CommunicationDoor

By Seiji SUZUKI*

ABSTRACT This paper introduces the CommunicationDoor Web Conferencing Solution. CommunicationDoor is itself a web conferencing application, and is also a platform for developing new web conferencing solutions. CommunicationDoor is written in ASP, therefore can be modified to fit into corporate web solutions. This paper also describes how CommunicationDoor works, and how it helps reduce TCO of web conferencing systems.

1. INTRODUCTION

Teleconferencing systems have become very popular in recent years, since they save time and travel expenses for meetings between members in remote locations. This paper introduces a new conferencing product which uses the Internet; the CommunicationDoor Web Conferencing Solution.

2. CHARACTERISTICS OF WEB CONFERENCING SYSTEMS

Broadband Internet has become popular and widely used, making it possible to easily transfer large size contents such as voice and video. Along with this technological progress, many teleconferencing solutions which use the Internet to connect attendees have recently appeared. Like conventional teleconferencing systems, these new systems enable face-to-face conferencing by sending and receiving the voice and video of the attendees at both ends. However, the new systems feature the following inherent characteristics that make them distinct from conventional teleconferencing systems:

· No need for high bandwidth dedicated lines,
· Enables leveraging existing PCs and server machines; no need to buy new dedicated hardware, and
· Easily enables multipoint conferences.

---

*Middle Software Division

3. FEATURES OF COMMUNICATIONDOOR

CommunicationDoor Web Conferencing Solution is one of many web conferencing solutions. CommunicationDoor enables real-time voice and video communication between multiple locations. CommunicationDoor also lets the attendees share the same conference material at the same time on their web browsers (**Fig. 1**).

What makes CommunicationDoor different from other web conferencing solutions is that although CommunicationDoor is itself a web conferencing application, it can also be used as a platform for developing new web conferencing solutions. CommunicationDoor is composed of the following components.

1) Server Side
· ASP (implemented on Microsoft Internet Information Server)
· Push Server
· Stream Server

2) Client side
· Internet Explorer
· LiveComm ActiveX Component
· AV Codec ActiveX Component

As it can be seen, CommunicationDoor is a web application based on ASP codes. It can be used with minimal installation and configuration operations. On the other hand, since the graphical design is all coded in ASP, customization can easily be done by just modifying the ASP code. This also makes it possible to integrate web conferencing into current corporate web application systems. This is how CommunicationDoor acts as a web conferencing
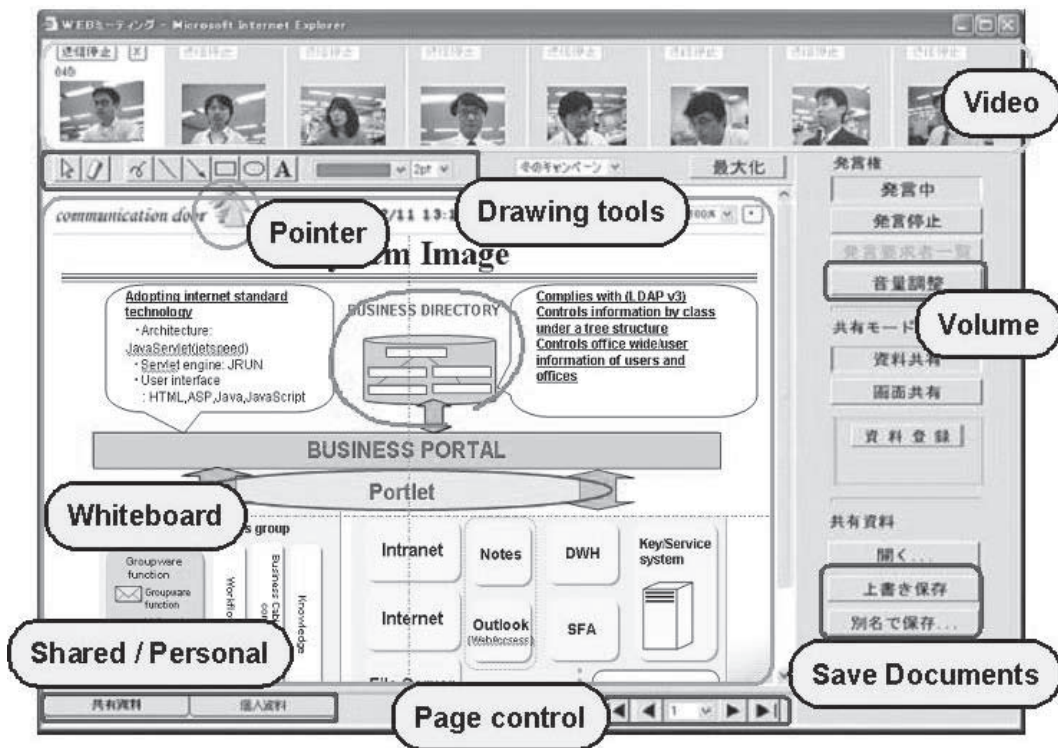
Fig. 1 CommunicationDoor - Main Screen.

solution platform.

Another distinct feature of CommunicationDoor is that it uses HTTP/HTTPS for all of its communications. This contributes to the improvement of network security, which has become a most critical issue for web systems. The reason for this is that there is no need to open a new port in the firewall, even for conferences between attendees inside and outside a corporate intranet. Moreover, by using HTTPS, the communication itself will be secured with SSL privacy technology. Also, introducing Communication-Door contributes significantly in reducing TCO. This is because since all communication packets are transferred through NAT or HTTP proxies, the same as any plain HTTP communication. End users and system administrators can use the web conferencing system without having to be conscious of the network configuration. And almost no end user training is required to use the system (**Fig. 2**).

4. HOW COMMUNICATIONDOOR WORKS

(1) Voice and Video

Voice and Video is sent out from the AV Codec ActiveX component on the attendees' PCs into the Stream Server, and then from the Stream Server to the AV Codec ActiveX components on all the other attendees' PCs. Video is encoded in MPEG-4, which occupies less network bandwidth compared to many other encoding methods. Voice is encoded in AMR (Adaptive Multi-Rate), for the same reason. Continuous stream over HTTP is realized using NEC's patented HTTP Tunneling technology.

(2) Conference Material Image Sharing

Information relating to the conference material is communicated between the Push Server and LiveComm ActiveX component. The LiveComm ActiveX component reloads the content shown on the Internet Explorer according to the instructions sent from the Push Server. There are several types of instructions sent from the Push Server, such as showing a new attendee's video image, showing the contents of a new conference material, turning the page of the material, drawing annotations to the conference material, and so on. Since the data sent is only instructional and is different from previous images, it is possible to synchronize the images shown of numbers of attendees. The data here is also communicated using HTTP Tunneling technology.

Instructions to the Push Server are given by calling COM methods from within the ASP application,
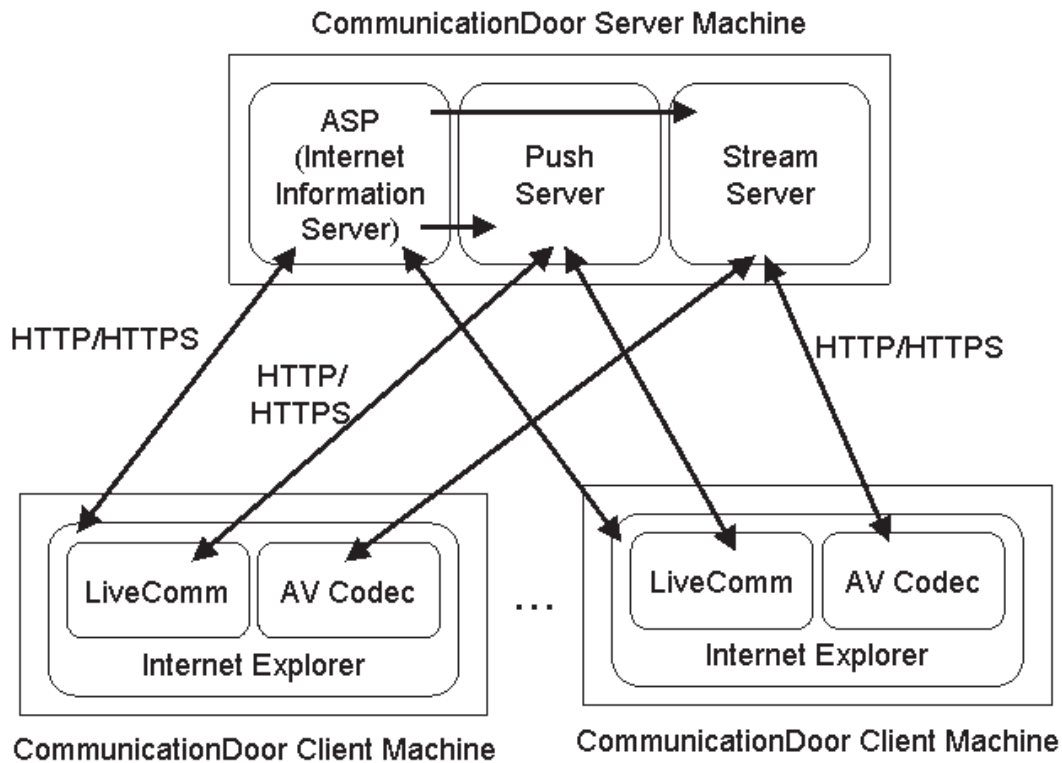
Fig. 2 Structure of CommunicationDoor.

which is implemented on the Internet Information Server. An attendee would open these ASPs from his Internet Explorer, which as a result reloads the graphics shown on the Internet Explorer to the rest of the attendees.

(3) ActiveX Components

ActiveX components are automatically downloaded and installed by accessing a certain page with Internet Explorer. Therefore, the only software a user must prepare are Internet Explorer and the device driver for his web camera. After all, the necessary components are installed, all the user has to do is login to CommunicationDoor from the login page, and join his chosen conference.

5. CONCLUSION

Web conferencing systems not only save time and travel expenses but also save system setup expenses and running cost as well. The CommunicationDoor Web Conferencing Solution can deliver more by integrating with existing corporate web application systems.

REFERENCE

[1] M. Tabuchi, K. Nakajima, et al., "CommunicationDoor: Real-Time Communication Middleware," *NEC J. of Adv. Tech.*, **1**, 3, Summer 2004.

* * * * * * * * * * * * * * * *

Seiji SUZUKI received his B.E. degree in computer science from Waseda University, Japan, in 1990. He joined NEC Corporation in 1990 and is currently Assistant Manager of Middle Software Division.

* * * * * * * * * * * * * * * *