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AFFORDABLE IT : FAX SERVERS

FAX SERVERS: FAST, EFFICIENT AND VERY MUCH ALIVE

Fiction: Fax is dead. Fact: Fax servers help get the right documents to the right desks securely, efficiently and inexpensively **BY SEAN DOHERTY**

» Want an affordable technology that gets documents and images from Point A to Point B more reliably than a private courier? Then get the facts straight: Facsimile, or fax, technology is not dead. Enterprises still use faxes to extend offers, advertise and promote products, and seal deals. In addition, many courts accept faxes to file motions, and HIPAA (Health Insurance Portability and Accountability Act) considers point-to-point fax secure enough to exempt it from privacy and security controls.

Fax usage continues to grow at incremental rates, even in lean times. Shipments of hard-copy output devices, such as fax machines, printers, copiers and multifunction printers, increased 3.5 percent in 2003 while overall end-user spending decreased by 11.5 percent, according to Gartner. Why? Fax technology is an affordable, mature solution that gets the job done.

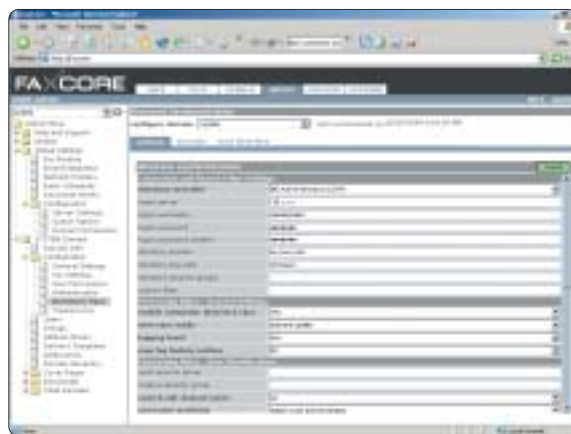
However, if you want multiple people in your enterprise to send and receive faxes at the click of a mouse, you need more than a fax machine. You need a fax server. Fax servers have three basic parts: a PC running an operating system, fax server application software and an intelligent fax board, such as Brooktrout's TR1034

or TR114 or Intel's Dialogic/GammaFax.

Long Live Fax

Since its invention in 1843, fax transmission over wires has developed and matured thanks to standards set by the ITU. The most widely used standards for fax fall under ITU's Group 3 and include T.4 and T.30. T.4 defines the transfer protocol for images; T.30 declares the session-management scheme that establishes the fax transmission and lets two devices agree on transmit speed, page size and other parameters. Because Group 3 is a digital standard in an analog environment, modems or fax relays are needed to convert data from analog (the original printed document) to digital (transmittable data) and back to analog (the printed document at the receiving end).

That's not the case for FoIP (fax over IP) products. FoIP fax services bypass the PSTN and use TCP/IP LANs, WANs and the Internet to send and receive faxes. FoIP uses T.37 (store-and-forward) and T.38 (real-time) protocols. T.37 is an asynchronous transport that hangs on the coattails of e-mail. It is used to insert TIFF files into e-mail messages as attachments. The e-mail is sent to another e-mail client



FaxCore 4370's Web-based administration provides full control of fax services and fax management using tabbed pages for administration, monitor and network. Here, directory synchronization and back-end authentication to Active Directory over LDAP are enabled.

to view, print or save the attachment. This approach lacks a secure, point-to-point transmission, unless you apply encryption. The T.38 standard is a real-time protocol that lets you transmit faxes over TCP/IP using a gateway or fax relay without fax boards.

FoIP has gotten easier to use over the years, but it still doesn't beat the old-fashioned analog method, which is cheap, reliable, easy to use and secure. The old method requires only a modem or a fax board with software, and you can be faxing over a dedicated phone line in no time. An entry-level fax board from Brooktrout (TruFax 100 uPCI) can be had for as little as \$399. And the fax servers we tested range from \$695 to \$8,995.

Reviewing the Fax

We sought fax server software that supports an Intel architecture and can run on Windows 2000 or Windows Server 2003. Each server had a Brooktrout TR114 PCI analog fax board with one loop-start port and one DID (direct-inward dialing) port. (The loop-start port takes the phone off the hook to send and receive faxes; DID is used to route incoming faxes. For more on DID, see "Need Automatic Routing? DID Does It,". We required fax servers that support DID to route incoming fax transmissions automatically. Without DID, faxes would require manual routing or universal user access to the entire incoming fax queue. We also required that the server use an

AFFORDABLE IT FAX SERVERS

LONG LIVE THE HARD COPY and its useful transporter, the fax. Whether you need a motion filed, a job accepted or a document signed, fax technology is the cheapest, easiest way to get it. With a standard PC, fax server software and an intelligent fax board, a simple phone call transmits your document with a mouse click.

For this Affordable IT article, we tested fax servers from Biscom, Captaris, Castelle, Copia International, Esker Software, FaxCore and GFI Software. Because the technology is mature, all received high marks. Two packages—FaxCore 4370 and GFI Faxmaker—tied for first place on our Report Card. We gave the FaxCore 4370 our Editor's Choice award because of its superior Web-based administration and pain-free LDAP integration. GFI Faxmaker, meanwhile, has the added bonus of an ultralow price.

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Exchange connector or an SMTP gateway for integration with a Microsoft Exchange Server 2003.

We sent invitations to Biscom, Captaris, Castelle, Copia International, Esker Software, FaxCore Corp., GFI Software, Interstar, Omtool and Tobit Software. Only Omtool failed to get back to us. However, Interstar's FoIP solution didn't fit our analog criteria and Tobit's Faxware 7 didn't have an evaluation copy. We did receive a copy of Tobit's David XL software, but it supports only ISDN fax boards or modems.

All the products we tested are mature, and for the most part, each installed onto test servers running Windows 2000 and 2003 servers without difficulty. Castelle sent its FaxPress Premier appliance, a plug-and-play device that we ran under Windows 2000 in our Syracuse University Real-World Labs®. We set up servers in a test fax domain, so the products could use Active Directory or an LDAP-based directory.

Most of the products we tested employ one-way synchronization tools to import Windows users into the fax system. These tools act fast, but in most cases you will have to scrutinize password migration. Castelle's FaxPress Premier sets a random password, for example. Although FaxPress users can fax from their desktops after single sign-on authentication, they cannot authenticate to Web fax services until you reset their passwords. In one-way synchronization, Active Directory updates propagate to your fax system, but changes to users in the fax system don't return to Active Directory. A better way to authenticate users is through LDAP. Almost all our participants can authenticate from back-end servers using Active Directory or NTLM. But only the products from Biscom, Esker and FaxCore provide full support for LDAP-compliant directories.

The products we tested let users send faxes from their desktops at the click of a mouse. They include a bevy of features, and each can integrate with Active Directory and messaging applications like Lotus Notes, Microsoft Exchange and Novell GroupWise. They all support clustering and load-balancing for high-volume and fault-tolerant fax services. Some fax servers, including the ones from Biscom, Captaris, Castelle and Esker, can even use LCR (least-cost routing) to send faxes using IP over WANs or the Internet to the most cost-effective fax server to transmit a fax to the PSTN—ideally, a local call.

Tough Call

The FaxCore 4370 and GFI Faxmaker tied in our Report Card. We gave our Editor's Choice award to FaxCore, because we liked its focus on Web-based administration and fax management with LDAP integration. FaxCore 4370 installed with ease under Windows 2003 server and provided a fast path for users to authenticate to Active Directory and send and receive faxes over an HTTP interface. It also supplied a Web-browser administration tool and strong integration points with LDAP-based directories, Microsoft Exchange and SMTP mail.

GFI Faxmaker, meanwhile, was the fastest out-of-the-box faxer to let domain users fax using Exchange. It also had the lowest price.

Neither product was a far cry from the rest of the pack. All the products we tested let users send faxes from Windows applications, including e-mail. And all but Esker Fax and FaxFacts included at least a rudimentary Web interface to their fax servers for review. Esker sells one as an add-on; FaxFacts doesn't.

If you're in the market to buy or upgrade a fax server, look for a product that will use your existing directory services to incorporate users and your e-mail application to send and receive faxes to recipients listed in Outlook contacts or Windows address books. This will give you an easy method for faxing documents, keep your administration overhead low and increase the value of your existing infrastructure. You can use existing message stores, such as e-mail, to handle faxing, and you can still manage users from one point of authority.

In the interest of covering all seven products we tested, we've provided minireviews for all but the Editor's Choice. You can view the full reviews, with their testing details, online at *1523rd1*.

FaxCore 4370 This product's moderate price, smooth integration with Microsoft Exchange and ability to accept fax requests from e-mail delivered directly to the server gave the FaxCore 4370 a



distinct edge over the other products we tested. Although importing directory address books and contacts was not as straightforward as it was with GFI Faxmaker's use of



Outlook contacts, the FaxCore, running on Windows 2003 with .Net services and IIS, fit right into our test bed.

In our tests, FaxCore enabled authentication for fax services using Active Directory without a fuss. It also authenticated users from a Windows NT Domain (NTLM) and a Lotus Domino system (LDAP). Within minutes after installing and verifying fax services, we were using the Web interface to upload documents to personal and shared folders, and sending and receiving faxes.

FaxCore includes a built-in SMTP listener as a mail-to-fax gateway. The listener also works with Exchange, GroupWise and Notes systems, as long as Microsoft's IIS SMTP service is not enabled. After installation, we easily verified that FaxCore's services were up from the Web interface and that the SMTP listener had an ear on TCP Port 25.

The package supplies a navigable interface to all the configuration and monitoring points available. And though the interface doesn't resemble Explorer's, it's easy to move among the various administration pages that show tabbed views of users, queues, lines and running services.

We entered AD information to enable external

REAL-WORLD LABS® REPORT CARD: FAX SERVERS							
	FaxCore 4370	GFI Faxmaker 12	Biscom Faxcom Server 5.5, Faxcom Suite for Windows	Captaris Rightfax Enterprise Suite 9	Esker Fax 3.5	Castelle FaxPress Premier Analog 3.0.1	Copia International FaxFacts 7.1
INTEGRATION							
EASE OF USE (10%)	5	5	5	5	5	5	5
DIRECTORY (10%)	5	5	5	5	4.5	4	3
E-MAIL (10%)	4.5	4.5	4	4	4.5	4.5	4
FAX MANAGEMENT							
JOB ADMINISTRATION (10%)	5	4	4	4	4.5	4	4.5
USER MANAGEMENT (10%)	5	5	5	4.5	4.5	4	4
FEATURES (20%)	4	4.5	5	5	4	4.5	4
SERVER MANAGEMENT							
ADMINISTRATION (5%)	5	4.5	4.5	5	4.5	4.5	4
ARCHIVING (5%)	4	4	4	4.5	4.5	5	4
DIAGNOSTICS (5%)	4.5	4	4	4.5	4.5	4	5
INSTALLATION/CONFIGURATION (5%)	5	5	4.5	4.5	4.5	5	4
PRICE (10%)	4.5	5	3.5	3	3.5	3	4
TOTAL SCORE (100%)	4.63	4.63	4.50	4.48	4.35	4.28	4.10
A≥4.3, B≥3.5, C≥2.5, D≥1.5, F<1.5 A-C GRADES INCLUDE + OR - IN THEIR RANGES. TOTAL SCORES AND WEIGHTED SCORES ARE BASED ON A SCALE OF 0-5.	A	A	A-	A-	A-	B+	B+

Customize the results of this report card using the Interactive Report Card®, a Java applet, at www.nwc.com.

authentication, synchronize AD, and import users and contacts into FaxCore's Microsoft SQL-compliant, local database, which stores information on users, address books and faxes. That database lets you access the best server-side search tool in our roundup: You can use metadata, including CSID (calling station ID), date received/sent, sender, recipient or billing information, to search for faxes.

The SQL database provides a rich reporting environment, but FaxCore lacks standard reports. A few basics, such as total faxes and pages sent and received by user or calling number, would be useful. As long as data is captured in sufficient detail, though, enterprises can extract it for reports.

Setting up Exchange integration was painless, if not seamless. As we did with GFI Faxmaker, we created an SMTP connector in the Exchange System manager, then, using the Exchange server as the default SMTP virtual server, we set the connector to forward all faxes to the FaxCore server, a smart host. In the address field of the connector, we set the media type to "FAX" with a cost of "1" and put an asterisk in the address field. Once that was done, Outlook clients could attach files to e-mail and send mail to "FAX: <Name>@<Faxnumber>," and the mail was routed to FaxCore for processing. End users could monitor the process by setting an Outlook folder to view the FaxCore server by its URL.

Like all the Windows print drivers we tested, FaxCore's is installed from a network share and distributed to end users silently. Upon sending a document to the printer from a client, a user interface logged us into the FaxCore server with our domain user ID and password. The printer rendered the document in TIF format to view and fax. We also could have included a cover page and memo.

FaxCore's Web setup requires a Windows 2003 Server in an application server role with ASP.Net and IIS enabled without SMTP support. Because fax requests will come in from the Web and e-mail, FaxCore—like many of the servers in this roundup—requires CPU time to render documents for transmission. You'll need at least a single Intel P4 (1.8 GHz and above) or a dual PIII (1.1 GHz and above), with hyperthreading support

recommended. The server can run the rendering engine on a separate server to reduce loads in large enterprises. Support for LCR will be added next year.

FaxCore 4370. FaxCore, (720) 870-2900.
www.faxcore.com

HOW WE TESTED FAX SERVERS

We tested the software fax servers on dual Intel Pentium III servers with 1,024 MB of RAM running Windows 2000 or 2003. Each server had a Brooktrout TR114 fax board with one loop-start and one DID channel. Castelle's FaxPress Premier was the only hardware-based solution. The device came with its own Windows 2000 operating system and 256 MB of RAM with Intel Dialogic/GammaFax fax boards.

Because DID is implemented as a line service by telephone providers and relies on fax-board support, we did not test the servers' inbound-routing capabilities. Instead, we focused our testing on e-mail and directory integration and the products' abilities to send outbound faxes from dedicated clients, e-mail clients and Web clients.

We used Spirent's Abacus (Advanced Bulk Call Simulator) 5.3 software to generate and receive faxes from the servers using an Abacus 1 platform. The Abacus included an XCG (Exchange) subsystem that made it easy to connect the servers directly to the Abacus 1 without a telephone-line simulator. We also used a Northeast Innovations' Telephone Central Office Simulator (Model 1040A) to connect the fax servers to each other to send and receive faxes.

To test integration, we included each server in an Active Directory domain running an Exchange 2003 server. We looked to integrate AD for user and address-book management, to import users, and for sending and receiving faxes from Windows applications, Outlook and other e-mail clients.



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