

## **Online Collaboration with Web Servers**

*Persony's smart-client technology turns a standard Web server into a sophisticated Web conferencing server*

Persony, Inc.  
[www.persony.com](http://www.persony.com)

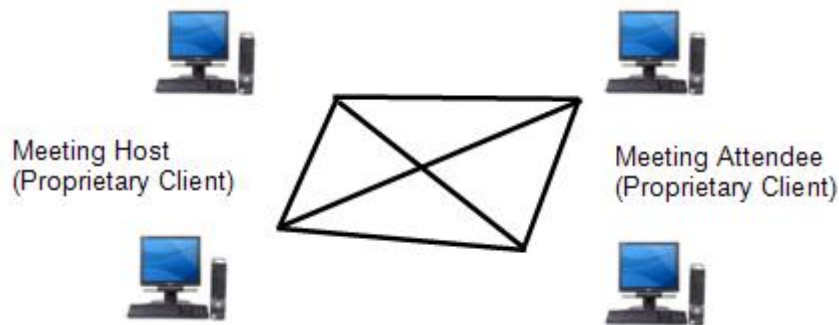
May 11, 2005

## Online collaboration models

Online collaboration refers to two or more people collaborating or meeting remotely using a computer to share documents, desktop applications, presentation slides, messages or multimedia data. In order to share information remotely, the computer needs to communicate directly with each other or indirectly via another computer. When computers are linked directly to each other, the communication model is termed "**Peer-to-Peer**" (P2P). Conversely, when one computer makes a request to the other computer indirectly via a server computer, the model is termed "**Client-Server**" (CS). Persony's "**smart-client**" technology is a novel client-server model that deploys general-purpose Web servers vs. proprietary application servers as in most CS systems. The new model leverages the existing Web hosting infrastructures and eliminates the high costs of installing and operating proprietary application servers.

## P2P is neither firewall friendly nor scalable

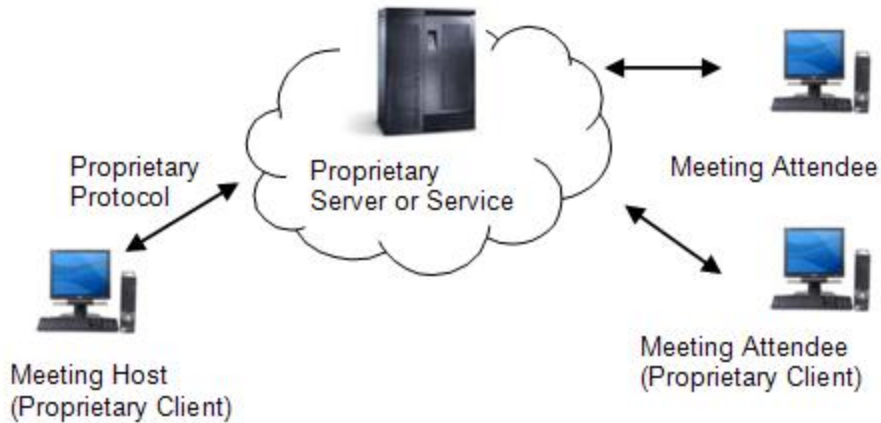
The P2P communication model, adopted in collaboration products such as Microsoft NetMeeting or AT&T Virtual Network Computing (VNC), is often limited to computers on the same network as they are not firewall friendly. For security reasons, a network firewall usually does not allow a computer behind it to be connected directly to another computer. Moreover, P2P requires at least one of the peer computers to have a public IP address, an address publicly registered with the Network Information Center (NIC) that can be accessed by other computer over the Internet. Many corporate and home computers do not have public IP addresses since these addresses are in limited supply. In addition, the computer usually needs to open a "port" to listen to incoming connections, which is also difficult for computers behind a firewall or using NAT (Network Address Translation). P2P is limited to a small number of people collaborating as each computer needs to be connected to all the others. The number of connections grows exponentially to the number of people collaborating.



*The peer-to-peer (P2P) communication model*

## Proprietary client-server is costly to install and operate

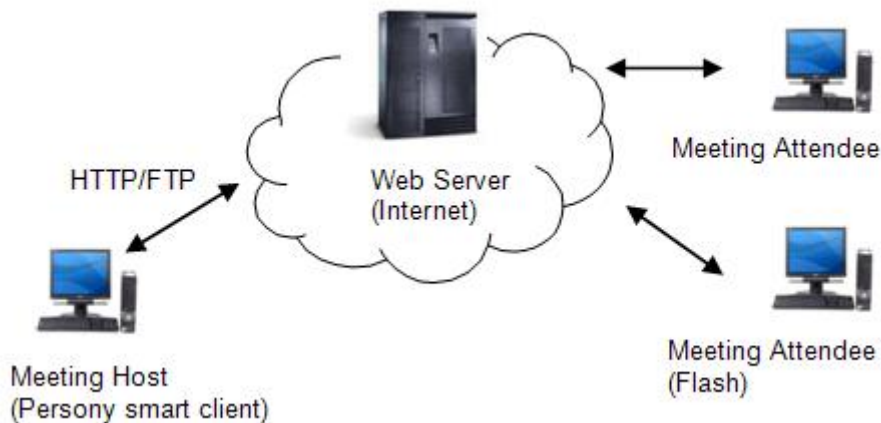
The client-server model requires the installation, operation and maintenance of a proprietary application server. The server is responsible for routing and responding to client computers' requests. The client-server model can scale to large numbers of users since each client computer only needs to connect to the server. It also addresses the firewall and IP address problems as only the server needs to be outside of a firewall and have a public IP address. The server typically needs to be connected to a high-speed network and operated by IT specialists at high costs. The industry average annual cost of operating an enterprise server is 3 to 6 times the cost of buying the server. Many users end up using hosted services provided by application-service providers (ASP) and pay a monthly management fee. The management fees can range from hundreds to thousands of dollars a month, depending on usage and offering options.



***The proprietary client-server communication model***

**Persony's smart-client leverages Web servers to reduce costs**

Persony's smart-client is a novel client-server model that preserves the advantages of client-server but dramatically reduces the costs associated with operating such servers. Instead of installing and operating proprietary application servers, the smart-client model deploys general-purpose servers, such as HTTP and FTP servers, to route and transmit information to each client. The client computer is responsible for converting application-specific data, such as documents, messages or applications being shared, into HTTP and FTP protocols understood by the general-purpose servers. Because of the ubiquity of Web servers and internet service providers, Persony can be deployed anywhere with little or no additional operating costs. With Persony, any ISP can provide the service of an ASP without application-specific hosting expertise.



***The smart-client communication model***

**Smart-client vs. Thin-Client**

Most client-server systems deploys a thin-client model where the server handles most application functions and the client usually needs just a Web browser (or a plug-in to the browser). Persony's smart-client model handles most application functions on the client side and the Web server simply handles the data upload, storage and retrieval. Online meetings usually have one host and multiple attendees. Only the meeting host needs to have the smart client. The attendees only need to have a Web browser (and Macromedia Flash) to join a meeting.

## **Security**

Persony uses existing HTTP and FTP authentication to handle user authentication. Since meetings are hosted on the user's Web site, security is controlled by the Web hosting service provider. The meeting host needs to have the publish (content uploading) permission on a Web server to host a meeting. Meeting attendees only need to have the browsing permission.

## **Scalability and reliability**

Persony's meetings behave like normal Web traffic. The number of attendees that can be in a meeting session is only limited by the Web server's capacity and the bandwidth. In most cases, a Web server should be able to handle around 20-40 concurrent attendees (depending on meeting activities and if voice webcast is enabled) with a T-1 connection (1.5Mbps), 500 concurrent attendees with a T-3 connection (45Mbps), and 1000+ concurrent attendees if deployed in a corporate intranet (100Mbps). It should be noted that the actual number of attendees can be higher as most meetings have a lot of idle time and very little bandwidth is needed during the idle time. Most reputable ISPs have a high-degree of reliability through their up-time guarantee, which should translate to high reliability for Persony meetings.

## **Latency**

Web servers usually have a longer latency (round-trip delay between a request and a response) than a special-purpose application server. Depending on network speeds, Persony's meetings may have a few seconds of delay when sharing slides or desktop contents.

## **Conclusion**

By leveraging existing Web servers and Web hosting infrastructures, Persony's solution can be deployed anywhere and at very low cost.