The Business Value of Red Hat Integration Products

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Business Value Highlights

520%
three-year ROI

6 months
to break even

80%
less expensive than other considered platforms

5.5x
more applications integrated per year

56%
less staff time per application integrated

31%
improved application performance

66%
less employee time lost due to unplanned downtime

The Business Value of Red Hat Integration Products

EXECUTIVE SUMMARY

This assessment shows that enterprises adopt Red Hat Fuse because they believe in a community-based open source approach to integration for modernizing their integration infrastructure that delivers strong ROI. For these organizations, Fuse was part of a larger digital transformation initiative and was also used to modernize integration.

IDC interviewed organizations using Fuse to integrate important business applications across their heterogeneous IT environments. These Red Hat customers reported that Fuse has enabled them to complete substantially more integrations at a higher quality level, thereby supporting their efforts to deliver timely and functional applications and digital services. Efficiencies in application integration with Fuse have generated significant value for study participants, which IDC quantifies at an average value of $75,453 per application integrated per year ($985,600 per organization). They have attained this value by:

» Enabling more efficient and effective application integration

» Making application development teams more productive

» Increasing user productivity and generating more revenue through more reliable and higher-performing applications

» Having a cost-effective and efficient application integration solution

Situation Overview

This assessment shows that enterprises adopt Red Hat Fuse because they believe in a community-based open source approach to integration — for not just cost savings but also modernizing their approach to integration.

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Red Hat Fuse customers interviewed in this study adopted Fuse:

» To re-platform integration capabilities

» When they are planning to shift to a cloud architecture using OpenShift Container Platform

» To drive down the cost of integration

» When they are using the influential book, Enterprise Integration Patterns (EIPs), as their blueprint for building new integration capabilities

» To build distributed integration services with a focus on agility

Several years ago, one study participant opted to adopt a proprietary enterprise service bus (ESB) and was faced with paying a substantial six-figure fee to refresh its existing ESB because the vendor opted to rebuild on a new architecture. The participant was faced with:

» Paying a steep and unplanned charge for the refresh

» Maintaining its existing ESB but not having access to new capabilities

» Reevaluating and finding an alternative

The participant opted to reevaluate and chose Fuse. In the change, it was able to use the new equivalent capabilities at a 90% savings compared with paying for the refresh.

Another participant re-platformed to Red Hat Fuse because it decided to build integration services using Enterprise Integration Patterns as part of its larger digital transformation strategy. It also liked the large open source community involved in supporting the open source components used in Fuse. A third participant also adopted Fuse as part of a larger digital transformation initiative.

Participants were generally interested in building microservices-based integration services; however, they had not yet adopted Red Hat OpenShift Container Platform but either had plans to or were looking into it.

Red Hat Fuse

Fuse is integration software used by enterprises to build and deploy integration and messaging services. Fuse is particularly popular for organizations that are shifting their integration architecture from an enterprise service bus to independent integration services built using microservices, for microservices-based integration

capabilities that are embedded in applications, and for enterprises managing digital services, integration, and application life cycles under DevOps.

Fuse is also popular with organizations that have embraced patterns-based integration development, as described in Hohpe and Woolf's highly regarded *Enterprise Integration Patterns*. The core integration capability in Fuse is based on Apache Camel, a popular, versatile, and open source implementation of the *EIPs*.

Fuse runs on bare metal and virtualized infrastructure and is optimized to run on Red Hat OpenShift Container Platform. Fuse is increasingly deployed with 3scale API Management software, and both run on OpenShift Container Platform, providing enterprises with multicloud portability as well as the ability to deploy integration and API management on a cloud architecture running on an enterprise's existing infrastructure.

Red Hat Openshift Container Platform

Red Hat OpenShift Container Platform allows enterprises to provision, manage, and scale container-based applications. Enterprises look to container platforms to provide self-service capabilities to developers and also as an affordable path to building applications on a cloud and microservices-based architecture. Respondents in this study had not deployed OpenShift Container Platform, but several had plans to add OpenShift to their environments in the near future.

Red Hat proposes a new architectural approach for flexible, adaptive, and fast-changing solutions — agile integration.

The following Red Hat integration products help with implementing agile integration architectures and are compatible with Red Hat OpenShift Container Platform:

» Red Hat AMQ is a lightweight messaging platform. It provides a messaging layer designed to connect applications, data, and devices using multiple protocols.

» Red Hat Fuse is a lightweight integration platform.

» Red Hat 3scale API Management is a platform to manage, secure, and share APIs.

Shift to Integration Self-Service with iPaaS

Red Hat will soon offer an iPaaS capability built on Fuse. While Fuse is focused on bespoke, or custom, integration services built by developers, iPaaS has capabilities

that allow end users to create their own automation for tasks they are involved with at work. This type of end users is often described as "citizen integrators." End user–based integration self-service is unfolding because of increasing levels of technology competency in different segments of the workforce along with developer scarcity at a time of high demand for technological enablement of digital strategies. Even though IT organizations are focused on speeding up development, they will continue to experience capacity problems for the simple reason that visible demand for bespoke, or custom, development is the tip of a very large iceberg. IT will never be able to meet capacity requirements until there is a fundamental change in how services and resulting applications are built.

In fact, enterprises report that developers waste time on low-value activities such as creating new web catalogs and modifying the landing page. Often, organizations do not address the backlog of service requests from internal users. These projects typically don't clear strategic or ROI hurdles as they are projects of convenience that are not associated with digital transformation.

The consequences, however, are high-value employees doing repetitive, low-value work, whether they are developers or high-paid specialists in lines of business. Because this is now perceived to slow down innovation, there is a significantly greater focus on automation. As a consequence, integration vendors are building out improved self-service and end user–level capabilities.

The Fuse–based iPaaS offering is focused on leapfrogging the more technical iPaaS services to provide a consumer-grade integration experience, providing access to a catalog of third-party APIs while maintaining control over the underlying bespoke integration services.

The Business Value of Red Hat Fuse

Study Demographics and Fuse Use

IDC interviewed five organizations for this study, asking them a variety of quantitative and qualitative questions about the impact of deploying the Fuse platform on their application integration efforts as well as IT and business operations. The five companies involved in the study represented a spectrum of vertical industries with good geographic diversity. Two companies were based in the United States, with the others based in Germany, Canada, and New Zealand. The following vertical industries were represented: financial services (3), government, and utilities.

Interviewed IT managers at organizations running Fuse described various reasons for choosing Fuse over alternative commercial solutions. A common theme centered on the fact that overall cost of acquisition was substantially lower — bolstered by the fact that Fuse offered important new features and capabilities, including API enablement at several organizations. One organization explained: "We use Red Hat Fuse to integrate with enterprisewide applications and external applications for invoking APIs and also for messaging." In addition, survey participants discussed other decision criteria such as:

» Feature richness including automation in builds and deployments

» Centralized management capabilities

» Prebuilt integration for speed and ease of use

» Open source benefits such as the ability to standardize critical applications

» Having a view toward undertaking containerization initiatives, including for hybrid cloud environments

As shown in Table 1, these organizations have an average of nine DevOps/application development team members using Fuse to do their jobs and are running transaction volume of over 200 million per day on their Fuse platforms. Study participants reported that their Fuse deployments were supporting other key IT initiatives, with four of five study participants saying that they are supporting APIs and microservices, three of five participants bolstering DevOps efforts, and two of five participants moving forward with containerization initiatives.

Business Value Analysis

Interviewed Red Hat customers reported leveraging the use of Fuse to make their application integration efforts substantially more efficient and effective. As a result, their development teams can complete robust integrations of new

TABLE 1

Demographics of and Fuse Use by Interviewed Organizations

|	Average	Median
Number of business applications	714	200
Total number of application developers	232	200
Transaction volume per day with Fuse	200.3 million	150,000
Number of DevOps/app dev team members using Fuse	9	10
Countries	United States (2), Canada, Germany, and New Zealand	
Industries	Financial services (3), government, and utilities	

n = 5
Source: IDC, 2018

applications and features across their heterogeneous IT environments in less time and with fewer delays. This means that their overall development efforts better support their businesses and generate more value for their organizations. Based on the analysis, IDC quantifies this value at an average of $75,453 per application integrated per year ($985,600 per organization) in the following areas (see Figure 1):

» **Business productivity benefits.** Fuse ensures the timeliness and quality of applications integrated on it. As a result, applications are delivered earlier and with higher quality, supporting higher productivity of users of these applications and improved business results. IDC values productivity and revenue gains attributed to Fuse at an average of $38,582 per application integrated per year ($504,000 per organization).

» **IT staff productivity benefits.** Fuse is an effective and efficient integration tool for development staff, enabling them to complete significantly more integrations of higher quality in less time. IDC puts the value of productivity gains for these developers — along with infrastructure and help desk teams who also benefit from the Fuse platform — at an average of $31,775 per application integrated per year ($415,100 per organization).

» **IT infrastructure cost reductions.** Fuse is significantly less expensive (80% less) than the other commercial options study participants considered. In addition, its open source nature and ability to support integration across heterogeneous application environments create cost efficiencies in terms of tools and licenses. IDC calculates that interviewed organizations will reduce costs by $3,208 per application integrated per year ($41,900 per organization), not including the lower cost of Fuse.

» **Risk mitigation — user productivity benefits.** Fuse supports improved business continuity by limiting bugs and enabling more timely releases. The result is less productive time lost due to problems and outages related to integration activities, with IDC putting the value of higher user productivity at an average of $1,888 per application integrated per year ($24,700 per organization).

FIGURE 1

Average Annual Benefits per Application Integrated

Average annual benefits per application integrated: **$75,453**
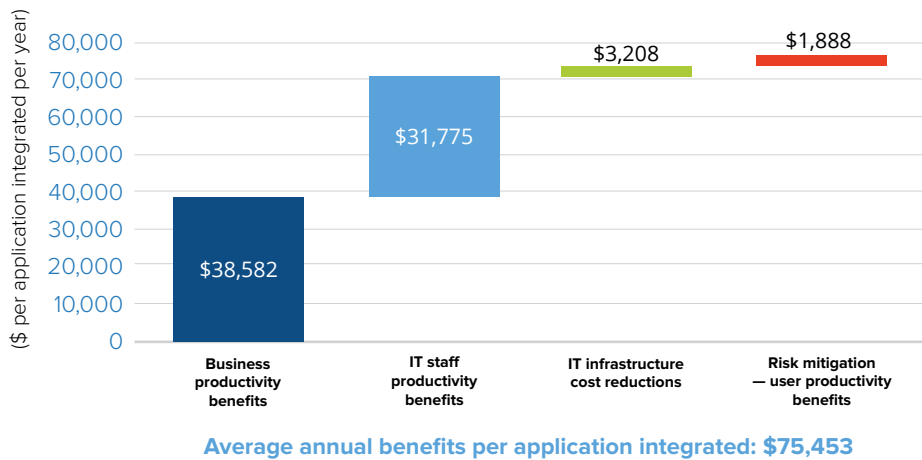
Source: IDC, 2018

### *Lower Cost, More Flexible Integration Engine*

Study participants noted that Fuse costs significantly less (80%) than other commercial options they considered (see Figure 2). Further, they cited the fact that Fuse is open source and can be used across heterogeneous application environments as being advantageous for them. Overall, with Fuse, these companies are spending less on an integration software solution, freeing them up to invest in their development and integration teams.

As one survey participant noted the cost benefit of Fuse: "There are a number of reasons we chose Fuse. From a technical perspective, it's much more open and developer focused than other commercial offerings we considered. From a cost perspective, it's significantly less expensive than the other options we investigated, both for acquisition cost and ongoing costs." Another survey participant noted how Fuse has helped it invest in developer time rather than software: "We did a cost analysis for our integration efforts, and about 75–80% of costs were for developer time with Fuse. If we were using an alternative solution, it would absolutely be different. It would be 30–40% of costs for developer time and the rest for hardware and software. The [alternative] tool would cost 10 times as much as Fuse."

FIGURE 2

Cost Advantage of Red Hat Fuse
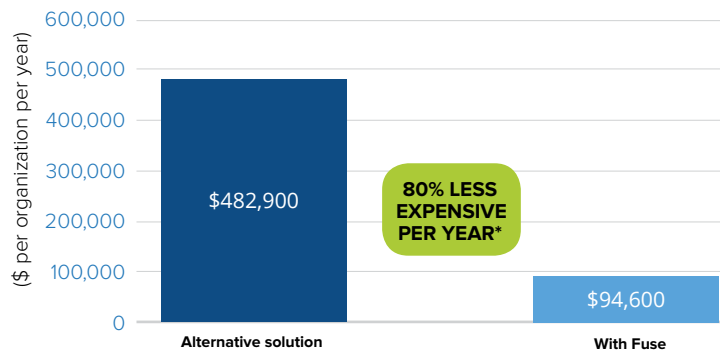
Source: IDC, 2018
* Costs annualized over three years

More Efficient Application Integration

Efficiencies in connecting heterogeneous IT environments were cited by Red Hat customers as a key benefit of Fuse, allowing development teams to optimally integrate legacy software with custom-developed software. Survey results showed that study participants are completing a much higher volume of application integration tasks and activities with Fuse than they otherwise could. The Fuse platform is especially effective and efficient for development staff focused on integration activities; they undertake more integration tasks in less time, which enables development teams to deliver applications faster and with higher quality.

The drivers of time savings and other efficiencies from using Fuse for surveyed companies include:

» Automated builds

» Automated deployments

» Centralized management

» Prebuilt integrations across technologies and languages

These capabilities enable developer teams to be more productive because they can accomplish more in the same time. As one survey participant stated: *"The ability to do automatic builds, automatic deployments, and centralized management of components with Fuse has been fundamental to our success in terms of managing our application environment."* Another participant said: *"Fuse has significantly more capabilities than our previous solution, and it's got a lot of prebuilt integrations for different technology components. Also, its cloud capabilities are relevant to us. It's definitely faster and easier to develop with compared to other products."*

Commenting on capabilities that foster adjustments in the use of skill sets, which is critical to organizations seeking to maximize the value of talented development staff, another manager said: *"I think we're avoiding hiring people with specific skills. What Fuse allows us to do is employ developers to do integration work on our platform. We used to have a 2 FTE support contract with a vendor to support our efforts, and we've saved $500,000 by using our dynamic skill sets in-house with Fuse versus outsourced resources."*

Table 2 demonstrates the substantial impact that the use of Fuse has had on the application integration efforts of these organizations. With Fuse in place, they have sped up integration — needing 54% less staff time on integration in total while bringing down the timetable for completing integration-related activities from 16 weeks to 7 weeks (59% faster). This is helping these organizations complete integrations at a significantly higher volume — 450% more applications — and helping ensure that integration efforts are efficient, effective, and supporting broader development efforts aimed at ensuring business success.

> "I think we're avoiding hiring people with specific skills. What Fuse allows us to do is employ developers to do integration work on our platform. We used to have a 2 FTE support contract with a vendor to support our efforts, and we've saved $500,000 by using our dynamic skill sets in-house with Fuse versus outsourced resources."

TABLE 2

Impact of Fuse on Application Integration and Development

	Before Fuse	With Fuse	Difference	Benefit (%)
Developer time spent on integration, equivalent FTEs per year	5.2	2.4	2.8	54
Equivalent value of developer time spent on integration per year	$463,800	$214,400	$249,400	54
Number of applications integrated per year	2.4	13.1	10.7	450
Time to integrate per application (weeks)	16.3	6.6	9.7	59
Staff time to integrate per application (total hours)	914	404	510	56

Source: IDC, 2018

We're able to turn around changes quickly with Fuse, and given that we've got much higher confidence, we're in a position where we can start to push more changes into production more regularly."

Survey results showed that the application integration efficiencies achieved with Fuse also lead to development of higher-quality applications. In a virtuous cycle, timeliness and higher quality support business operations by ensuring earlier delivery and addressing new opportunities. This, coupled with the fact that integration efforts that ensure functionality occur more frequently, means that these IT organizations are in a better overall position to support their businesses.

As one survey participant explained: *"Fuse is helping us respond to business demand, and this is very big for us because it makes it much easier for business applications to send and receive data and messages between each other. Instead of having to go back and apply changes, we use Fuse to do this and it routinely enhances communications between applications."* Another participant said: *"We're able to turn around changes quickly with Fuse, and given that we've got much higher confidence, we're in a position where we can start to push more changes into production more regularly."*

Table 3 cites specific improvements in the areas of business operations that these Red Hat customers are achieving with Fuse. For example, they attributed an average of $399,500 per year of additional revenue to Fuse and have generated operational efficiencies through higher productivity for more than 200 employees using applications supported by Fuse.

TABLE 3

Impact of Fuse on Business Operations and Users

	Per Organization	Per Application Integrated
Revenue impact — better addressing business opportunities		
Total additional revenue per year	$399,500	$30,581
Total recognized revenue per year*	$59,900	$4,587
User productivity impact		
Number of users impacted	228	17
FTE impact — higher productivity	6.3	0.5

* IDC applies a 15% operating margin assumption when recognizing revenue in its Business Value models.
Source: IDC, 2018

Improved Application Reliability and Performance

The improved application integration provided by Fuse also has measurable impact for study participants in terms of reliability and performance. Enhanced visibility and automated processes in integration translate to lower frequency of coding errors and help reduce the number of unplanned outages. It also brings improved experiences to users and customers when applications are released and updates are made.

Regarding application availability, one survey participant noted: *"We've had zero unplanned outages related to Fuse. With our previous solution, we experienced outages at least once a month . . . . We have more customers now because Fuse is more reliable, and that's worth an estimated couple million dollars a year."* Another said: *"What we have with Fuse that we didn't have before is good visibility. This helps us find bugs before they become a problem . . . . Also, the fact that Fuse is open source has enabled us to identify and work around issues."*

With Fuse, these organizations are minimizing the cost that outages exert on their business operations. Table 4 shows that they have lowered unplanned outages by 78% on average and cut the cost of productivity losses associated with these outages by an average of two-thirds (66%).

"What we have with Fuse that we didn't have before is good visibility. This helps us find bugs before they become a problem . . . . Also, the fact that Fuse is open source has enabled us to identify and work around issues."

TABLE 4

Impact of Fuse on Unplanned Downtime

	Before Fuse	With Fuse	Difference	Benefit (%)
Number of instances per year	2.5	0.6	1.9	78
Mean time to resolve (MTTR)	1.9	0.8	1.1	59
FTE impact — lost productivity due to unplanned outages	0.5	0.1	0.4	66

Source: IDC, 2018

"We had to recently move from supporting different vendors, and a lot of that was run through Fuse. We were able to scale that much faster, and the entire protocol went through a lot faster because it's automated and we controlled it. I think that we could have faced a delay of a month, and waiting that long can be a big problem leading to risks and possible fines."

Fuse has also helped study participants improve application performance and better support customers. This includes being able to better make deployment changes on the fly. Survey participants also discussed how improved application performance leads to more satisfied users and customers, resulting in operational efficiencies (user productivity increases) and revenue gains through better addressing business opportunities.

Survey participants also cited the importance of having a more flexible integration engine. Addressing the benefits of improved flexibility and agility, one manager said: *"We've gone from a position where we couldn't make changes to being able to make changes in production while the system's running with Fuse. So we've gone from quite a place of nervousness around any change on the platform (including having to restart everything once per week) to being able to actually deploy new features while the whole system still runs in the 24 x 7 mode. It's a massive change."*

Another participant talked about being able to better scale its integration efforts: *"We had to recently move from supporting different vendors, and a lot of that was run through Fuse. We were able to scale that much faster, and the entire protocol went through a lot faster because it's automated and we controlled it. I think that we could have faced a delay of a month, and waiting that long can be a big problem leading to risks and possible fines."*

Ongoing IT Staff Efficiencies

Companies interviewed also spoke about how Fuse is enabling ongoing efficiencies in day-to-day operations. These efficiencies translate into needing less staff time for operations, maintenance, and support on an ongoing basis. One survey respondent described the benefits related to DevOps as follows: "Because we've been able to move from a traditional development deployment approach to more of a DevOps approach with Fuse, we've reduced the overhead for the infrastructure support team. We're probably saving 5 hours per week at least and, counting delivery, probably something like 10 hours of time per week."

Table 5 shows staff efficiencies for infrastructure and support teams with Fuse. The data highlights a 35% improvement for the infrastructure team and a 73% improvement for the support team.

TABLE 5

Impact of Fuse on IT Staff

	Before Fuse	With Fuse	Difference	Benefit (%)
IT infrastructure team, FTEs	0.9	0.6	0.3	35
IT support team, FTEs	1.8	0.5	1.3	73

Source: IDC, 2018

ROI Analysis

IDC based its ROI analysis on interviews with organizations that are using Fuse for integrating various applications critical to their business operations. Based on these interviews, IDC has calculated the benefits and costs to these organizations of using Fuse. IDC used the following three-step method for conducting the ROI analysis:

1. **Gathered quantitative benefit information during the interviews using a before-and-after assessment of the impact of Fuse.** In this study, the benefits included staff time savings and productivity benefits, increased revenue from better addressing business opportunities, reducing revenue losses associated with outages, and IT-related cost reductions.

2. **Created a complete investment (three-year total cost analysis) profile based on the interviews.** Investments go beyond the initial and annual costs of using Fuse and can include additional costs related to planning, consulting, migrations, and staff or user training.

3. **Calculated the ROI and payback period.** IDC conducted a depreciated cash flow analysis of the benefits and investments for the organizations' use of Fuse over a three-year period. ROI is the ratio of the net present value (NPV) and the discounted investment. The payback period is the point at which cumulative benefits equal the initial investment.

Table 6 presents IDC's analysis of the benefits and costs for study participants of using Fuse. IDC projects that interviewed organizations will invest a discounted average of $28,815 per application integrated per year ($0.38 million per organization) in Fuse and will realize discounted benefits worth a three-year

average of $178,688 per application integrated per year ($2.33 million per organization). This level of benefits and costs would mean a three-year ROI of 520%, with breakeven for these Red Hat customers occurring in six months on average.

TABLE 6

Impact of Fuse on Business Operations and Users

	Per Organization	Per Application Integrated per Year
Benefit (discounted)	$2.33 million	$178,688
Investment (discounted)	$0.38 million	$28,815
Net present value (NPV)	$1.96 million	$149,873
Return on investment (ROI)	520%	520%
Payback period	6 months	6 months
Discount rate	12%	12%

Source: IDC, 2018

Challenges and Opportunities

Integration and messaging provide the connectivity services for organizations that are involved in managing integration with SaaS and custom development across multiple clouds in an increasingly decentralized architecture. Centralized integration assets are being re-platformed in many ways to support these hybrid use cases. The demand for integration services is accelerating, and the demand for self-service integration and automation capabilities, in particular, is accelerating.

Enterprises are beginning to talk about reigning in cloud sprawl in order to gain control over assets requiring integration to begin lowering IT support costs. In fact, cloud sprawl is largely here to stay, and enterprises recognizing this either have transformed their approach to integration or are planning to do so. Part of this process involves identifying vendors that support speed and simplicity while offering integration services at a significantly lower cost.

Enterprises are faced with the challenge and opportunity of identifying the best long-term partner for integration that is able to consistently support evolving environments, use cases, and technology trends.

Red Hat has a significant opportunity to be an important partner to enterprises in this space. The community-based approach of Red Hat to building capabilities, the growing popularity of adopting microservices-based enterprise integration patterns, and a low-cost pricing model should identify it as one of the go-to vendors for multicloud, datacenter, and hybrid integration. Red Hat's challenge is to keep up with key trends driving adoption in the market.

Conclusion

This study demonstrates the value that organizations are achieving by moving to a more modern, community-based open source approach to application integration activities with Red Hat Fuse. For these Red Hat customers, improving the efficacy and efficiency of their integration efforts across their heterogeneous IT environments is critical to their digital transformation initiatives. Interviewed Red Hat customers reported that Fuse enables them to take on and complete significantly more application integrations without devoting more staff time to such activities. The result is the delivery of more timely and functional applications and digital services to employees and customers, thereby enabling employees and helping better meet business demand. IDC's analysis shows that these organizations will realize strong value with Fuse as a result — benefits worth an average of $75,453 per application integrated per year ($985,600 per organization), which would result in a projected three-year ROI of 520%.

Appendix

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from organizations currently using Red Hat Fuse as the foundation for the model. Based on interviews with these study participants, IDC performs a three-step process to calculate the ROI and payback period:

» Measure the savings associated with using Fuse in terms of reduced IT costs (staff, hardware, software, maintenance, and IT support), increased user productivity, and business impact measured by revenue over the term of the use of Fuse.

» Ascertain the investment made in deploying and using Fuse.

» 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. For purposes of this analysis, based on the geographic locations of the interviewed organizations, IDC has used assumptions of an average fully loaded salary of $100,000 per year for IT staff members and an average fully loaded salary of $70,000 for non-IT staff members. IDC assumes that employees work 1,880 hours per year (47 weeks x 40 hours).

» 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.

» 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 roundin*g.

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