

# Software Appliances: Delivering Application Benefits without OS Hassles

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## What is a Software Appliance?

*A software appliance combines a software application and a streamlined version of system software (OS, file system, application server, etc.) that readily installs on industry standard hardware.*

—Wikipedia



## Executive Summary

A software appliance combines an independent software vendor's (ISV) application with a streamlined Linux operating system and middleware components, all packaged as an integrated unit.

Software appliances offer a better way to sell to customers that require solutions that are easy to install and easy to maintain. Specifically, software appliances appeal to small and medium-sized businesses that lack extensive technical resources and seek simpler software solutions. Additionally, software appliances are easier for the ISV to offer through multiple channels because the integrated nature of a software appliance means that it provides a complete solution without complex integration. Finally, ISVs gain control over the entire software stack, from the operating system to the application, meaning they control the features, release schedule, and update schedule for all elements in the software stack. Overall, a software appliance gives the ISV the benefits of traditional Software as a Service (SaaS), but in a format that is easier to build and maintain.

For end customers, the integrated software appliance requires no complex integration of software components and no additional operating system or middleware expense—everything is built into the software appliance. Support and management costs are lower because the end customer has a single source for all issues and updates. In short, end customers get the simplicity of Software as a Service but with local control and data security that comes from deploying applications inside their firewall.

## Advantages for Software Appliance Vendors

- *Expand into new markets*
- *Enable subscription-based revenue*
- *Open new distribution channels*
- *Reduce development and QA costs*
- *Improve support and customer satisfaction*
- *Retain customers*

## Customer Benefits of Software Appliances

- *Easy to deploy*
- *Easy to maintain*
- *Single point of contact for support*
- *Improved security*

## The Software Appliance

The software appliance is an emerging way to offer software applications. The concept is being championed by firms like rPath™, a Raleigh, N.C. company that is staffed by several Red Hat veterans. rPath has created technology that allows ISVs to easily create software appliances from existing applications.

Delivering an application as a hardware appliance has already received broad adoption in the technology industry. In the network security sector, hardware appliances deliver firewalls, virtual private networks (VPNs), anti-spam software, anti-virus software and more. Outside of security, the Internet search giant Google delivers enterprise search capabilities on-site through a search appliance.

rPath extends the appliance concept by allowing ISVs to offer the same benefits, but in a software-only format. rPath's rBuilder™ product combines an application with a streamlined version of the rPath Linux operating system to create a software appliance that can run on industry-standard hardware and in most virtual machine environments. Only the operating system components necessary to run the specific application are included, reducing the maintenance and support effort required. If needed, any middleware such as databases, application servers, etc., are installed and pre-configured.

The end customer deploys the software appliance on appropriate hardware on their own premises. Alternately, the customer can deploy the software appliance inside a virtual machine, allowing the software appliance to run on almost any platform.

## Advantages for Software Appliance Providers

For ISVs, the software appliance provides a number of benefits that can both increase their revenue potential and decrease their expenses.

**Reach new customers:** ISVs can expand into new markets, notably the small and medium business sector that, because they do not have the necessary IT resources, cannot adopt software solutions that require complex installation, configuration, and maintenance.

## Enable a subscription-based revenue model:

rPath delivers support and maintenance for the operating system components to the ISV, not the end customer. This approach allows the ISV to own the complete relationship with the end customer. Providing all maintenance, service, and support earns the ISV the right to charge on a subscription or recurring revenue basis. ISVs like the predictability of annuity revenue and many customers already welcome the subscription model because it lowers their up-front expense.

## Expand distribution channels:

With a software appliance, channel partners simply load the software appliance on their preferred hardware and deliver a turnkey solution to their customers. Minimal technical

training on integration and maintenance is required to enable the channel.

**Reduce development and QA costs:** Over time, the need to build for multiple operating systems is reduced as customers demand the simplicity of the software appliance format. The integrated nature of the software appliance and the ability to run inside a virtual machine mean ISVs can cover a wide spectrum of customers without needing to develop for multiple operating systems.

## Trim support costs and increase customer satisfaction:

The streamlined and controlled environment of the software appliance means fewer conflicts in the software stack and fewer elements to maintain. ISVs have reported that up to 40% of their support calls are due to mis-configured operating system installs. By shipping a software appliance, ISVs can avoid this impact on support and the negative customer experience.

**Increase customer renewals:** The ISV can update the software appliance, not only with routine fixes, but with innovative new features on a regular basis. This continuous delivery of innovation ensures that customers renew their subscriptions instead of waiting for the next major product release.

**“Breaking down the OS and packaging it with applications will have conceptual appeal to ISVs and end users.”**

—The 451 Group, industry analysts

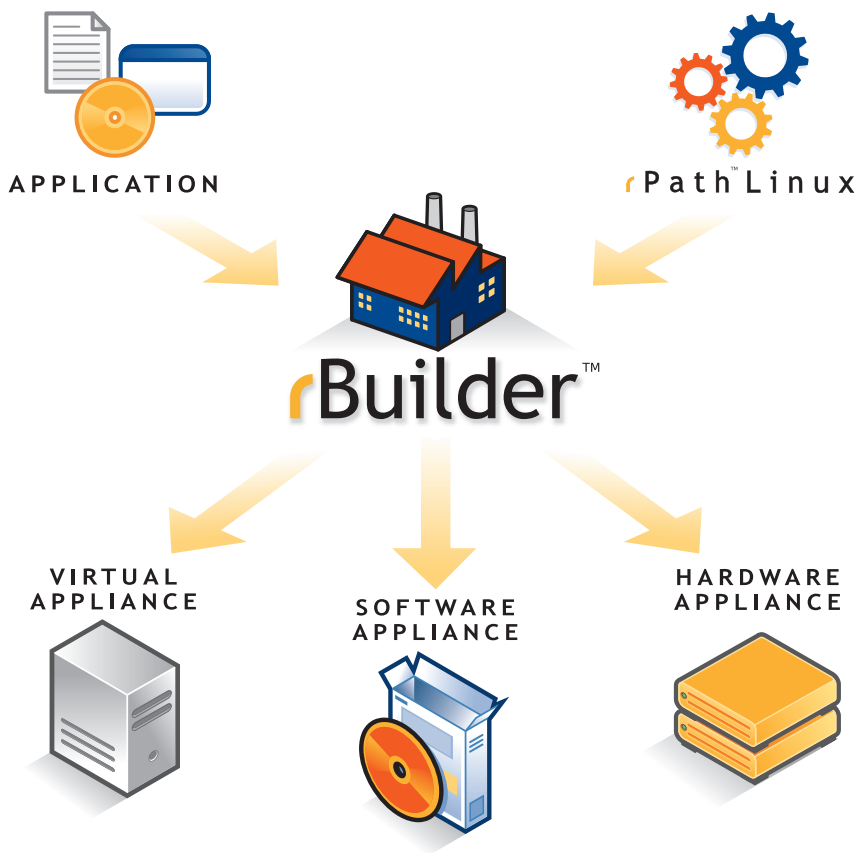


Figure 1: Creating a software appliance with rBuilder

## Benefits to End Customers

With the software appliance, end customers walk away from many of the headaches of traditional licensed software.

### Simplified deployment:

Installing a software appliance is easy. The process deploys and configures the operating system, middleware, and the application in a single step. Once installed, the application needs only to be configured to the end customer's specific business requirements.

### Easy maintenance:

The ISV delivers updates to all of the software on the software appliance. These updates, whether simple bug fixes or innovative new features, come pre-integrated and tested by the ISV. The customer no longer has to handle conflicts among versions of installed software or synchronize update schedules among software vendors.

**Better customer experience:** The integrated nature of the software appliance prevents most support issues, but should a problem arise, the customer utilizes the ISV as a single point of contact for all issues. The frustration of managing multiple support contracts or coordinating support tickets among various software vendors is eliminated. Customers spend more time using the applications and less time managing and supporting the software.

*“The future of our industry for years to come is appliances. Our ability to deliver software appliances will differentiate us and create competitive advantage.”*

— Dave Dargo  
CTO and SVP of Strategy, Ingres

**Security comfort:** The software appliance places the application in the customer's environment, inside its security perimeter. That addresses a key obstacle for end customers that want the simplicity of SaaS but do not want key applications and critical corporate data outside their firewall. Additionally, because the software appliance is shipped with only the components necessary to run the ISV application, the surface area for security exploits is reduced.

## Creating a Software Appliance

Figure 1 illustrates the process of creating software appliances using rPath's rBuilder application. rBuilder combines the application and any required middleware with the minimal set of components from the rPath Linux operating system. All configuration of the operating system or middleware is done by the ISV at this point. The result is an appliance image that may be distributed as software, in a virtual machine format, or installed directly to hardware.

The customer supplies an industry-standard system to host the software appliance. Alternately, the ISV may offer a hardware appliance by contracting with third-party hardware providers or channel partners to pre-install the appliance image. The virtual appliance requires no installation at all—it comes installed, configured and ready to run.

## Conclusion

rPath's software appliance technology allows ISVs to increase their revenues by expanding their market reach through new distribution channels. At the same time, the ISV can redeploy resources from developing, testing, and supporting multiple operating systems ports to focus on improving their application, delivering greater business value to their customers. These benefits mirror the benefits that come from providing an application in a traditional Software as a Service manner, but without the requirement of re-architecting the application or building out extensive hosting resources.

Likewise, end customers get the simplicity of Software as a Service while keeping proprietary data securely behind their firewall. Because the application and operating system are integrated as a software appliance, end customers avoid all the hassles associated with conflicting software requirements and mis-configurations that lead to maintenance and support headaches.

**“End users receive built-to-order images that install the operating system and applications in one fell swoop.”**

— Mark Hinkle  
*LinuxWorld magazine*

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The FactPoint Group ([www.factpoint.com](http://www.factpoint.com)) is a Silicon Valley-based research, publishing and consulting firm specializing in the early adoption of new technologies. The FactPoint Group has been producing world class research, analysis, and consulting since 1993 and continues to help its clients sell and use new technology solutions. FactPoint participates in the Software as a Service Executive Council of the Software and Information Industry Association (SIIA). It helped produce a white paper on ISV Transformation to SaaS, identifying issues licensed ISVs must address as they consider SaaS.

## rPath

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rPath provides rBuilder and rPath Linux, the first platform for transforming applications into appliances. Appliances reduce development and support costs by giving application developers control over the deployment and update of the complete software stack, from the OS to the application. This simplifies installation, configuration, and maintenance for customers, expanding the market for your software. The company is headquartered in Raleigh, North Carolina. For more information, visit: <http://www.rpath.com>.

