

expertcity DesktopStreaming™

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Technology and Security

Table of Contents

- [Introduction](#)
- [Tools Overview](#)
- [Architecture](#)
- [Firewall Configuration](#)
- [Security](#)
- [Conclusion](#)

Introduction

The Internet is rapidly changing the way both consumers and corporations approach technical support. For support providers who service customers and/or employees, the Internet promises powerful new tools for helping end users and a welcome alternative to phone-based tech support. Consumers count on immediate results from the Internet, and they expect that "e-support" will solve their technical problems faster and more thoroughly than traditional call-center or help-desk assistance.

Are support providers meeting online expectations? Statistics published by ICSA/e-Satisfy.com suggest that e-support is falling short. Although consumers expect a response to their technical support email inquiries within 24 hours, only 42 percent of support providers meet that expectation. In fact, e-support often proves ineffective and inefficient: More than half of the problems reported via email are escalated to phone support for resolution.

DesktopStreaming realizes the promise of the Internet in unprecedented ways and raises the bar of e-support to a new level of effectiveness. DesktopStreaming allows technical support representatives to remotely identify and solve users' problems in real time. Using Expertcity's proprietary screen-sharing software, support representatives no longer must waste time guessing at a user's computer problem; instead, they can remotely access the user's computer and take a look for themselves. In addition to its time- and cost-saving advantages, DesktopStreaming technology is also extremely flexible, scalable, secure, reliable and easy to use.

Advantages of DesktopStreaming Technology

- **ScreenSharing**
ScreenSharing allows support representatives to remotely share control of a user's screen, mouse and keyboard. Support representatives can efficiently address technical questions by sharing the user's computer--all while the user looks on and participates. Support providers can resolve issues quickly and shorten call times significantly.
- **Web-Based ASP Solution**
DesktopStreaming is an entirely Web-based solution. Users don't have to install software on their computers to get DesktopStreaming help, and live remote assistance is always just a few clicks away.
- **Quick Implementation**
Getting up and running with DesktopStreaming is easy. DesktopStreaming's Web and application servers are hosted and maintained by Expertcity at state-of-the-art data centers, so support providers don't have to install any hardware or software to use DesktopStreaming. The DesktopStreaming interface is so intuitive that minimal training is required before support representatives are comfortable using the tools.

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- **Flexibility**

DesktopStreaming's suite of tools gives support reps the flexibility they require when they are conducting remote-assistance sessions. They can use real-time chat, file transfer and screen-sharing tools as needed during a session.

- **Application Independent**

DesktopStreaming's versatile technology is browser and application independent.

- **Online Management and Report Retrieval**

Administrators have up-to-the-minute access to DesktopStreaming's advanced management and reporting tools. They can review entire chat and session logs, or access daily reports to track industry-standard support metrics – all through a secure online administration center hosted on Expertcity servers.

- **User Interaction**

Unlike other remote-assistance/diagnostic technologies, DesktopStreaming encourages user participation every step of the way. Rather than employing an invisible diagnostic tool that explores the user's computer, DesktopStreaming technology allows the user and the support rep to work together in real time. In fact, the user learns firsthand how to fix the computer problem while watching or taking instructions from the support rep.

Tools Overview

DesktopStreaming's portable software products have been developed in industry standard C/C++ and Java class libraries from Microsoft and Sun Microsystems. The cross-platform applications work seamlessly together to enable a remote-assistance session.

Initiating a Remote-Assistance Connection

- **SmartBox™**

The user initiates a remote-assistance session by submitting a question in the DesktopStreaming SmartBox™ located on the support provider's Web site. The question is routed via the Expertcity Web servers to all online support reps.

- **HelpAlert™**

The support rep's HelpAlert software receives the user's question from the Web server and displays it in a pop-up window on the support rep's computer screen. The rep responds to the user's question, and the Web server establishes a connection between the user and support rep on the communication server.

Conducting a Remote-Assistance Session

- **ChatLink™**

A chat session begins immediately, enabling both parties to submit real-time messages to each other using Expertcity's Java ChatLink technology. The user and support rep can address the technical problem in this familiar Web chat format. If the solution requires full remote assistance, the support rep can launch ScreenSharing. The user is then prompted to download chatlink.exe, a small self-installing plug-in that allows the support rep to share the user's screen, mouse and keyboard.

- **Viewer**

HelpAlert (on the support rep's computer) opens the Viewer to display the user's desktop. An image of the user's desk-

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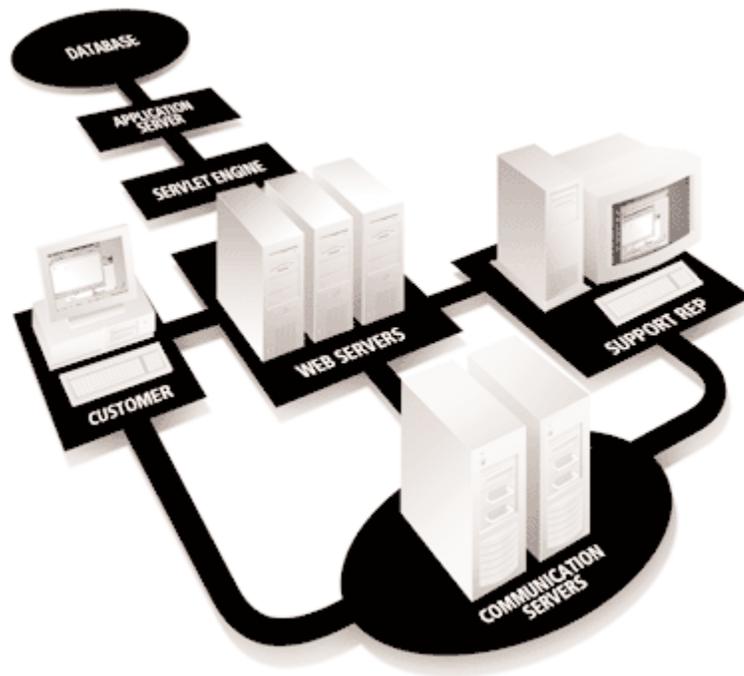
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top is continually forwarded to the Viewer via Expertcity's servers. ScreenSharing data is highly compressed using Expertcity's proprietary compression technology. (See Security for more about this process.) The support rep can manipulate any screen elements or applications on the user's computer with mouse and keyboard control – just as if the support rep were seated in front of the user's computer.

- **File Transfer**

In addition to collaborating together using ChatLink and ScreenSharing, the user and support rep can send files to each other using the File Transfer option. DesktopStreaming File Transfer does not use the traditional File Transfer Protocol (FTP), but instead relies on the same secure, firewall-friendly technology that powers ScreenSharing. Flow control ensures that File Transfer and ScreenSharing can take place simultaneously.



Architecture

Expertcity's architecture has been designed for maximum performance, reliability and scalability. The DesktopStreaming service is driven by industry-standard, high-capacity servers and network equipment. Redundant switches and routers are built into the architecture to ensure that there is never one single point of failure. Clustered servers and backup systems help guarantee a seamless flow of application processes – even in the event of heavy load or system failure.

DesktopStreaming clients can be confident that Expertcity has developed a robust architecture that protects data and scales easily to compensate for the demands placed upon it.

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- **Web Servers**

DesktopStreaming's service is maintained by a cluster of high-capacity UNIX Web servers. Web-balancing switches monitor the network flow and transparently distribute server requests among all the servers, thereby preventing overload to any individual server and ensuring an uninterrupted flow of application processes.

The Web servers run a Java servlet engine and dynamically generate all Web pages in conjunction with the application server and database. The Web servers' primary role is to initiate a connection between the user and the support rep. Once a connection is established, the entire interaction between both parties takes place over the communication servers.

- **Communication Servers**

An industry-standard UNIX server mediates each remote-assistance session. The communication server facilitates three important processes during a remote-assistance session:

- 1. ScreenSharing :**

The communication server enables ScreenSharing by forwarding screen outputs and mouse and key inputs between the user's computer and the support rep's Viewer. The screen-sharing data is highly compressed using Expertcity's proprietary compression technology and encrypted using AES (Advanced Encryption Standard) 128-bit encryption.

- 2. Session Recording :**

The communication server records the chat dialogue for future reference by the support rep. The user can save the chat dialogue at any point during a chat session or at the session's end. Clients who purchase the optional SessionView Module can later review the screen-sharing session in real-time or fast-forward modes and use DesktopStreaming's reporting tools to track quality and performance benchmarks.

- 3. Firewall Access :**

The communication server facilitates a firewall-friendly connection. In most cases, a connection is established without changing firewall settings at either end.

- **Network Reliability**

The Expertcity network is constantly monitored via the Simple Network Management Protocol (SNMP) and through the use of custom monitoring and alerting tools. Critical metrics are recorded 24/7 to ensure that heavy network activity does not cripple any single component.

Performance data is regularly collected on all key production systems, including the database, Web servers, communication servers and networking equipment. The data is used as a real-time measurement of performance and as a tool for future capacity planning.

Firewall Configuration

DesktopStreaming works with leading firewall protocols. In most cases remote-assistance connections are possible without any firewall reconfiguration. DesktopStreaming requires access to outbound ports at both ends of a connection. Occasionally, some firewalls may require port and IP adjustments to allow DesktopStreaming access. Reconfiguring a firewall for DesktopStreaming does not compromise the integrity of the client's firewall; only outgoing communications are impacted, and the technology

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operates within a narrowly limited IP range. For additional information related to firewall issues, please contact an Expertcity sales representative.

Security

Security is a vital concern for all Web-based systems. Expertcity recognizes this concern, and uses the latest security technology to ensure that the data exchanged between users and support reps is completely secure. Moreover, Expertcity has developed its own proprietary compression technology that transmits data in packages that can only be "unwrapped" by Expertcity software. Identities are scrupulously verified and protected with industry-standard password-verification technology, and help sessions are kept secure and private with the use of randomly generated session keys. DesktopStreaming clients and their users can count on the protection of their information and identities. For additional information related to security issues, please contact an Expertcity sales representative.

User Privacy Concerns

With DesktopStreaming, the support rep has unprecedented access to the user's computer to pinpoint and resolve technical issues more efficiently than ever before. Yet DesktopStreaming leaves the ultimate control in the hands of the user. The user actively participates in the screen-sharing process and observes every step that is taken to resolve the technical issue. At anytime the user can retake control of the mouse and keyboard or end ScreenSharing altogether.

Conclusion

DesktopStreaming technology takes the mystery out of technical support. While phone-support reps cross their fingers and blindly direct users where to click, DesktopStreaming-enabled reps don't have to play guessing games – they can use Web-based remote-assistance tools to efficiently identify and resolve issues, improving first-time resolution and reducing handling time in the process.

Behind the scenes, Expertcity's architecture transparently supports person-to-person collaboration by providing a scalable and reliable environment. Security promotes both ease-of-use and flexibility without compromising data integrity, confidentiality and user control.

As an unparalleled e-support paradigm for the Internet age, DesktopStreaming offers support providers an easy, low-cost method for integrating Web-based technical support that will improve their bottomline.

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