



# Heavenly Host: Web-to-Host Product Roundup

*NT-based Web-to-host products that will have your Web-client users singing your praises*



**[Editor's Note:** This comparative review originally included test results for WRQ's Reflection for the Web 3.0. At press time, the vendor had released version 4.0, which contains significant changes to the reviewed product; version 3.0 is no longer available for purchase. For these reasons, Reflections for the Web 3.0 doesn't appear in this review. For information about Reflection for the Web 4.0, see WRQ's Web site at <http://www.wrq.com/>.]

Providing host-server access to your customers and offsite users is a great way to leverage your enterprise business' sizeable investments: IBM mainframe or AS/400 systems and the Web infrastructure that you use for intranet, extranet, and Internet functions. The Web-to-host products in this review provide remote and global Internet access to your IBM host systems—without requiring the hosts to have expensive dedicated communication links. The only required software on the client side is a standard Web browser. When you install Web-to-host software on a Web server, a user can download a Java applet or an ActiveX control to a Web-based client, then use that control to run host terminal emulation sessions from the client's Web browser. One product (Winsurf Mainframe Access 2.5) provides host access through on-the-fly HTML conversion in addition to using ActiveX controls. Figure 1 provides an overview of a typical Web-to-host implementation.

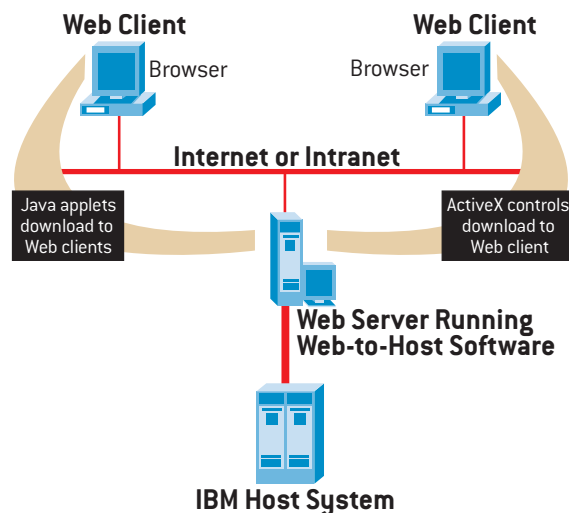
I tested eight Windows NT-based Web-to-host products. The basic review criteria were the products' ability to provide IBM mainframe 3270 terminal emulation, to provide IBM AS/400 5250

terminal emulation, and to directly locate host network resources without using Windows 2000 Active Directory (AD) or a Lightweight Directory Access Protocol (LDAP) server (Table 1, page 108, summarizes the products' features). The Web server I installed the products on was a 200MHz Pentium Pro processor system with 128MB of RAM, running Microsoft IIS 4.0. I used Microsoft Internet Explorer (IE) 5.0 and IE 4.0 on my client systems, and I ran the terminal emulation sessions across a 10MB Ethernet network segment.

## A Host of Key Features

The Web-to-host products that I tested displayed definite differences in several key areas. These areas include the type of host connection, printer-emulation support, centralized management capabilities, terminal-emulation controls and display options, and security and data-stream-encryption support.

**▶ FIGURE 1:** Web-to-host connectivity overview



**The host connection.** Most of the Web-to-host products I reviewed fall into one of two camps: products that establish direct connections between clients and the host server, and products that channel connections through the Web server. Each method had trade-offs. The products that connect clients directly to the host typically rely upon the host server to provide monitoring and session-level security. This arrangement prevents the Web server from becoming a bottleneck but usually means that the Web-to-host software can't provide session-monitoring or security-management capabilities. Products that connect clients through the Web server typically provide centralized session monitoring and security, but the Web server also becomes a potential point of failure. Several products support both direct and gateway-style connections between the clients and the host; these products offer the best of both worlds.

**Printer emulation.** All the products provide 3270 and 5250 terminal emulation, but some products lack printer-emulation support, which lets users produce local printouts rather than depend on printers at the host-system location. Several products support 3270 printer emulation but don't support the

enhanced TN5250 protocol, which is necessary for 5250 printer emulation.

**Centralized management.** Centralized configuration and session monitoring are important Web-to-host product management features. Centralized configuration lets you set up and configure from a common management

location all client-to-host connections, thus vastly simplifying the deployment of multiple clients. The ability to set up and manage groups as well as individual users is another useful deployment feature. Centralized session monitoring can help you troubleshoot your system and track licensing from one manage-

ment location. All the products that I reviewed provide centralized configuration. However, centralized monitoring is a different story: Some products let me monitor and record usage and generate management reports; other products provide no monitoring capabilities.

*Terminal-emulation controls and*

**TABLE 1: Web-to-Host Product Specifications and Features**

	<b>Anota Java Terminal 2.1</b>	<b>e-Vantage Host Access Server 2.2</b>	<b>HostFront 1.7</b>	<b>OC://Web- Connect Pro 4.3</b>	<b>Persona Insight 4.3</b>	<b>RUMBA 2000 Web-to- Host</b>	<b>WebSphere Host On- Demand 4.0</b>	<b>Winsurf Mainframe Access 2.5</b>
<b>Host-Server Support</b>								
IBM mainframe	Yes	Yes	Yes (separate product)	Yes	Yes	Yes	Yes	Yes
IBM AS/400	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UNIX/VMS/other	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Direct host connection	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Proxy host connection	No	With e-Vantage SNA Gateway	Yes	Yes	Yes	No	Yes	Yes
<b>Web-Server Support</b>								
IIS	3.0 or later	4.0 or later with ASP extensions	4.0 or later	N/A	Yes	Yes	4.0 or later	3.0 or later with ASP extensions
Netscape Enterprise Server	Yes	With Chili!Soft ASP 3.0	Yes	N/A	Yes	Yes	No	No
Apache Web Server	Yes	1.3.4 or later with Chili!Soft ASP 3.0	Yes	N/A	Yes	Yes	No	No
<b>Client Web-Browser Support</b>								
IE	4.07 or later plus JVM 1.1.5	4.01 or later	4.0 or later	4.0 or later	4.01 or later	4.0 or later	4.01 with SP1 or later	3.02a or later
Netscape Navigator	4.51 or later plus JVM 1.1.5	4.06 or later; 4.04 with JDK 1.1	4.08 or later	4.08 or later	3.01 with JDK 1.02 or later	4.07 or later; 4.04 or later with JDK 1.1 patch	4.08 or later	Communicator 3.3 or later
<b>Emulation Support</b>								
3270 terminal emulation	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
3270 printer emulation	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
5250 terminal emulation	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5250 printer emulation	Yes	No	Yes	Yes	No	Yes	Yes	No
VT100 terminal emulation	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Other emulations	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes

**display options.** Most of the products I reviewed provide host-server connectivity through a Java applet that the client downloads; some products provide an ActiveX control or Web-server-based on-the-fly HTML conversion. (Several products provide multiple mechanisms.) Although all the products provide basic

terminal emulation through a standard Web browser, some products also provide browserless host-server access through Java applications or standalone Windows-based applications.

The quality of the products' terminal emulation displays also differs. Some products provide only a standard 25-line

character-based display, so I needed to scroll to see the entire screen. Other products provide a resizable display that let me see the entire screen within the browser; this type of display is easier to work with. Many of the products also support as many state-of-the-art display-emulation features as standalone host-

TABLE 1 continued

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<b>File Transfer Support</b>								
FTP	No	Yes	No	Yes	Yes	Yes	No	Yes
IND\$FILE	Yes	Yes	No	Yes	No	Yes	Yes	Yes
Other	No	Yes	SQL-based file transfer	No	No	No	SQL-based Database On-Demand	Kermit, XMODEM, YMODEM, ZMODEM
<b>Host Emulation Type</b>								
ActiveX controls	No	Yes	Yes	No	No	Yes	No	Yes
Java applet	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Java application	Yes	No	No	No	Yes	No	Yes	No
Windows executable	No	No	No	No	No	No	No	Yes
<b>Management and Administration</b>								
Centralized configuration	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Centralized session monitoring	Yes	No	Yes	Yes	Yes	No	Yes	Yes
Management reports	Yes	No	No	No	No	No	No	No
Customizable TCP/IP ports	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Session security	SSL	SSL	SSL (ActiveX only)	SSL	SSL	No	SSL	SSL
Integrated with NT security	No	Yes	Yes	No	No	No	No	Yes
Support for host groups	Yes	Yes	No	Yes	No	No	Yes	Yes
<b>Emulation Features</b>								
Independent window or inside browser	Independent	Both	Independent	Independent	Inside browser	Both	Independent	Inside browser
Graphical emulation	No	No	Yes (Java applet only)	Yes (with AutoVista)	Yes	Yes	Yes	No
Dynamic emulation resizing	Yes	Yes	Yes	Yes	Java only	Yes	Yes	Yes
Support for keyboard mapping	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Support for custom screen colors	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Support for macros	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
HLLAPI support	JavaBean API	Host Session Services	No	JHLLAPI	No	Yes	HACL	Internet Development Toolkit

emulation software provides. For example, some products provide full support for custom keyboard mapping and screen colors, as well as macro recording and custom programming interfaces.

**Security and data-stream encryption.** Security is always of paramount concern, especially when a connection takes place over the Internet. Standard 3270 and 5250 emulation products send clear-text streams between the client and the host server. This type of connection is acceptable for local network connections but is unacceptable across an Internet-based WAN link. The reviewed products that connect clients directly to the host server either provide no session security or else rely on host-based Secure Sockets Layer (SSL) support. The products that use gateway-style connections generally encrypt the data stream between the client and the Web server. Some of these products also encrypt the data stream between the Web server and the host server, but most of the products generally require the Web server/host server connection to occur over a secure network link. All the products that provide security do so through SSL; the products that provide data-stream encryption employ various encryption protocols. Almost every product lets you customize the TCP/IP ports that the client uses to connect to the host server so that you can easily change the default port in secure firewall-based installations.

## Results

Of the products that I reviewed, my favorite is IBM's WebSphere Host On-Demand 4.0. The product is easy to configure and use, and it provides all the advanced display and printer emulation features that I expect from the maker of IBM mainframe and AS/400 systems. In addition, the product's unique Database On-Demand feature lets end users submit ad hoc databases. The product also provides excellent security, permitting encryption of both Web-to-host and Web-to-client sessions.

## WebSphere Host On-Demand 4.0

Of all the products in this review, Web-

## WebSphere Host On-Demand 4.0

### CONTACT:

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<http://www.ibm.com/>

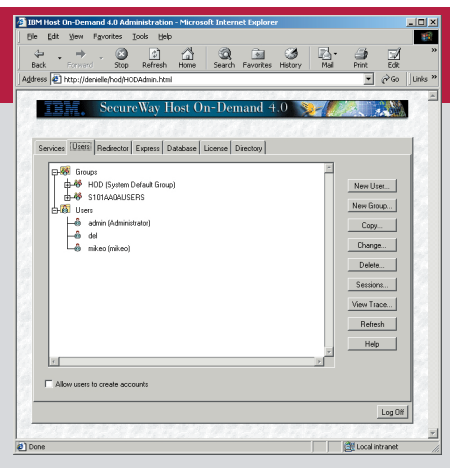
PRICE: \$199

### DECISION SUMMARY:

**Pros:** Easy installation and configuration; excellent emulation capabilities; client and host sessions security; SQL-based file transfer

**Cons:** Weak documentation

▶ **FIGURE 2:** WebSphere Host On-Demand Administration Utility



Sphere Host On-Demand (originally marketed under IBM's SecureWay product group) supported the widest array of servers (e.g., NT, AIX, OS/2, Novell NetWare, Sun Solaris, HP-UX, OS/400, OS/390). Host On-Demand supports 3270 and 5250 terminal and printer emulation and VT52, VT100, and VT220 terminal emulations. File-transfer support includes IND\$FILE and OS/400 IFS file transfers, as well as an SQL-based Database On-Demand feature for host-to-client database transfers. A set of Java applets provides the core host terminal and printer emulation. I tested the NT version, which supports Web servers running NT 4.0 SP3 and IIS 4.0 or later. Web clients must run IE 4.01 SP1 or later or Netscape Navigator 4.08 or later.

WebSphere Host On-Demand consists of the Administration Utility, Certificate Management, Certificate Wizard, and Host Access Toolkit components. Administration Utility is a Java applet that you can use to start the Host On-Demand Services. The product includes two NT services: an Express service that you can use for direct connections and a Redirector service that you can use for secured proxy connections. You can use the Administration Utility to create users and groups and to configure sessions. Certificate Management and Certificate Wizard create and manage certificates for SSL sessions. Host Access Toolkit is a set of JavaBeans that you can use to customize session displays.

Installation was one of the quickest and easiest of all the products' processes. The included Autorun file auto-

matically launched the installation when I inserted the CD-ROM into the drive. The installation process installed the Express service and the Redirector service. When the installation was complete, the program prompted me to manually stop and restart the Web server. The product didn't create Virtual Directories on the Web server. Instead, I needed to manually create a Virtual Directory that pointed to the \hostondemand\HOD directory, which the installation process created. After the WebSphere Host On-Demand installation, the product added Host On-Demand Express service as an autostart NT service.

Configuration was also easy. To configure the server, I downloaded Administration Utility. When I ran the applet, it prompted me to use the default administrator password to log on. Next, I set up the users, groups, and sessions that needed host access. WebSphere Host On-Demand doesn't integrate its users and groups with NT's users and groups, so I needed to use Administration Utility, which Figure 2 shows, to create the users and groups. Every user must belong to at least one group, so I created groups first. The product uses groups to define the session types and configuration attributes that will be available for the users in that group. When you define a user for more than one group, the user inherits all the defined sessions for all groups. After I defined the groups, I configured the emulation sessions for each group.

The product provides full-featured

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terminal emulation through a Java applet. Emulation sessions appear in an independent browser session; to launch the sessions, you can point the client Web browser to a URL in the HOD directory or you can embed a link in a Web page. Connecting to the WebSphere Host On-Demand Web server and downloading the applet took only about 4 seconds. The product supplied cached and downloadable applet versions. In my environment, I couldn't determine a time difference between the two versions, but with a slower WAN link you might prefer the cached applet. The emulation provided all the features I expect in a single-function desktop product (e.g., dynamic screen resizing, custom keyboard maps, custom screen colors, support for macros) as well as the product's Host Access Library (HACL) programming interface.

When you use the Redirector service, the product uses SSL to support secure client connections. The product's ability to implement client-only session security, host-only security, or both client- and host-session security is particularly useful. Although the Express service's direct connection was easy to open, setting up a secure connection with the Redirector service was significantly more difficult, and finding the secure-connection requirements in the documentation was a time-consuming chore. In addition, when I used the product's Certificate Wizard to create a self-signed certificate, the product returned a class error.

The product's documentation was in the form of HTML Help files, which were plentiful but lacking in quality. However, I did find a good IBM Redbook, *IBM SecureWay Host On-Demand 4.0: Enterprise Communications in the*

*Era of Network Computing*, that provided important product background, setup, and configuration information.

In spite of struggling a few times with the implementation, I rate WebSphere Host On-Demand as an excellent product. Its support for both direct and secure proxy connections and the quality of the emulation software are strong points in the product's favor. Of the reviewed products, WebSphere Host On-Demand provided the best combination of flexibility, security, and ease of use. ▲

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