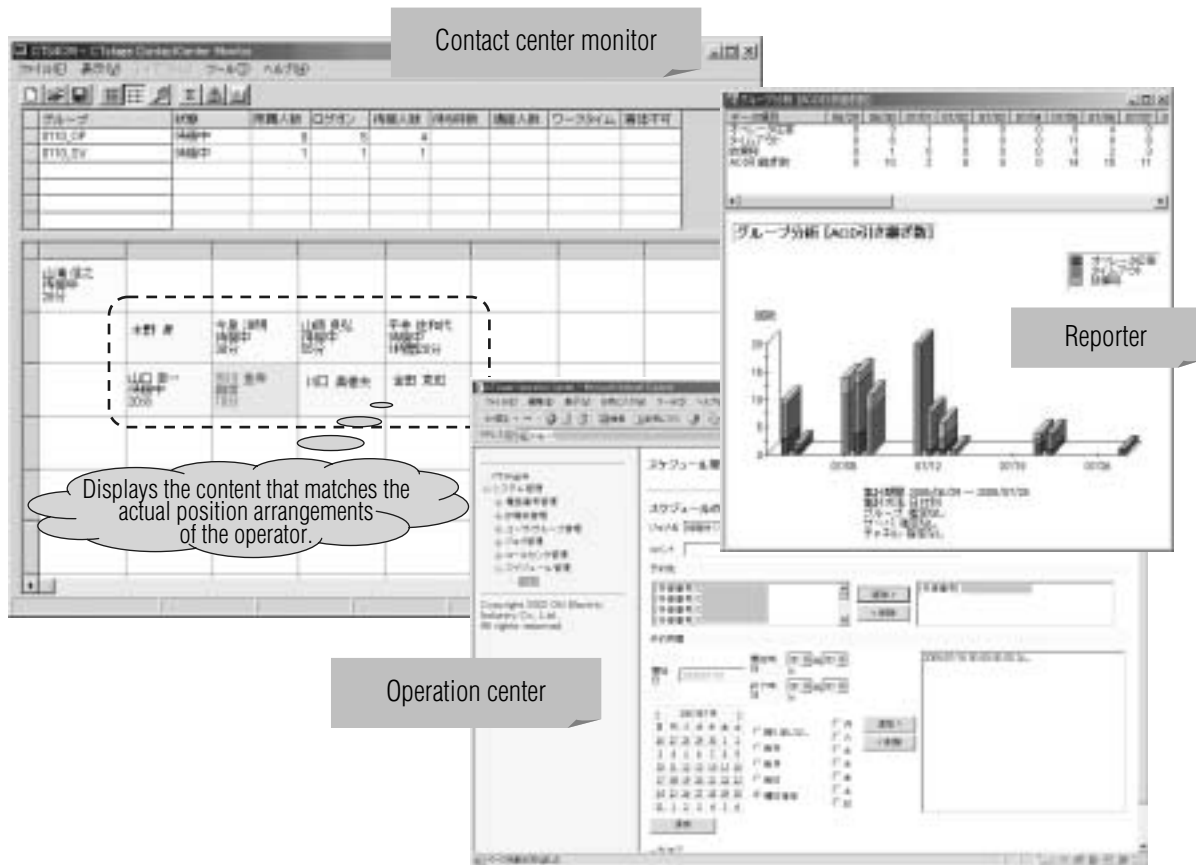


Fig. 3 Manager screen example

③ Reporter (statistical information)

It is possible to display lists or graphs of statistical information, such as the number of calls received, number of unanswered calls, number of timeouts, call times, waiting time for call reception and unanswered time for calls at each location, as well as the logon time, number of calls received, number of calls made, number of times positions were left unmanned, number of timeouts, amount of time spent on received calls, amount of time spent on initiated calls and amount of time each agent spent away from their position, at any given time.

This makes it possible to keep track of the number of operators and their allocations, to appropriately plan personnel and management.

Implementation effects

In the past a telecommunication server had to be installed at each location whenever a contact center was established across multiple locations. This was a source for increased operating costs as it presented a heavy burden on management by taking up installation space and required operational management at individual locations.

Through the implementation of the "CTstage4 Software Switch Model" and IP telephones, it was possible to completely convert the sales locations into IP

networks. It became a simple matter of connecting IP telephones and operator terminals (personal computers) to the LAN, which made it easy to respond to the changing business environment in a speedy manner, to establish locations in phases and to increase the number of agents, making it possible to have flexible operations at a low cost.

Furthermore, by managing the system facilities centrally at a computing center, it became possible to monitor operations around the clock, 365 days a year as well as rationalize operating costs and facilities to realize reductions in TCO, while providing a stable system environment to all locations.

Conclusion

I would like to express my gratitude for the understanding and generous cooperation I have received from the people at Mizuho Business Financial Center Co., Ltd., Mizuho Bank, Ltd., Mizuho Information & Research Institute, Inc., Mizuho Operation Service, Ltd., and NTT Communications Corporation.

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TIPS

Basic Terminology Descriptions

Call initiation

Making a telephone call.

Call initiation/reception server

A CTI server that makes calls to customers and receives calls from customers.

CTI (Computer Telephony Integration)

A generic term for technologies used for improving business operational efficiency and customer satisfaction by integrating computers with telephones.

ACD (Auto Call Distributor)

A mechanism intended primarily for distributing calls evenly among operators at contact centers by connecting the calls with operators who have been available for a longer time.

IVR (Interactive Voice Response)

A mechanism for realizing voice guidance and automatic voice responses.

PBX (Private Branch Exchange)

Switching equipment for external and internal lines. A private branch switching machine.

SIP (Session Initiation Protocol)

A new protocol for VoIP intended to enhance syncretism with the internet.

VoIP (Voice over Internet Protocol)

A technology that makes it possible to transmit voice signals as packets over IP networks.

NLB (Network Load Balance)

Load distribution of network.

MSCS (Microsoft Cluster Service)

A mechanism for operating an active server in parallel with a server in standby, so that processes can be continued using the standby server whenever the active server malfunctions.

ActiveX control

A mechanism of the application interface stipulated by Microsoft Corporation.

ASP.NET

A programming framework established on shared language runtime that prepares robust web applications on servers.

* Described company and product names are generally trademarks and registered trademarks of the respective companies.