Sponsored by: **Red Hat**

Authors:
Maureen Fleming
Matthew Marden

July 2015

The Business Value of Red Hat JBoss Enterprise Application Platform

EXECUTIVE SUMMARY

IDC interviewed four organizations leveraging Red Hat JBoss Enterprise Application Platform (JBoss EAP) to standardize and improve their application development efforts. These Red Hat customers, which praised JBoss EAP for providing a cost-effective solution that enables their standardization efforts, will achieve an average three-year return on investment (ROI) in JBoss EAP of 509% and break even on their investment in an average of 9.4 months by:

- Realizing substantial savings compared with the commercial application development platforms being replaced
- Capturing time savings and efficiencies for their application development teams and improving their productivity levels
- Addressing business opportunities through faster deployment of applications and improved application performance
- Reducing the impact of application downtime with more reliable applications

Business Value Highlights

509%
Average three-year ROI

$108,664
Average discounted three-year business benefits per 100 users

79.5%
Less expensive than legacy commercial platform

43.2%
Application development staff efficiencies

89.3%
Less application development–related downtime

Situation Overview

The use of application platforms is foundational to the deployment of strategic and packaged applications. As enterprises broaden and mature their use of application platforms, they are increasingly focused on standardizing their processes involving development and IT operations. The goal with standardization is to remove waste from the process, which includes wasting time and wasting money.

IDC
Analyze the Future

Another force behind standardization is the increased need for faster change. Speed of change has both a development angle and an operations angle to it. On the development side, there is a need to rapidly fix problems with applications or to add new functionality. And on the operations side, there is a need to deploy the new applications more quickly, to speed up the patching and remediation cycles, and to more quickly scale applications as needed to meet usage demands.

A few years ago, it was common to approach standardization by building an application platform on top of server virtualization, offering a single language and choices for which application server or Web server to use. Standardizing the management of this platform across the virtualized environment was an important element of the process improvement. Cost improvements came from adopting an open source option wherever possible for new application projects and from better operational efficiency by unifying management of the applications. But there were still inefficiencies involved with shifting from development, testing, and deployment across a mix of application server choices. Time to value, to some extent, was a victim of offering choice.

This was a common paradigm we found in discussions with customers of Red Hat JBoss Enterprise Application Platform three years ago. There was uncertainty about whether JBoss EAP would scale as well as more expensive options and whether JBoss EAP was as feature rich, particularly for high-end projects. Those concerns prevented IT operations from going all in on a single software standard. Despite that, customers were pleased with the benefits they were able to achieve from their use of JBoss EAP, and customers were able to achieve an impressive return on investment by adopting this approach.

Today, we've found that JBoss EAP customers are more systematic in their use of JBoss EAP or OpenShift by Red Hat as the standard application server or cloud application platform within a standardized environment. Customers are no longer worried that JBoss EAP is not as sophisticated as more expensive alternatives and now believe it's at performance parity with its competitors.

The need for process improvement is even more acute now than it was three years ago. Then it was enough to begin using JBoss EAP for new projects. In this round of discussions, we've found that customers made the decision to migrate production applications to the new environment in order to gain speed and compliance benefits from standardizing application operations and change management. This is a significant shift from the previous practice of leaving production applications in place and using only JBoss EAP for new projects.

Another change is the focus on the benefits of simplification. Customers have found that JBoss EAP is not only at parity with more expensive products but also simpler to use for

development and in operations. One customer said that because JBoss EAP comes from open source, it is built from a lot of good ideas from the community and the internal design is architected to make it simpler to use than non-community-based alternatives. Simplification also extends to the development of a single set of scripts used to move applications through the development life cycle and through the development of common modules and frameworks that reduce the amount of code that needs to be tested.

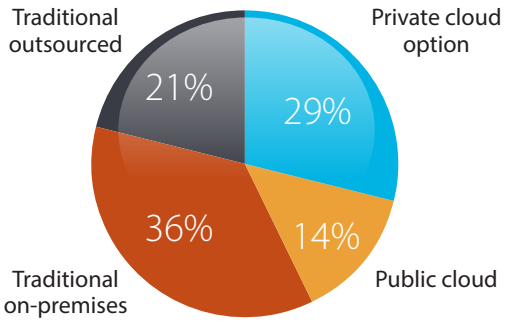
While the benefits of standardization apply to any application platform, customers in both cycles of interviews said the cost benefit associated with JBoss EAP gave them an affordable opportunity to standardize, whereas they would have been too cost challenged using other options.

Beyond standardization, most enterprises are in transition about how they plan to deploy application platforms. That transition involves figuring out when to adopt a cloud architecture at the infrastructure level and when to evolve that to incorporate the cloud platform-as-a-service (PaaS) tier. The focus shifts from building applications to delivering services.

IDC's December 2014 *CloudView* Survey of 19,080 cloud decision makers indicates that only 25% of respondents had no interest in cloud adoption within their enterprise. When we asked how they expect their budgets to shift in two years, respondents indicated that there will be a mix of many deployment models. From that survey, we modeled application platform adoption plans. Figure 1 shows that spending on traditional physical application infrastructure will account for 57% of the total market in 2016, while spending for cloud application infrastructure will account for 43%.

FIGURE 1

Application Platform Deployment Choices in 2016



Source: IDC, 2015

This means that at any given time over the next several years, enterprises will want to determine the best architectural style and deployment model for each application they build and manage, even while standardization continues to be a major objective. Therefore, development and deployment compatibility across the varied options is critical.

Red Hat Offers Options for Delivery of Traditional and Cloud Applications

Red Hat offers a spectrum of application platform choices that align with the different options enterprises will use as they build and manage applications delivered traditionally and on a cloud architecture. Red Hat's core application platform offerings are:

- Red Hat JBoss Enterprise Application Platform
- OpenShift by Red Hat
- Red Hat JBoss Operations Network for application management

Red Hat JBoss Enterprise Application Platform

Red Hat JBoss Enterprise Application Platform is an open source application server environment for highly transactional Java applications using Java Enterprise Edition (Java EE), Spring, and other popular Java frameworks. The platform provides capabilities for building, deploying, and hosting an application in a production environment. Key features of JBoss EAP include:

- **Enterprise-class performance and scalability** are achieved via integrated clustering and high-availability features including failover, caching, intelligent load balancing, and distributed deployment.
- **Second-generation, service-based architecture** based on the JBoss Microcontainer architecture provides class loading, performance, life-cycle management, and flexibility across a wide variety of programming and component models including Java EE, POJOs, OSGi, and Spring. The Microcontainer separates enterprise services from the core application server runtime engine to deliver a configurable and flexible Java application platform.
- **Integrated frameworks** are for building rich Internet applications and integrating all technologies required to build common types of Java applications, from simple Web applications to highly transactional Java EE applications. Stable, enterprise-grade versions of each framework are integrated, certified, and kept up to date as part the JBoss EAP product life cycle so that both development and deployment platforms are operationally in sync.

- **Enhanced application security**, beyond required Java security standards, to meet rigorous industry security requirements such as Common Criteria is one of the key features. JBoss EAP includes features for password masking, instance-based access control, security negotiation, audit, and integration support with common single sign-on solutions.
- **Simplified application management and configuration** via JBoss EAP's administration console is another key feature. Developers and administrators can easily adjust configuration settings, execute controls, and drill into application performance metrics. For enterprisewide management, leverage Red Hat JBoss Operations Network to control, administer, and proactively manage all of your development, testing, and deployment environments.

OpenShift by Red Hat

OpenShift is Red Hat's PaaS that allows developers to quickly develop, host, and scale applications built on a cloud architecture. OpenShift Online is offered as a public cloud PaaS, OpenShift Enterprise is a private PaaS that can be deployed in enterprise datacenters, and OpenShift Origin is the open source project upon which OpenShift Online and OpenShift Enterprise are built. Key features include:

- JBoss EAP for xPaaS, which provides enterprises with a PaaS instance of their Java EE application
- Support of a variety of language runtimes, including Node.js, Ruby, Python, PHP, Perl, and Java
- Cloud management capabilities, including support of elastic scaling, automated provisioning, patching, and remediation
- Additional security, performance, and scalability capabilities that are offered in JBoss EAP

Red Hat JBoss Operations Network

JBoss Operations Network is offered as an add-on to JBoss EAP. We include it as part of a larger offering because we've found in our discussions with Red Hat customers that there is a correlation between high satisfaction, high ROIs, and adoption of JBoss Operations Network as part of a JBoss EAP purchase.

JBoss Operations Network provides built-in management and monitoring capabilities to administer across JBoss EAP application environments. Additional features include:

- Discovery and inventory
- Configuration management
- Application deployment

- Ability to perform and schedule actions on servers, applications, and services
- Availability management
- Performance management
- Provisioning

Study Demographics

IDC conducted interviews with four organizations using JBoss EAP to build, deploy, and host business applications. These Red Hat customers are three large enterprises with 10,000 or more employees and one smaller company with fewer than 100 employees. The average number of employees is 21,761. All of these organizations are serving substantial customer bases with applications developed on JBoss EAP; on average, they have 14 million customers, many of which access portals and other applications deployed with JBoss EAP. Most of the applications these organizations are developing on JBoss EAP are customer facing, with an average of 72.5% being entirely or primarily external facing and 27.5% being at least mostly for internal users (see Table 1).

TABLE 1

Demographics of Interviewed Organizations	
Average number of employees	21,761
Average number of IT staff	2,719
Average number of internal IT users	19,111
Average number of customers/external users	14 million
Average number of business applications	664
Average number of JBoss EAP business applications	85
Average number of JBoss EAP business applications developed per year	24
Average percentage of JBoss EAP business applications developed for external users/customers	72.5%
Industries	Automotive, telecommunications, publishing, application provider

Source: IDC, 2015

Use of Red Hat JBoss Enterprise Application Platform and Standardization

The Red Hat customers interviewed for this study moved to JBoss EAP for several reasons, including cost, support, the advantages of using an open source platform, and performance. Interestingly, all of the organizations interviewed for this study cited their ability to standardize their application development efforts on JBoss EAP as at least a contributing factor to their choice of the Red Hat platform. Two of the larger organizations interviewed for this study praised JBoss EAP as enabling their efforts to standardize by offering a very cost-effective platform that also at least equals the performance of their more costly legacy platforms. One of the organizations interviewed reported that it is standardizing on JBoss EAP from multiple platforms and described its evaluation of JBoss EAP: *"We did a cost-benefit analysis. Many of our applications need a development platform for multiple environments … and if we compare JBoss EAP with other solutions … it's a no-brainer. Night and day."* To a significant degree, the nature and extent of benefits realized by each Red Hat customer interviewed for this study related back to the reasons it chose and is leveraging JBoss EAP. Table 2 provides a brief overview of the use cases for these four organizations and explains the nature of their transition to JBoss EAP.

TABLE 2

Overview of Use Cases for Interviewed Organizations

	Geography	Size	Use Case
Large telecommunications service provider	United States	>40,000	Standardizing application development efforts on JBoss EAP after struggling to achieve cost consistency and effectiveness with other commercial platform solutions
Large publishing company	United States	20,000	Standardizing application development efforts on JBoss EAP based on cost-benefit analysis and faster time to market and developer efficiencies
Sales organization of large automotive company	United States	35,000	Developing greenfield applications with JBoss EAP based on conclusion that performance equaled that of any other platform while offering strong cost efficiencies
Application provider	Australia	<100	Migrated most applications to JBoss EAP based on cost efficiencies and application developer productivity improvements

Source: IDC, 2015

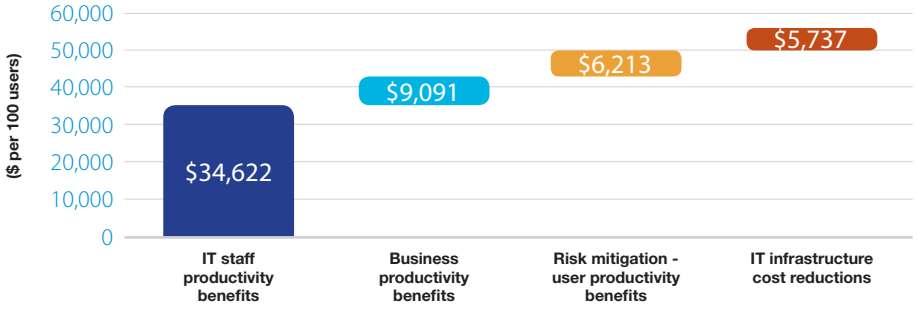
Financial Benefits Analysis

Red Hat customers using JBoss EAP as their platform for developing all or some of their business applications reported that they are benefiting from strong cost efficiencies as well as operational efficiencies stemming from improved developer productivity, more reliable applications, and faster time to market. IDC calculates that on average these organizations will achieve business benefits worth $55,663 per year per 100 users of IT services over three years, or $10.64 million per organization. These benefits fall into four primary categories:

- **IT staff productivity benefits.** Application development efforts are more efficient with JBoss EAP, which means that developers accomplish more and are able to provide applications to users and customers in less time. IDC projects that increased application developer productivity, along with efficiencies in application and datacenter management, will have an average annual value of $34,622 per 100 users over three years, or $6.62 million per organization.
- **Business productivity benefits.** Faster time to market for business applications enables organizations to capture more revenue, and improved application performance leads to higher user productivity. IDC calculates that these benefits will have an average annual value of $9,091 per 100 users over three years, or $1.74 million per organization.
- **Risk mitigation — user productivity benefits.** Improved reliability of business applications developed on JBoss EAP means that less productive time is lost to outages. IDC puts the average value of increased productivity as a result of less downtime at an average of $6,213 per year per 100 users over three years, or $1.19 million per organization.
- **IT infrastructure cost reductions.** JBoss EAP serves as a very cost-effective application development platform, especially for organizations standardizing on JBoss EAP from competing commercial solutions. IDC calculates the value of annual licensing and other cost savings at an average of $5,737 per 100 users over three years, or $1.10 million per organization (see Figure 2).

FIGURE 2

Average Annual Benefits per 100 Users



Source: IDC, 2015

IT Staff Productivity Benefits

All Red Hat customers interviewed reported achieving efficiencies for their application development efforts with JBoss EAP. Organizations reported benefits such as developing more applications, reducing the time to market for applications, and saving time on discrete tasks related to application development. These benefits add up to substantial efficiencies for the application development efforts of the organizations. They are developing 70.0% more applications per year while reducing the time for development per application by 35.5%, which means that they need 43.2% fewer FTEs per application developed (see Table 3).

Red Hat customers provided a number of examples of how JBoss EAP has made their application development efforts more efficient and effective:

- **Saving time on planning and designing applications.** One organization credited JBoss EAP's simplicity with reducing the time its staff must spend planning and designing applications: *"It's probably 10% less effort for our application developers with JBoss EAP than our other platforms because it's simpler than they are."*
- **Ease of changes and updates.** One organization noted that JBoss EAP had made the process of implementing application updates and changes less burdensome: *"We save time with doing updates with JBoss EAP. Altogether, there are hundreds of updates, 100–200 in a year. It now takes about 2–3 hours per change, before, I would say, at least double that."*
- **Faster to market.** One organization said that JBoss EAP has helped it complete development sprints faster because of stack reliability and staff comfort with the platform: *"The stack that we're using is now much more reliable. The staff is a lot more comfortable with the technology, and when things go wrong, they are getting quicker response from our partner Red Hat."*
- **Reduced testing burden.** One customer reported that it does not need to devote as much time to testing because of pre-integration of modules: *"Because our modules are integrated with JBoss EAP, a lot of that stuff is already done for us, so we save a lot of time both in development and integration."*

TABLE 3

Application Development KPIs

	Before JBoss EAP	With JBoss EAP	Difference	Improvement (%)
Number of business applications developed per year	13.9	23.6	9.7	70.0
Time per application developed (weeks)	19.5	12.6	6.9	35.5
Number of FTEs per application developed	5.7	3.2	2.5	43.2

Source: IDC, 2015

In addition, these organizations are achieving efficiencies in post-deployment management of applications developed on JBoss EAP. For example, one Red Hat customer credited JBoss EAP's application management tool with making it easier to manage applications: *"We get a benefit in terms of JBoss EAP for application management because we also brought in an application management tool packaged with it. I think we're saving, compared to the old platform, probably 5–10 people's time."*

Business Productivity Benefits

Red Hat customers described how JBoss EAP delivers value to them by improving the performance of and reducing the time to market for business applications. When better-performing applications are delivered quickly, line-of-business users are able to do their jobs better. Improvements in application delivery result in an operational cost reduction through increased user productivity. On average, such improvements provided these organizations with the equivalent of 470 additional productive hours of employee time per 100 users.

In addition, the organizations reported that they can better address business opportunities through faster deployment of applications and improved application performance. One Red Hat customer described how JBoss EAP has changed its ability to provision resources to support applications: *"To get a server deployed with the scripts now, we need 10–15 minutes. Before, it was all manual, so it took a day because we didn't have the automation we now have."* Another customer praised Red Hat for providing support to better sell services related to applications it develops, enabling it to capture additional revenue. IDC calculates that these organizations will realize an average of $2,001 in additional revenue per year per 100 users over three years, or improved operating margin of $300 per 100 users after applying an assumed 15% operating margin to the revenue gains.

Risk Mitigation — User Productivity Benefits

Red Hat customers using JBoss EAP develop more reliable applications, meaning that they minimize the impact of unplanned downtime on their users and businesses. One Red Hat customer noted that it went from having applications go down several times per month to only several times per year, keeping hundreds of users from losing productive time during each outage.

In addition to limiting the impact of unplanned downtime on business applications, interviewed organizations also reported that they are now better able to plan and take planned outages for updates, patches, and changes without impacting users. One customer explained how JBoss EAP has helped it limit the impact of planned outages on users: *"With our previous platform, we couldn't do live migrations and had to shut the servers down, and we typically impacted at least 100 people. Now, we can do live migrations, so we don't impact anyone."*

On average, these Red Hat customers are reducing the amount of productive time lost per user due to unplanned or planned downtime by 93.9%, going from 3.3 hours per year to only 0.2 hours (see Table 4).

TABLE 4

Risk Mitigation — User Productivity KPIs

	Before JBoss EAP	With JBoss EAP	Difference	Improvement (%)
Unplanned downtime				
Instances per year	8.3	1.0	7.3	88.0
Time to resolve (hours)	3.2	2.8	0.4	11.1
Hours of unplanned downtime per user per year	1.9	0.2	1.7	89.3
Planned downtime				
Instances per year	41.0	41.0	0.0	0.0
Time to resolve (hours)	2.3	1.1	1.2	51.8
Hours of planned downtime per user per year	1.4	0.0	1.4	100.0
Total user productivity impact — hours per year per user	**3.3**	**0.2**	**3.1**	**93.9**

Source: IDC, 2015

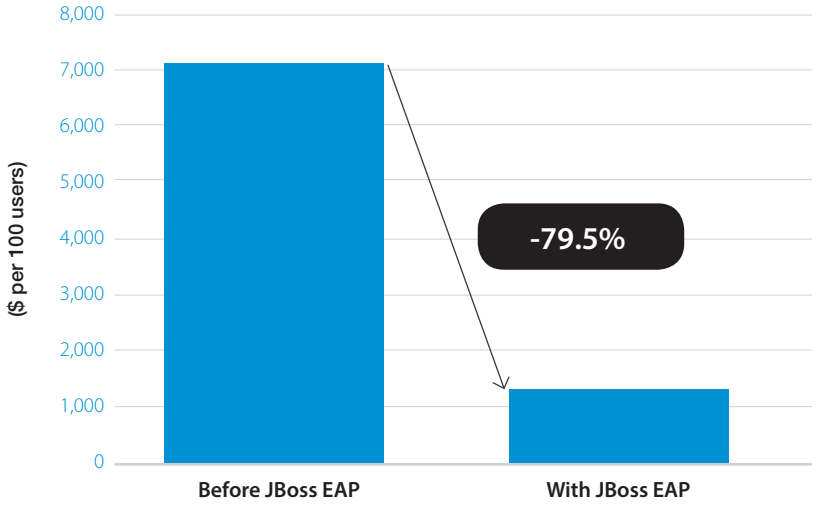
IT Infrastructure Cost Reductions

Red Hat customers cited JBoss EAP's cost as a major benefit and factor in choosing the solution, especially for organizations standardizing on JBoss EAP in a move from other commercial solutions. One organization standardizing on JBoss EAP explained the significant cost savings it is realizing: *"We've struggled with vendors giving us an all-you-can-eat contract and then coming in and charging us for support. So we wouldn't be paying for it, and then we'd have to pay 20% of the purchase price. We figured that we could save millions by going to Red Hat on an ongoing year-to-year basis."* Another Red Hat customer, which also cited substantial cost savings from moving from another commercial solution to JBoss EAP, praised Red Hat for its support: *"We have an ongoing dialogue and communication with Red Hat and are embedded in their development process … [so we] feel like a real partner."*

IDC calculates that on average, the interviewed Red Hat customers using JBoss EAP are paying 79.5% less per year than for their previous platform solution, driven by substantial savings being realized by the customers standardizing on JBoss EAP from other commercial platforms (see Figure 3).

FIGURE 3

Average Cost per Year of Application Development Platform per 100 Users



Source: IDC, 2015

ROI Analysis

IDC uses a discounted cash flow methodology to calculate the ROI and payback period. ROI is the ratio of the net present value (NPV) and discounted investment. Payback period is the point at which cumulative benefits equal the initial investment.

IDC calculates that the Red Hat customers interviewed for this study will achieve total discounted business benefits worth $108,664 per 100 users over three years as a result of increased developer productivity, reduced platform costs, and other efficiencies ($20.77 million per organization). This compares with investment costs of an average of $17,851 per 100 users ($3.41 million per organization) over three years related to ongoing Red Hat licensing, staff support, and time needed to deploy and standardize on JBoss EAP. Based on these calculations, IDC projects that these Red Hat customers will achieve an average ROI of 509% and break even on their investment in JBoss EAP in 9.4 months (see Table 5).

TABLE 5

Three-Year ROI Analysis

	Average per Organization	Average per 100 Users
Benefit (discounted)	$20.77 million	$108,664
Investment (discounted)	$3.41 million	$17,851
Net present value (NPV)	$17.36 million	$90,813
Return on investment (ROI)	509%	509%
Payback period	9.4 months	9.4 months
Discount rate	12%	12%

Source: IDC, 2015

Customer Use Case Study: CingleVue Leveraging OpenShift by Red Hat for Business Agility and Efficiencies

CingleVue International, an IT company headquartered in Australia, focuses on providing specialized services and innovative solutions to organizations in the education, health, and resources sectors. One of its core business activities is developing software, including enterprise resource planning applications, which enables its customers to achieve their business objectives.

In recent years, CingleVue has transitioned most of its application development activities to Red Hat JBoss Middleware, including JBoss EAP. CingleVue is a Red Hat OEM partner and became the first Australian member of the Red Hat Embedded Program in 2012.

Greg Tolefe, CEO and founder of CingleVue, credited JBoss EAP with providing his company a cost-effective and efficient platform for its application development efforts. He estimated that his application development team is 15% more productive with JBoss EAP. *"When we test applications, we also have to test application integration. Because our modules are integrated with JBoss EAP, a lot of that stuff is already done for us, so we save a lot of time both in development and integration."* According to Tolefe, CingleVue's customers have responded positively to applications developed on JBoss EAP: *"Our customers have definitely noticed. They have commented that their systems are more stable, and our user satisfaction has increased."*

CingleVue is also moving to a cloud-based delivery model for certain new products supported by OpenShift Online. Tolefe credited this platform-as-a-service solution with increasing CingleVue's agility and scalability to meet evolving business demands: *"OpenShift*

allows us to bring on virtual machines on demand, so from a deployment perspective, we can have a customer up and running within a couple of hours." Tolefe also described how JBoss EAP with OpenShift Online has helped his company take a more proactive approach and operate more efficiently by avoiding the need to hire systems administrators even as it continues to grow its customer base.

Challenges And Opportunities

Beyond the transformation to cloud architecture, a corresponding process transformation is under way that extends agile development to a continuous delivery model that also more formally blends development teams to incorporate operations and business stakeholders. This promises to substantially speed up time to value on both brand-new projects and application changes, upping IT process transformation to a whole new level if organizations can figure out how to make this work.

The Red Hat customers we interviewed for this study are also heavily focused on process improvement. IT organizations planning for change are very much aware of the importance of leveraging existing skills and existing standards and approaches to delivering applications.

Java-based frameworks and Windows Server continue to be the operational go-to environments in enterprises.

The results of this study reflect the two sides of the equation. Three of the four companies we studied focused on improving their traditional approach to building and managing applications. The fourth went all in on cloud, selecting and implementing OpenShift Online deployed on Amazon Web Services. All of them achieved a strong ROI. With the OpenShift Online deployment, the customer experienced far lower operating costs because many of the management functions were automated as part of the cloud service, including elastic scaling and patching.

This study reflects the opportunities in focusing on developer and IT operations process change, whether on a cloud architecture or with traditional application platforms, by borrowing techniques such as standardization and a focus on cycle times.

One challenge is understanding that process change is a continuous effort, and it doesn't end with the completion of a project. As businesses begin to realize that their future is heavily dependent on technology for delivery of value to their customers, they are pushing development teams harder than ever to speed up time to value of all things supporting customers and for customer-facing applications. The teams supporting innovation are focused on changing how they develop to align with the faster pace of innovation cycles.

Enterprise development teams need to understand where they are most successful. Does it make sense to transform or to evolve? If the development team is supporting an essentially innovative business, transformation on cloud is likely to be the path. But if the organization is learning how to innovate, process improvement through evolution is likely to be successful and will result in lower costs and faster delivery cycles.

It may be that both types of transformation are occurring in a large enterprise. When that happens, standardization wherever possible becomes even more important as well as flexibility in being able to choose where to deploy or how to build without needing to entirely switch environments.

Summary And Conclusion

Organizations rely on application platforms to deploy strategic and packaged applications in a cost-effective and timely manner. Increasingly, they want to standardize their application development and IT operations to streamline their processes in terms of time and money. The imperative faced by organizations to make their application development processes more consistent and cost effective is becoming more pronounced as they move from building applications to delivering services relied on by employees and customers. Platform standardization can provide these benefits, as can moving in the direction of a more cloud-based application delivery model.

IDC's interviews with Red Hat customers using JBoss EAP demonstrate that these organizations are finding success in substantial standardization of their application development efforts on JBoss EAP. Interviewees were enthusiastic about the cost advantages of JBoss EAP and what they perceive as better support from Red Hat while describing efficiencies that their application development teams are achieving thanks to JBoss EAP's performance and structure. Meanwhile, the efficiencies and greater agility being achieved by the Red Hat customer using OpenShift Online suggest that organizations ready to move to the cloud can further improve their ability to support their businesses.

Appendix

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from current users of Red Hat JBoss Enterprise Application Platform as the foundation for the model. Based on these interviews, IDC performs a three-step process to calculate the ROI and payback period:

» Measure the savings from reduced IT costs (staff, hardware, software, maintenance, and IT support), increased user productivity, and improved revenue over the term of the deployment.

- Ascertain the investment made in deploying the solution and the associated training and support costs.
- Project the costs and savings over a three-year period and calculate the ROI and payback for the deployed solution.

IDC bases the payback period and ROI calculations on a number of assumptions, which are summarized as follows:

- Time values are multiplied by burdened salary (salary + 28% for benefits and overhead) to quantify efficiency and manager productivity savings.
- Downtime values are a product of the number of hours of downtime multiplied by the number of users affected.
- The impact of unplanned downtime is quantified in terms of impaired end-user productivity and lost revenue.
- Lost productivity is a product of downtime multiplied by burdened salary.
- Lost revenue is a product of downtime multiplied by the average revenue generated per hour.
- The net present value of the three-year savings is calculated by subtracting the amount that would have been realized by investing the original sum in an instrument yielding a 12% return to allow for the missed opportunity cost. This accounts for both the assumed cost of money and the assumed rate of return.

Because every hour of downtime does not equate to a lost hour of productivity or revenue generation, IDC attributes only a fraction of the result to savings. As part of our assessment, we asked each company what fraction of downtime hours to use in calculating productivity savings and the reduction in lost revenue. IDC then taxes the revenue at that rate.

Further, because IT solutions require a deployment period, the full benefits of the solution are not available during deployment. To capture this reality, IDC prorates the benefits on a monthly basis and then subtracts the deployment time from the first-year savings.

Note: All numbers in this document may not be exact due to rounding.

IDC Global Headquarters

5 Speen Street
Framingham, MA 01701
USA
508.872.8200
Twitter: @IDC
idc-insights-community.com
www.idc.com

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.

IDC Analyze the Future