

Software Implementation Revolutionized

Appliances: The Future of Application Packaging and Delivery Is Now

By bundling their products with a compact operating system (OS) and delivering them as a single software image or “appliance,” ISVs can earn more of their clients’ IT dollars by bringing a whole new level of simplicity to their IT environments.

As an ISV, your sales cycle is paramount. As part of the sales cycle, you often compete for key customer wins. Sure, winning deals may come down to price, but if you get the chance to compete head-to-head, you think you’ll win on value. The latest competitive bake-off pits you against your closest rival in both functional lab tests and pricing. But this time, you have an advantage: you built a software appliance.

While your competitor spent a day and a half installing its middleware in the test lab, you created a software appliance image last week. While your competitor installed and patched the operating system, you already had the OS installed and configured with the latest patch levels. While your competitor spent time installing and configuring its application, you already had yours installed and configured. While your competitor was inserting installation media, all you did was insert a USB stick and boot. The rest—the OS and application installation and configuration—was already complete.

As a result of a simple installation, you were able to get your product running faster and spend more time talking with your customer about the solution. By the time you got to the actual bake-off, your product won, but the customer was sold on your solution before testing began because you had the foresight to create a software appliance. You saved installation time and effort, and sent your sales team to the next prospect faster than your competitor. You shortened your sales cycle, and increased your revenue opportunity and your margin, all through a delivery mechanism called software appliances.

It sounds fairly easy, doesn’t it? When you buy a household appliance, such as a toaster or a TV, you have ultimate simplicity and peace of mind. All you need to do is plug it in and it works. There is little to no setup involved. If it breaks, you make one phone call and it’s fixed. What if the enterprise computing environment could be that simple? That’s the concept behind the software appliance—bringing true simplicity and ease of maintenance to enterprise software products.

Independent software vendors (ISVs) can take advantage of this model today to drive new revenue opportunities, lower maintenance costs and eliminate many support headaches that eat away at profit margins. By bundling their products with a compact operating system (OS) and delivering them as a single software image or “appliance,”

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This paper explores the challenges of traditional development and maintenance processes, reveals how ISVs gain tremendous financial returns from moving to the appliance model and illustrates real-world examples where these benefits are being achieved today.

I. Today’s IT Challenges Answered

Deploying and maintaining enterprise software products is time-consuming and complex. The cumbersome process of installing and tuning the operating system, integrating and configuring the software and setting the individual parameters for the

application and OS is incredibly slow, manual and error-prone. This delays time-to-benefit for the end user and introduces many challenges for ISVs looking to maximize revenue.

For example, providing evaluation copies of software is a great way to prove a product's value, yet deploying the software takes time and effort. Many customers want the benefits of evaluating the product with as little time invested as possible. However, installing and configuring an evaluation or demo copy can take a lot of time and work, and can delay the sales cycle and introduce countless opportunities for technical errors to occur. Each of the steps involved with setting parameters or configuring the operating system can cause a problem in demonstrating the value of the solution—potentially putting the sale at risk.

This is even more troublesome in live production environments. Even after the product is up and running, maintenance is no simple task. The countless iteration of application, OS and middleware configurations and associated patches makes it extremely difficult to isolate and pinpoint the root cause of performance problems and ensure applications operate correctly. In fact, up to 50 percent of support issues result from problems introduced during product installation.¹

Many of these problems stem from the fact that today's operating systems are exceedingly complex and monolithic. Because operating systems were built to support just about every possible software function and scenario, they are cumbersome, and often offer too much functionality. Yet in reality, most applications only require a small portion of the OS's capabilities. All the added OS "bulk" simply introduces vulnerabilities and inefficiencies to the computing environment.

For example, computing experts have found that while IT managers expend considerable

time applying OS patches, as little as 20 percent of those patches are actually relevant to the solution they are managing. The rest are just consuming disk space, wasting IT staff time and making maintenance more difficult.

Neither ISVs nor their customers can afford to continue with this inefficient approach to application development and management.

II. The Need for Appliances Is Compelling

To maximize their financial return and eliminate these installation and maintenance challenges, many ISVs are building appliances—versions of their product, packaged with *just enough operating system (JeOS)* required to perform the desired tasks. Preconfigured for specific use cases, these compact, self-contained appliances can be deployed in a matter of minutes, requiring only last mile setup. The appliance is far easier to maintain than a traditional software installation and ensures effective configuration and installation. In addition, the appliances are much easier to manage because support teams no longer have to distribute patches that aren't relevant to the appliance.

What Is an Appliance?

Appliances offer a new way to build and support tailored solutions with ease; they trim down the size of the associated operating system. Leading industry ISVs are already realizing the amazing potential for this novel approach to creating and delivering enterprise solutions in different ways. Here are three options for consideration:

1. **Software appliances** are preconfigured combinations of an application and operating system integrated into a single image and optimized to run on industry-standard hardware. This integrated software application and purpose-built operating system contains everything needed to simply copy the software to a standard



“Appliances are the wave of the future. Appliances allow ISVs to package together a fully configured, optimized software stack, broadening their market opportunity. Customers are looking for simplified ways to deploy their applications, with the guarantee that the application and operating system will work together seamlessly. This market demand is changing the way software is deployed and supported. Moving forward, we expect more operating systems to be bundled by ISVs as part of a software appliance.”

AI Gillen

Program Vice President,
System Software
IDC

¹ Internal Novell research.

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platform and boot. Since most applications don't require much operating system capability to function properly, software appliances offer an unprecedented opportunity to reduce the footprint of the combined installation, as well as the complexity of installation, maintenance and support. This results in lower cost of hardware and software ownership for the customer and reduced installation/maintenance costs for the software vendor.

For example, an e-mail server for a small office would make a good software appliance because it is designed for a single purpose: to manage e-mail and associated data. To build such an appliance, an ISV needs only to include the essential operating system and software components to fulfill the desired set of functions. This results in a compact solution that's far less expensive to build and support. This is also extremely attractive to end users, who gain a plug-and-play solution, free of the hassle they're accustomed to with the installation of traditional applications.

2. Hardware appliances are standalone, purpose-built devices, much like a DVR or an IP router, that contain just enough of an operating system and associated software to perform a desired set of functions. These compact, self-contained devices are truly plug-and-play, and can be deployed in a matter of minutes. For example, enterprise search capabilities can be delivered as hardware appliances. Most organizations have data spread across numerous ERP modules and systems. An ISV could build a hardware appliance specifically for enterprise search. Set up would be simple. Just plug in and boot the appliance, configure the ERP searchable locations, and the solution is ready to go.

3. Virtual appliances are software appliances that are created specifically to run on top of virtualization platforms. Set up

consists of dropping a virtual appliance into the specified hypervisor, booting it and answering a few configuration questions. Preconfigured virtual appliances also use fewer system resources than standard software installations, so it is possible to have more virtual appliances running on one physical machine, better leveraging physical server investments. Since virtual appliances are self-contained application stacks that are also highly portable, they are easier to manage, move and maintain.

For example, ISVs can build and market application servers as virtual appliances to online stores facing large traffic spikes. Often online stores face unexpected demand during holidays, sales or other peak periods and need to scale the application server instantaneously. With virtual appliances, ISVs can quickly add a new copy of the application server appliance, integrate the application server into the load-balancing schema and have the expanded store capacity up and running in no time—without losing a minute of business. With traditional software, this sort of responsiveness is just not possible.

III. The Business Case for Appliances

Appliances are revolutionizing the way the software industry packages and distributes software. Many ISVs, large and small, are already using appliances to deliver their solutions, which help them realize the lower costs associated with this model. And they're doing it many in radically different ways. For some, it is a hot backup solution for nodes in a cluster; for others, it is an easier way to install demos; and for still others, the simplest manner is for installing add-on software around an ERP. This section outlines some of the benefits ISVs have realized from software appliances—but they are just the beginning. What else could you do with appliances?

Improving Revenue Opportunities

Large portions of IT dollars are typically consumed by installation and integration costs. This brings a good deal of revenue to integrators but does little to benefit ISVs. Appliances change the nature of the enterprise software sale by putting a larger portion of revenue in the hands of the ISV. By vastly simplifying product installation processes, ISVs save their customers money on installation, integration and maintenance costs—freeing up funds that can be leveraged to buy more software or provide additional value-added services beyond simple installation.

Moreover, by creating customer demand for lower-cost, smaller footprint solutions, ISVs expand their market reach. These tremendous financial benefits are compelling ISVs to adopt the appliance approach to building and supporting enterprise software. In fact, IDC estimates US\$1.1 billion in revenue will be spent on software and virtual appliances by 2012 worldwide².

Simplifying Maintenance and Improving Performance

Appliances simply perform better than traditional applications. By eliminating unnecessary OS modules, the appliance requires less disk space and thus operates more efficiently. In addition, with a stripped down operating system embedded in the appliance, there are far fewer variables to introduce risk or performance problems. Having a self-contained appliance also eliminates the finger pointing typically involved with a complex IT solution.

Often if something goes wrong, it could take weeks or months to even identify the source of the problem because of the sheer number of different configuration settings, patches or issues affecting the application. With an appliance, all those unknowns are eliminated.

Since the ISV knows exactly what is contained in the appliance, it is easier to identify and resolve any issues.

This ease of maintenance also extends to applying upgrades and patches. Any patches for the software, middleware or OS are applied and tested together and released with the next iteration of the appliance. This prevents any disruption of service to the end user and ensures that any patches or upgrades are fully vetted before being released into the customer's environment. This is also very beneficial for ISVs, who no longer need to manage an endless combination of patch levels.

Delivering Vertical Solutions

Appliances make it extremely easy for ISVs to offer solutions designed for specific vertical markets such as manufacturing, financial services or health care. The ISV simply builds an appliance and packages it with the specific workflows and modules needed for that particular industry and use case. The software vendor completes all of the tuning and configuration once. The ISV tests the self-contained appliance to ensure the components work together correctly and goes to market with a solution that will deliver out-of-the-box capabilities built specifically for that customer and industry. This provides unprecedented opportunities for delivering truly vertical offerings free of extraneous components.

This approach can also be used to deliver large-scale brand name solutions such as ERP applications for small-to-medium-sized businesses that normally could not afford to invest in such behemoth applications. ISVs can offer tailored versions of these products with canned workflows that include all the functionality that a company needs and nothing it doesn't. This gives ISVs the opportunity

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² IDC, "Worldwide Software Appliance 2008–2012 Forecast: A Workload Analysis," Doc #213783, August 2008.

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to deliver cost-effective versions of high-end solutions—opening up lucrative new market opportunities traditionally out of reach for large enterprise ISVs.

Greater Agility

Compact operating systems can be easily moved from testing into production or from one virtual environment to another. Because all components are tested and optimized to run together, they can be moved from one server to the next without introducing risk or performance problems. In the virtualized world, this is often realized through cloud computing, but it doesn't have to be limited to this application.

Enhanced Security

By eliminating unnecessary OS components, appliances significantly reduce the attack vectors available to hackers. This approach also goes a long way toward eliminating the possibility of unauthorized access to sensitive information. Because appliances give users only what they need and nothing they don't, they prevent unauthorized users from even having an opportunity to view or compromise sensitive data.

A Host of End-user Benefits

The appliance approach has the potential to revolutionize the application delivery process, and ISVs are already starting to realize its benefit to their business. Once end users experience the advantages of software, hardware or virtual appliances, it would be unthinkable to return to the traditional, messy application model. While not everything can be turned into an appliance, appliances offer end users a wealth of benefits, including faster time-to-value, better performance, ease of installation, maintenance and updates.

IV. A Real-world Use Case

An ISV recently built an appliance for the small and medium business market. They

pre-configured the software appliance to contain all the workflows and OS components that the customer required. When booted, the server automatically determined the network connection, brought up the necessary firewall, added a DHCP server and walked end users through a wizard where they simply entered their domain names and the desired e-mail addresses for their staff. The end users proclaimed the process was easier than setting up a new printer. The ISV was equally pleased, having created a prepackaged, secure e-mail server that it can now market to hundreds of other medical facilities in the region. To read real customer quotes for this device, please visit: www-03.ibm.com/press/us/en/pressrelease/27655.wss

The case for building appliances to speed installation, eliminate helpdesk headaches and shorten the sales cycle is compelling. With appliances, ISVs now have unprecedented opportunities to deliver simplified, highly portable solutions free of the maintenance headaches that have plagued enterprise IT solutions. Particularly in tough economic times, these solutions are appealing to end users looking to stretch their IT budget while still delivering on the business need. ISVs building appliances gain a tremendous competitive advantage by offering highly reliable solutions, purpose-built for the end user's own needs, without all the baggage that usually comes with a new IT product. By eliminating the risks associated with bulky OS installations, ISVs can now deliver more secure, better performing solutions than ever before possible, increasing revenue and margin through a simple packaging method called software appliances.

Next Steps

For ISVs, the time is now. Contact SUSEApplianceProgam@novell.com or visit www.novell.com/appliances to learn how you can get started building your own appliances.

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Solutions Provider, or call
Novell at:

1 800 714 3400 U.S./Canada
1 801 861 1349 Worldwide
1 801 861 8473 Facsimile

Novell, Inc.
404 Wyman Street
Waltham, MA 02451 USA