



**INFORMATIONWEEK.COM** News

January 15, 2001



[Printer ready](#)

## Internet Appliances Take Hold

These simple devices, which provide Web hosting or basic E-mail, have become popular with small and midsize businesses, but even large IT departments are turning to Internet server appliances for sophisticated Internet infrastructure functions

By **Alan Radding**

**H**ere's a prescription for instant Internet infrastructure. First, cram a low-cost open-source operating system, commodity chips, and specialized, single-function software into a rack-mountable box. Then throw away the keyboard and the monitor because they add cost and take up space. Presto! You've got an Internet server appliance.

Depending on the particular software you load, your appliance will perform basic Web hosting, E-mail serving, content caching, load balancing, name and address serving, or almost any other infrastructure function. Attach RAID storage, and you have a storage appliance (see story, [informationweek.com/820/applianc2.htm](http://informationweek.com/820/applianc2.htm)).

Internet server appliances from companies such as CacheFlow, Cobalt Networks, F5 Networks, and Network Appliance have received a lot of attention in the past year. These simple Web appliances, which provide Web hosting or basic E-mail, have become popular with small and midsize businesses and in the satellite offices of large companies. The low cost and the promise of out-of-the-box ease of use--plug it in, turn it on, enter a domain address, and forget about it--makes such products appealing to businesses that lack IT skills or don't require a complex Internet infrastructure.

But even corporate IT is turning to Internet server appliances for sophisticated Internet infrastructure functions. Content caching and load-balancing solutions optimized with the most-advanced caching algorithms are two of the most popular functions of specialized appliances. Before long, large companies may find themselves with racks of specialized server appliances strung together in chains, not only for caching and load balancing but as security proxies, reverse proxies, name and address servers, and more.

"We're seeing the emergence of appliances as part of the next stage of the build-out of the Internet infrastructure," says Mark Melenovsky, an International Data Corp. analyst. For companies struggling with basic Internet infrastructure issues such as scalability, reliability, high availability, and manageability, Internet server appliances promise fast relief. When you



### More on network appliances:

- *sidebar:* [Storage Appliances Find A Home With Internet Companies](#)
- *Internet Week:* [Novell and Compaq team up for Internet caching \(12/04/00\)](#)
- *Internet Week:* [NETWORK INFRASTRUCTURE -- SSL IN THE DRIVER'S SEAT \(11/13/00\)](#)
- *Internet Week:* [COMPANIES BRACE FOR HEAVY TRAFFIC \(11/13/00\)](#)



[Send Us Your Feedback](#)

factor in the shortage of skilled server administrators, these useful devices are highly welcome.

IDC estimates the Internet server appliance market will grow from sales of well below \$1 billion in 1999 to \$11 billion worldwide by 2004, or \$16 billion if you factor in storage appliances. The category is starting to attract the attention of larger players, with Compaq, IBM, and Sun Microsystems launching Internet server appliance initiatives.

Appliances tend to do assigned tasks better than general-purpose servers because they come with best-of-breed software for those tasks. Also, an appliance's operating system has been tweaked to optimize performance of that task. "Most companies like them for their ease of installation and ease of management, but they're not always low cost," Melenovsky says.

Appliances range in price from less than \$1,000 for a basic Web-hosting appliance to \$100,000 or more for high-end caching and storage appliances. But even at the high end, the appliances are still a bargain compared with equally high-end, high-performance, name-brand, general-purpose servers loaded with appropriately the same software and configured for the same functionality.

"A Windows NT server would cost us \$7,000 for the hardware and software," says Marc Gosselin, MIS manager at Mazin Investment Inc. in Ottawa. "Net Integrator costs us \$3,300, and everything is included."

Mazin turned to the Net Integrator appliances from Net Integration Technologies Inc. to replace a Windows NT box running the investment company's Lotus Notes Mail server. "The NT server did the job, but the licensing was expensive," he says. The appliance gives the company E-mail and other functions, such as virtual private network capabilities, as part of the package price. "And you don't need to be an MIS specialist to use it," he adds. The company deploys Net Integrator in five offices across Canada.

Incyte Genomics Inc., a biomedical company in Palo Alto, Calif., discovered Internet server appliances two years ago when it was faced with upgrading a Sun messaging server because of Y2K issues. "We had problems with Sun upgrades in the past," says Dave Conde, Incyte's enterprise application manager. Instead, the company turned to the Mirapoint Internet Messaging Server from Mirapoint Inc.



**TIME-SAVER:** Maintaining Incyte's appliances takes less time than keeping up the old messaging system, says Conde (right), with associate director of infrastructure services Greg McGrath.

Incyte now deploys seven Mirapoint appliances, each configured with RAID and an uninterruptible power supply for fault tolerance, and the company is adding more. The E-mail accounts are spread across the devices to eliminate any single point of failure. "We have about 1,400 people on the system and E-mail is a crucial tool for us," Conde says. But despite the seemingly complex fault-tolerance configuration,

"these systems are very easy to set up and maintain," he says. Conde estimates daily maintenance takes him one-tenth of the time he spent on the company's previous Sun messaging system.

Systems integrator Global Network Services in Redwood City, Calif., deploys the InterJak 100, a low-cost, basic Internet appliance from Filanet Corp., for its clients with small offices. "For an office with just four or six users, it provides a low-cost way to get on the Internet," GNS president Greg Botto says. The appliance also provides local area network file and print sharing and has a plug-in for messaging.

"We recommend it to customers with remote offices," Botto says. InterJak, which runs on the Linux operating system, has a built-in firewall and can be configured for virtual private networking.

At about \$600 per box, Global Network Services has even installed InterJak appliances in the homes of attorneys at a law firm so they have access to files from home. The alternative would be to install a general-purpose server and router at a cost of several thousand dollars for the same capabilities. In addition, those devices need to be custom configured by an experienced administrator.

The primary use of Internet server appliances for IT and E-business organizations is to improve Web-site performance. Incyte, for example, runs a caching appliance from CacheFlow to speed Internet performance by storing frequently accessed Internet destinations. "Appliances have become the No. 1 technology used to increase Web performance," says Greg Howard, a principal analyst at research firm HTRC Group.

Web-site performance presents a number of challenges. There's wide fluctuation in demand, often characterized by extreme peaks and valleys. Then there's the sheer volume of requests and the immense variety of material delivered via the Web. Finally, Web technology is still too new for many people to have mastered it.

Enter Internet server appliances intended to boost Web performance. These include a variety of caching and reverse-caching appliances, load balancing appliances, controllers, traffic managers, and more. There are appliances, for example, to handle Secure Sockets Layer (SSL) encryption, off-loading the security function from the Web server. The trick becomes identifying and assembling the right combination of appliances to meet the site's specific performance needs.

For instance, Ameritrade Holding Corp., an online investment trading company in Omaha, Neb., is assembling an array of server appliances to handle firewalls, content caching, and load balancing. The goal is to improve power and speed. "The appliances are tuned to outperform general server-based solutions," CIO James Ditmore says. As single-purpose devices, the appliances also tend to be more reliable and can be clustered for even greater availability, he says. Ameritrade is using a variety of appliances from F5 Networks.



**ON THE NET:** Systems integrator Global Network Services deploys the InterJak 100 for clients with small or remote offices. It provides a low-cost way to get on the Internet, president Botto says.

The installation of the appliances has proven to be as easy as the vendors promised. "You can get the basic functionality up and running fast," says Pat Petersen, Ameritrade's director of network services. It gets a little more complicated, however, when Ameritrade tries to implement the more advanced functions. Still, Petersen says, using appliances is a lot easier than using general-purpose servers, installing various software, and writing scripts to try to make everything work together.

OnHealth Network Co., a medical Web site in Seattle and a subsidiary of WebMD Corp., uses a combination of content-caching appliances from CacheFlow and load-balancing devices from F5 to improve Web-site performance. The CacheFlow appliance handles the site's various media formats, such as JPEG files and GIFs, freeing the Web servers to handle OnHealth's dynamic content. The F5 appliance not only does the usual load balancing but handles SSL encryption as well.

"We might be getting less sheer throughput with F5," says Huzaif Abdul-Sattar, OnHealth's senior network engineer, but the company is getting more intelligent load balancing and is able to shift the SSL processing load off its Web server. For example, the F5 appliance reads the browser header for each user. OnHealth then sets up rules about how to distribute users based on a number of parameters. "This is much more intelligent than basic load balancing on a standard server," he says.

The biggest potential drawback to the use of appliances is the management of a proliferating set of devices. "The number of different boxes could turn into a headache," HTRC Group's Howard says.

"We can manage the appliances through Hewlett-Packard OpenView," Ameritrade's Ditmore says. But the appliances have yet to cause any serious problems. "They don't need as much management as a general-purpose server," he says. "In fact, we find they take less maintenance than a single server doing many things."

As appliances proliferate, companies will have to cope with an array of single-function devices. "Right now, there are a lot of point solutions. Eventually, some functions will get consolidated," Howard says. Two early candidates for consolidation are load balancing and caching. Other functions will follow. But as appliances incorporate more functionality, it's unclear whether they'll be able to sustain the simplicity, ease of use, and reliability that makes them so appealing now. ■

Illustration by Terry Eden  
Photo of Conde by Brian Long  
Photo of Botto by Alan Blaustein

- ▶ [Back to This Week's Issue](#)
- ▶ [Send Us Your Feedback](#)
- ▶ [Top of the Page](#)

**More Resources From InformationWeek.com** <http://www.informationweek.com>:

**This Week's Stories:**

<http://www.informationweek.com/thisweek>

**Check Out Our Events:**

<http://www.informationweek.com/events>

**Workplace & Career:**

<http://www.informationweek.com/career>

**Resource Centers:**

<http://www.informationweek.com/center>

**Financial News:**

<http://www.informationweek.com/financial>

**Research:**

<http://www.informationweekresearch.com>



Copyright ©2001. [CMP Media LLC](#)