Customer Perspective: Why Use Software Appliances?

rPath®

Introduction

You're an executive at a growing company that needs business automation, but has limited IT resources. When you mention needing a new business application, you inevitably get reasons why it can't be integrated, supported or maintained in your existing infrastructure. You always hear how implementing new software is too hard, too complicated and too time-consuming. Wouldn't it be nice to hear how quick and easy it is?

If you're tired of getting the runaround from your IT staff, then it's time to talk with your IT director and your software vendors about software appliances. Your first question may be "what is a software appliance?" followed by "how does this make business sense for our organization?" This paper provides the answers that every executive needs about software appliances.

The definition of a software appliance begins with an application delivered by a software vendor. This application likely relies on other third-party components — such as a database, an operating system, an application server, etc. All of these third-party components must be installed properly and interact correctly for the application to run effectively. And, it is your IT staff that must assemble all of these pieces into a functioning system.

By contrast, a software appliance is a self-contained package that includes the application, any third-party components and just enough operating system (JeOS) for it to run properly. An appliance-building tool, such as rPath's rBuilder®, bundles all these elements together into a system that installs easily onto hardware or fits neatly into a virtual machine container. A software appliance can be installed on any piece of commodity hardware and run flawlessly because it has no need for an underlying operating system or related third-party components.

Now that you know what a software appliance is, the rest of this discussion will focus on your second question — how does a software appliance make business sense for your organization?

Why Use Software Appliances?

Cut Out the Operating System

One of the biggest contributors to software complexity is the monolithic operating system. The major operating system players are notorious for the size and bulk of their operating systems — they are bloated because they contain every possible feature and function.

Most applications don't need that much operating system to function properly, but you are forced to run them in the bloated environment. The complexity of these operating systems means that a small change in one area can wreak havoc with other areas, even business applications running on the operating system, causing downtime and frustration. Tracking and troubleshooting these operating system interactions is a huge time sink for your IT staff.

Software appliances employ a concept called "just enough operating system" or JeOS (pronounced "juice"). According to Wikipedia, JeOS is not

an operating system in itself, rather it refers to a slimmed down version of an operating system to precisely fit the needs of a particular application.

In the context of a software appliance, JeOS includes only the pieces of operating system required to run the application and any other third-party components contained in the appliance. This finely-tuned operating system makes the appliance more efficient, more secure and higher performing than an application running under a bloated, general purpose operating system.

Simplify Maintenance

With so many components in today's software applications, conflicts among them are inevitable. Vendors can try to keep pace with one another, but each vendor has its own release schedule, so the myriad of combinations of versions is impossible to manage. Your IT department probably can't keep track of the multiple component versions either, and instead may proscribe a narrow set of system requirements for what they will support. That limits your choices for new business applications.

Software appliances make it possible to insulate the application from the surrounding system. Since all the components in a software appliance are packaged together, they are already tested and proven to work harmoniously. The software appliance vendor takes responsibility for managing the complex interactions — freeing your IT staff from this hassle.

Software-as-a-Service (SaaS) offers a similar benefit, but with all the system software housed offsite by the vendor. The downside is that the multi-tenant architecture of SaaS forces you to receive updates at the same time as other customers. You may have integrations or customizations that are affected by your SaaS vendor's periodic updates to the application. And there's no going back, because the entire multi-tenant structure has to accept the changes at the same time. The only option is to patch over the problem, making future updates even more untenable.

The software appliance update process is handled between a secured server at your vendor's site and your software appliance. You can configure how and when you want your appliance to accept updates. If something doesn't work, you can easily roll-back to a previous version of the appliance, with no harm done. You're not bound by someone else's schedule, nor are you affected by the influence of larger and more vocal customers on your vendor.

Maximize Limited IT Resources

You've heard again and again how your IT staff is stretched to the breaking point. A software appliance is ideal for overworked IT departments because it relieves them of the complex management activities associated with running applications. If IT staff are freed from application or operating system troubleshooting, they'll have more time for other user support or strategic issues. In particular, software appliances provide:

- **Simple installation and configuration** — Because software appliances contain only the components they need, they tend to be smaller and more compact than typical applications. It takes only a short time to install the system image onto your chosen hardware or in a virtual machine and to do initial configurations. All appliance

configurations, such as network settings and passwords, can be accomplished through a web-based interface.

- **Higher software reliability** — The components in a software appliance are all specifically tested together. This eliminates any guesswork on the part of the vendor about whether one component should work with a particular version of another component. You get known, good interactions. This dramatically increases the reliability of the software appliance and reduces the burden on IT caused by component conflicts.
- **Reduced need for support** — Simple management and higher reliability all contribute to a reduced need for support from the vendor. While this might sound more like a benefit for the vendor, it is also a time-saver for you. Because all the pieces work, your IT staff won't need to spend hours on the phone with the vendor to troubleshoot issues.

Get the Most from Virtualization

You've probably been hearing about virtualization technology, and how virtualized servers increase server efficiency. Software appliances can be created specifically as virtual appliances, making it easy to deploy applications on virtual servers. Many more applications can run simultaneously on virtualized servers, and virtual appliances ensure they remain isolated from one another. Virtual appliances are also highly portable, and can be quickly moved to another server. This is useful for disaster recovery scenarios.

Reduce Patching and Increase Security

Because a software appliance is created with the minimal set of components and operating system files, it is smaller and more compact than a typical application. This feature limits its security vulnerabilities considerably compared to an application running on a general purpose operating system. The small image footprint reduces the surface area that is open to attack by malicious entities. Additionally, the restricted functionality of the software appliance operating system means that many security vulnerabilities do not affect the software appliance like they do a general purpose operating system. Both of these factors reduce the frequency of applying security and update patches to a fraction of what it would be with a bloated operating system.

A real world example of this benefit is illustrated by an appliance built using rPath's rBuilder and the rPath Appliance Platform. During a one year period, 62% of the published updates to the rPath Appliance Platform did not apply to the subject appliance because the JeOS required for the appliance did not include those components. A further 34% of the published updates did not apply to the subject appliance because even though the component was included, the restricted functions of the software appliance nullified the need for the update. This left only 4% of the published updates that really needed to be applied to the software appliance.

Keep Sensitive Data Safe

A software appliance allows you to keep applications with sensitive data on-site. Unlike SaaS which requires that the application and all your data reside at the vendor's hosting center, a software appliance runs safely behind your firewall. With a software appliance, you gain the peace of mind of knowing that you are in control of your data.

Audit and Compliance

For issues as important as regulation compliance and auditing, you need to be sure that the software you are using is exactly as it should be. rPath's line of products enables you to track and record the provenance and integrity of each version of every software component contained in the appliance. This means that you can be sure of the source of all applications and components that your business is using, giving you additional peace of mind in the event of an audit.

What Next?

Software appliances have become a widely accepted software distribution method. In fact, analyst firm IDC predicts that software appliances will become a "household word" in 2007.1 With the growing adoption of server virtualization, software appliances have achieved recognition as a practical and easy way to package applications for use in a virtual environment.

If you haven't already considered using software appliances to reduce complexity in your IT environment, you could be missing an important business opportunity. Don't wait any longer. Contact your software vendors today to request that they provide their applications as software appliances.

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For software companies that want to accelerate license growth, expand into new markets, and reduce support and development costs, rPath's rBuilder transforms applications into virtual appliances. A virtual appliance is an application combined with just enough operating system (JeOS) for it to run optimally in any virtualized environment. Virtual appliances eliminate the hassles of installing, configuring and maintaining complex application environments. Only rPath's technology produces appliances in multiple virtual machine formats, simplifies application distribution, and lowers the customer service costs of maintenance and management. The company is headquartered in Raleigh, North Carolina.