



WHITE PAPER

Simplicity Rules: Appliance Popularity Surges

*Right Model for the Times,
as SMB Market Kicks In*

by Graeme Thickins



When you buy a coffee maker at your local discount store, you take it home, plug it in, and you're sipping java a few minutes later. You never have to worry about the thing - it just works. Now there's a growing industry segment that will have you buying appliances of another sort to satisfy a growing list of IT needs. And you won't have to program any Java™ to make them start humming.

Welcome to the world of single-purpose server appliances, not an entirely new concept, but one that has seen impressive growth in the past few years- even in a down economy.

However, it's more than whiz-bang technology and the instant gratification of "plug-and-play" that's driving the trend. The need for companies to do more with less IT staff - read: labor savings - is the big driver.

And that leads to a new, broader mantra, what one industry wag recently called "plug-and-dust" - as in, you want a device that's not only easy to start up, but so hassle-free that all you have to do is dust it off once a year or so. That's what delivers the kind of ROI the boss is looking for these days.

Appliances had their beginnings in storage (more on that later), but have of late come on particularly strong in the IT security and network management areas. "The security appliance market has become a powerhouse," said research firm IDC in a recent report entitled Plug, Play, and Protect: Putting Security Software into Appliances. It said the firewall/VPN segment grew 34 percent between 2000 and 2001 to more than \$1.5 billion, and predicted it will reach \$3.8 billion by 2006. IDC said the newer "network intrusion detection" appliance market has been growing "at nearly twice that rate."

The popularity of these devices is tied directly to a growing "thirst" for them among companies, claims IDC. They've reached a "high level of adoption within a relatively short amount of time on the market." In a survey on the implementation of firewall appliances, the firm found that more than 80 percent of large enterprises had already done so. About 70 percent of mid-sized businesses (MBs) and 65 percent of small businesses (SBs) had as well. But plans to implement were higher among the SMBs than the large firms: more than 20 percent of the mid-sized firms (100-999 employees) and more than 15 percent for small firms (10-99 employees) surveyed. One might conclude that the firewall appliance market is becoming saturated. Not so, says IDC - companies will be looking for more advanced devices and those that perform multiple functions. And lower prices will also bring in more customers, especially smaller firms.

A Better Business Model

One industry observer points to real business advantages that independent software vendors (ISVs) are realizing by adopting the appliance model. "The generally accepted practice of delivering software designed for open platforms to be installed by the customer may be up for review," said Bill Gurley, a venture capitalist with Benchmark Capital, Menlo Park, California. "The customer increasingly prefers closed-end hardware to open-platform software." Gurley made the comments in a column he wrote recently for CNet entitled Software In a Box. Among other things, he compared two public companies, pointing out how NetScreen, a firewall appliance company, has grabbed market share from leader Checkpoint, which has a software-only model. And Wall Street seems to understand, rewarding the former with an attractive valuation.

He spoke of the downside of the traditional build-your-own-system approach. "One huge negative result of open-platform software is that IT departments have been burdened with the tasks of installing, provisioning, tuning, and troubleshooting software. More freedom leads to more ways to screw up the process," he said. "Software delivered in a closed box is inherently simpler and easier to provision."

It Began in the '90s - with Storage

What is an appliance (or, as some say, a "server-appliance")? It's simply a combination of hardware, software, and networking technologies in a single box designed for a specific purpose. The phenomenon is being driven of late by the standardization and increased availability of such hardware components as generic Intel-based 1U servers, says Gurley.

An appliance simply plugs into the network to perform a specific task, replacing what came before: a software implementation - including all the time, effort, and pain that process could involve. And that latter point is what's making appliances an attractive option, to say the least, in today's do-more-with-less IT mentality. With software costs dropping and labor costs rising, the prices of these off-the-shelf solutions look more than reasonable to an increasing number of firms - especially if they calculate what their real total costs were for doing the same thing previously.

The concept of server-appliances had its beginnings in storage in the 1990s. Network Appliance, now the king of the NAS (network attached storage) appliance, was founded in 1992, and is now approaching \$1 billion in sales. NetApp, as the company is often called, is currently having good success at the enterprise level with its NearStore™ R100 appliance for infrequently accessed, or "nearline," storage.

Another prime example from a product standpoint, launched in the late '90s, was Quantum's SnapAppliance™ line of NAS and backup devices (a product line recently spun out as an independent firm).

And, today, the appliance phenomenon shows little sign of letup in the data storage business. To wit, get ready for a whole flock of new, low-cost backup and restore appliances coming onto the scene this year.

One such device will be the RocketVault™ -- which its maker, Intradyn Inc. of Minneapolis, says will let small businesses access their archives faster than most enterprises. (<http://www.intradyn.com>) "Large companies use tape libraries," says founder Gary Doan, "which hardly result in fast restore speeds. While the storage administrator of the enterprise is waiting for his tape to load and restore a file, the accountant at a 10-employee firm using RocketVault can be back manipulating his lost spreadsheet data almost immediately."

Starting at \$1495, the RocketVault archiving appliance provides "automated, off-site vaulting for a total end-to-end archiving package," said Doan. The initial model will have 240 GB of local archive capacity. "Only requiring network and power connections, it's a completely integrated hardware/software/services solution in a 12-pound unit, just slightly smaller than a bread box," he said.

"It solves a huge problem - because most small businesses don't archive properly or at all. Most aren't archiving legally binding e-mail, nor resumes, in accordance with the Equal Employment Opportunity Act," he said.

Disaster recovery and business continuity present other problems for SMBs, Doan points out. "Cost, complexity, and confusion are all part of the picture. Small businesses don't know they have a problem until it's too late."

The RocketVault appliance also addresses another issue," says Intradyn's Doan. "Most small businesses want 100 percent control of their data. They don't want to put it into anyone else's hands, or even give anyone access."

Meanwhile, Back at the Enterprise...

Quantum, a company that knows something about selling to the SMB market, first marketed its SnapAppliance backup device as an inexpensive unit for smaller firms or remote offices - while the new firm it spun out (in which it remains a minority owner) has added offerings that now take it upstream to larger firms as well.

At the enterprise level, appliances for storage applications continue to find acceptance, as security devices certainly have done recently. For example, both IBM and HP recently announced new "virtualization appliances." Big Blue's TotalStorage™ SAN Volume Controller, due to ship in July, is made up of two PC-based Linux appliances. The firm has said an entry-level configuration will be priced under \$75,000. HP, for its part, said it is now shipping another upgrade of its OpenView™ Continuous Access Storage Appliance (CASA), which is for pooling storage and replicating data between arrays. The firm has reportedly sold 500 such units to date - to large storage users, one would assume, since the price tops \$120,000 each.

Monkey See, Monkey Do

But history shows that what first grabs hold in the enterprise market does indeed move down to the SMB level, as the technology is proven and prices begin dropping. That phenomenon is playing out once again as appliances proliferate - in storage, security, and network management in particular. VC Bill Gurley describes the obvious appliance candidates as "functional software, such as firewalls, web servers, security devices, and storage solutions," and that the way users judge such software, "favors a static hardware implementation."

But other factors are involved as well in the growth of the appliance concept. For one, changes in the business climate make it harder now for startups to succeed with a traditional software model, says Gurley. And much has been made about IT complexity being out of control. Anything that helps IT management simplify, amidst the continuing pressure of tight budgets and reduced staffs, gets the attention of the CIO and company brass.

What's also contributing to SMB market adoption of appliance solutions is that prices are getting more reasonable - mainly because the competition is getting fierce. There's no shortage of companies, especially startups, introducing plug-and-play appliance solutions. "More features are trickling down to less expensive devices," says IDC in its report on appliances, "allowing many small and medium-sized companies to buy powerful devices for \$5000 or less." At the same time, the research firm noted, there continues to be a growing market for appliances at \$50,000 or more, mainly purchased by service providers and large enterprises.

The advantages of the appliance model, as put forth by Gurley, IDC, and others, fall into these key areas:

- Simplified software development (single hardware platform)
- Improved performance (software optimized for single platform)
- Better security with a closed system
- Simpler installation and provisioning
- Improved reliability (single point of failure, no finger-pointing)
- Better pricing, higher perceived value

An Appliance to Reduce the Costs of DNS Management

One example of a company with a hot appliance solution in the network-management arena is BlueCat Networks, Richmond Hill, Ontario. (<http://www.bluecatnetworks.com>)

Their Adonis Server™ is a complete, dedicated DNS (domain name server) appliance. The device recently won Network Computing magazine's "Well-Connected Award," announced at this spring's Network+ Interop show. The award was based on real-time testing in Network Computing's labs. "Its superior security and overall usability put it on top," said an article in the publication's April issue.

The problem is this, according to Network Computing: managing DNS is a challenge for most firms, and an expensive one labor-wise. Yet its importance is not to be minimized. "If your DNS goes down, you lose touch with the outside world, customers included," they point out. But "the conventional approach requires someone with high-level administrative skills and understanding of your network's topology. So, highly compensated individuals wind up devoting a large portion of their time to designing, setting up, maintaining, and troubleshooting DNS." The result, they say, "is that DNS often ends up being a large, hidden expense in the IT budget."

Enter BlueCat's Adonis Server, a solution that simplifies creating, setting up, and running a domain name service - eliminating the need for specialized DNS expertise. Whether you're a large or small company, BlueCat says you can have a domain name service configured and up-and-running in a matter of minutes. ("Total setup time was about five minutes after racking," said Network Computing.) The unit is priced at \$9,995.

"DNS is a behind-the-scenes, easily overlooked, but critical element to any secure network infrastructure," said Gabe Bahou, BlueCat's business development manager.

What kinds of buyers are they seeing? "We have customers from all conceivable verticals and sizes - for both our DNS server and our Meridius™ Anti-Spam Mail Relay Server.

They've been successfully implemented in a wide spectrum of industries - ISPs, healthcare, telecom, construction, government, aerospace, military," said Bahou. The formula is quite simple: where there exists a data center, there exists an opportunity and a need to be addressed. Our customers range in size from \$50M organizations to several billion."

A key advantage for BlueCat customers is ease of use: "Our products are intelligent and provide the administrator with intuitive GUIs that don't require a steep learning curve," said Bahou. "The fact that this is all wrapped around a highly secure, single-task appliance only elevates its security/performance characteristics to new levels, while allowing for a single point of failure."

What kind of training or startup is required? "Our products do not require high-salary people with several certifications under their belts to properly administer them," says BlueCat's Gabe Bahou. "They can be set up in a matter of minutes right out of the box and include a quick-start guide with simple instructions. The UI is flexible, forgiving, and provides for excellent auditing capabilities." He notes that the product comes with an electronic manual, and that the firm can also provide all necessary assistance via a live technical representative, who goes through setup with the customer in a real-time, online session.

Secret Sauce

BlueCat's in-house developers use the latest Java tools to create "management console applications," or GUIs. "These are extremely powerful tools that are the key to both of our appliance products. The GUI interface is the real secret to our success," said Bahou. "This management console eliminates many, if not all, potential human configuration errors."

BlueCat tests its GUIs both in-house and with key customers who participate in their beta programs. "This process allows us to test our latest software in live networking environments, while at the same time receiving critical customer feedback to further develop features that are critical to our customers," Bahou noted.

The firm combines the expertise of experienced software developers with the skills of graphic artists to design "some of the best-looking and most efficient appliance management software in the market," says Bahou. "Since a network appliance is a dedicated device that is designed to perform a single task very efficiently, a good graphical management tool is essential in making the product successful."

The Onus Shifts

"Over time, we've found that the ability to secure our own hardware and provide the end user with an all-in-one, 'cookie-cutter' solution, which can be set up and deployed securely in a matter of minutes, is what our clients want," says BlueCat's Bahou.

"We also maintain all patch/client/kernel updates, security vulnerabilities, and so forth," he said. "One would be shocked to realize how many poor architectures and vulnerabilities exist in most highly respected Fortune 100 and government organizations. This level of inconsistency should be unacceptable to most first-class organizations."

He continues with a key point: "The appliance model places the onus on us, the maker of the product, to ensure any exposed vulnerabilities fall squarely on our shoulders - not our clients'. Appliances also effectively distribute tasks and provide sys-admins with a single point of failure when isolating issues." No more dreaded finger-pointing and multiple support-line nightmares. If something goes wrong, the appliance maker ships you a new one.

And what of the future according to BlueCat? "The appliance model will continue to thrive - we expect a steady adoption rate for many years to come," says Bahou. "The only changes we foresee over the next few years would be the adoption of smaller form factors, reduction of moving parts, and more wireless/remote requirements."

He added: "(in the dot-com era) we used to have the luxury of having one person handle a single task, the new millennium has proven much more challenging. Those same individuals now balance several responsibilities, and these challenges can only be solved by reducing the load/task for each administrator - as well as by providing some very good auditing and error-detection capabilities."

An Appliance for Monitoring Network Usage and Performance

Another established player in the appliance business is Network Intelligence Corp. of Walpole, Massachusetts. (<http://www.network-intelligence.com>) It's the leading provider of network event management solutions that alert and report on all log messages relating to security and performance on the business network. And the company recently introduced its third appliance offering: the Network Intelligence Engine™ EX Series, designed for the SMB market.

An "event" is a logged record of any activity that occurs within an organization's IT network. Network and security events are produced once and, if not properly captured, are lost forever. For example, if a network administrator receives an alert on dramatic boosts in failed login attempts, that could indicate a breach is underway, says the company. "The key to effective network event management lies in the ability to

capture and manage all those events in real time," says Matt Stevens, VP for marketing and technology, "so that the organization has the ability to conduct threat analysis as it occurs, or reference these threats historically."

Few predicted the importance of device log messages, says Stevens. "Network Intelligence had the vision that the ability to interpret log data would become a critical requirement of effective network security and network performance. The explosion of network devices and events has transformed the analysis of log data into an often mandated requirement."

Network Intelligence's appliance solutions collect event log data from security and network devices to (1) create a complete picture of network usage, (2) verify security policy compliance, (3) generate alerts for possible security breaches, and (4) analyze and report on network performance.

Those 'Event' Numbers Add Up

The key differentiator for Network Intelligence, says Stevens, is that it offers the only solution on the market that can collect all of the logged events from a network's firewalls, IDSs, VPNs, hosts, and routers. "Some vendors claim they collect 'millions' of security event messages per day. In reality, that means only 200-300 events per second," he notes. "But even a relatively small corporate network might generate thousands of events per second, or billions of events per day. Our logging appliances start at 500 events per second and can scale to capture tens of thousands of events per second," he says.

The company's new EX Series appliance for the SMB market offers sustained data collection rates from 500 to 1,000 events per second, from up to 32 source devices. The EX appliance is also upgradeable to the firm's enterprise model, the HA series.

Who's been buying the company's appliances prior to its recent expansion into the SMB market? "Early adopters in the '90s were government agencies and financial institutions," says Stevens. "But with increasing concerns about security, we've seen a horizontal demand for our products across all Fortune 1000 organizations. The need for secure networks is no longer just a backroom IT thing. CIOs have always understood the benefits of securing and monitoring the e-business network, and they're now able to easily convince the board and their senior management to move forward with a purchasing decision."

The benefits customers are experiencing are these:

- Reduced costs to organization due to loss of employee productivity
- Reduced costs due to poor network performance
- Reduced costs due to network security events

"Prior to our appliances, administrators were literally sifting through thousands of logs trying to pinpoint network security events," said Stevens. "We automated a process that used to take days and weeks to accomplish. So, the value of our appliance is very tangible to the CIOs and network administrators that deploy our technology."

How does a customer learn to install and use a Network Intelligence appliance? "We have online documentation, online classes, 24-hour support, and a professional staff that's available for custom training," Stevens reports. "The beauty of our appliance is that it minimizes application conflicts, so our installation and maintenance is widely recognized as being painless."

Again, the importance of GUI design comes into play, says the company. "We develop and test our GUI in-house, and it is indeed a key part of our product. Yes, our customers want a fast, reliable appliance solution. But, customers being customers, they also want all the bells and whistles they can get from a software-only solution."

Will the appliance product concept continue to be important to Network Intelligence?

"We have a distinct advantage with our appliance solution," said Stevens, "and we expect to maintain our leadership position because of it."

How Far Can Appliances Go?

Does everyone agree that appliances are a universal panacea? One seemingly opposing view came recently from Stewart Alsop, a venture capitalist with New Enterprise Associates in Menlo Park, California. Alsop, a former journalist and publisher, wrote a column for Fortune magazine in April on the topic of virtualization, and referred within it to the coming "death of appliances." He said that the proliferation of the concept is leading to "too many devices that are too hard to track and manage." He claims companies will start to prefer to serve applications "from much larger machines, which can handle multiple programs and be managed centrally." Eventually, he claims, this will allow any application "to run anywhere in the network without regard to which piece of hardware it is being served from." Thus, the notion of virtualization.

Contacted recently for this paper, Alsop had these comments when asked for clarification: "As resources become virtualized in the enterprise network, the need for dedicated appliances is reduced. This doesn't happen overnight, but over the next 5 to 10 years. Eventually, the idea that software is fixed to a particular box will become anachronistic."

Appliance-advocate Bill Gurley had a similar response when previously asked for a reaction to Alsop's comment: "Certainly, (the promise of) 'better' managing applications on open platforms minimizes some of the advantages of the 'software in a box' concept I wrote about in my article. That said, I think the trend will prevail over the next 3-5 years, and the 'autonomic' (virtualization) vision is well beyond that."

It's About What Works Now

In the appliance model, "the hardware is not a proprietary design, but rather a type of packaging," says VC Gurley. "Combine this availability with the proliferation of Ethernet, TCP/IP, and license-free operating systems such as Linux and BSD, and this allows a company whose primary competitive advantage is software to deliver that software in a box -- a hardware box."

In addition, Gurley noted that independent software vendors (ISVs) have another big advantage when they choose the appliance model. "Today's custom manufacturers are more than willing to assemble boxes after the order (à la Dell), and ship them to the customer," he said. "And this virtually eliminates inventory risk."

IDC makes a bold prediction for one sector of the appliance market, saying security devices, "will become the primary means by which security applications are delivered to the customer. Many customers find it easier to deal with a single hardware product than with a software implementation."

So, if you're an end user, think of the current onslaught of appliances this way: it's really still about software and solutions, and always will be. It's just in a different package, one that happens to make your life a lot easier and hassle-free.

How many hours a week could an all-in-one appliance solution save you? How many hours less holding on support lines? Whatever that number, it can only be good.

Spotlight on Network Engines Appliance Server Solutions

Network Engines specializes in the development, manufacture and distribution of server appliances and complementary products for storage, security and network management applications. By offering a combination of application integration services, value-added utilities, a suite of hardware reference platforms and worldwide fulfillment and distribution services, Network Engines helps independent software partners to achieve rapid time-to-market while minimizing customer support and hardware inventory costs.

Network Engines has the infrastructure to customize and brand server appliances for large Fortune 1000 as well as emerging software companies that find an appliance is a customer-driven requirement for their product lines. In addition to providing integration and manufacturing, Network Engines's distribution capability manages inventory, fulfillment and pre and post-sales support, enabling Independent Software Companies (ISVs) to add appliances to their product lines without getting involved— physically or financially— with hardware. ISV business models and revenue margins remain intact despite the broadened hardware solution offering.

Please visit www.networkengines.com for more information or call 781-332-1000.

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