Red Hat Integration Helps Enterprises Optimize Application Performance and Business Results

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Navigating this White Paper

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BUSINESS VALUE HIGHLIGHTS

Click on highlights below to navigate to related content within this PDF.

507%
three-year ROI

6-month
payback period

21% more efficient
DevOps teams

2x more
applications integrated

38% more
applications developed

10% more efficient
Center of Excellence teams

40% more
API developed

$1.8 million
additional revenue gained

43% reduced
unplanned downtime

17% more
productive end users

Executive Summary

This study illustrates the tremendous pressure developers and integration teams are under to increase the volume of features, applications, and service endpoints and Application Programming Interfaces (APIs) they need to build and manage to satisfy demand for digital enablement. It also shows the benefits of modernizing integration portfolios to relieve the pressure.

Customers studied for this business value assessment were able to increase the number of features developed by 63%, the number of API endpoints by 40%, and the number of applications by 38%. While accomplishing this output, they also improved their IT staff efficiency.

Red Hat Integration is a set of integration and messaging technologies that connect applications and data across hybrid infrastructures. The solution is designed to be agile, distributed, containerized, and API-centric, and it provides elements that include service composition and orchestration, application connectivity, real-time messaging and event streaming, change data capture, API management, and other features. IDC conducted research that explored the value and benefits of using Red Hat Integration to support and enhance DevOps and application development efforts. The project included seven interviews with organizations that were using this solution and had detailed knowledge about its benefits and costs.

Based on the interviews and the quantitative data they provided, IDC calculated that the Red Hat solution will provide significant value for these organizations by:

- **Fostering more efficient application development and DevOps teams** that can respond faster to business needs by delivering better integrated applications, features, and APIs.
- **Cutting the backlog of application feature requests** by speeding up the delivery of integration features that normally take the longest to develop. Delivering new capabilities and feature updates more quickly delivers engaging applications.
- **Improving line-of-business productivity** by improving application reliability and performance and minimizing unplanned downtime.

Situation Overview

Integration technologies are core to digital enablement. While innovation is always a primary driver, business focus today is also aimed at improving operational efficiency and speeding up how business is conducted to become more competitive. Automation and modernization are two major areas of technology investment, and integration technologies are core to automation. Today, enterprises spend more on integration platforms than on any other IT automation category.

Because of its importance, there is greater urgency to modernize integration software to improve the speed of delivery, volume, and scale of integration required while minimizing the number of developer resources required to support this expansion.

Improving time to market has driven many technology enablement trends, especially the shift from monolithic applications to microservices, the process transformation to DevOps, and the introduction of a cloud-native architecture running on Kubernetes. This was true in IDC's discussions with Red Hat customers for this assessment. For all but one of the interviews, cloud-native architecture was strategically important to customers. Red Hat OpenShift became their platform.

Because of the dependence on integration, it is not surprising that all but one of the customers identified the need to modernize their integration portfolios to also run on a cloud-native architecture. Integration technologies are fundamental to modern application development for a variety of use cases, such as:

- Building composite apps using a mesh of microservices
- Connecting to a third-party endpoint via a call to its API
- Delivering data asynchronously in near real time as a message
- Distributing data through event streams

Adopting a new platform or individual products to modernize integration was a consideration for most of the customers interviewed. In one case, the customer evaluated individual best-of-breed point solutions but chose Red Hat Integration for its suite of integration technologies. In other cases, customers adopted Red Hat Integration because they wanted a vertically integrated stack running on Red Hat OpenShift, in a large sense, to mitigate the risks of both moving to a new application architecture and modernizing integration. While Red Hat is often identified as a value provider of software, in these interviews, cost was not the overriding factor. Compatibility with Red Hat OpenShift mattered more.

One healthcare provider adopted Red Hat Integration as part of a larger business process automation and optimization strategy. To execute the strategy, this healthcare provider began to modernize its applications to run on a cloud-native architecture using Red Hat OpenShift as part of a plan to eventually move the applications to the cloud. Modernizing integration capabilities became a priority. The healthcare provider was faced with a $1 million charge from its current vendor to upgrade the platform to run in the cloud. Ultimately, the customer decided to focus only on platforms able to run on Red Hat OpenShift and adopted Red Hat Integration, avoiding $1 million in upfront costs.

When the pandemic hit, the healthcare provider had to digitally enable health services to move to a telehealth model. The decision to shift to a modern integration platform rather than engaging in same-vendor modernization meant that the provider could support this effort immediately and was able to reduce the time to value on integration for telehealth by 25%. It also expects telehealth to continue to be an important service delivery model post-pandemic. While adopting Red Hat was less expensive by forgoing the $1 million conversion cost, the ongoing operating cost was roughly the same. But the healthcare provider is able to do more with Red Hat Integration than it was able to do with its legacy integration.

A bank selected Red Hat OpenShift to support its hybrid cloud strategy that would offer portability of workloads operating on premises and in public clouds. It was also building a new generation of applications to run on a microservices mesh to support new digital services. It decided to adopt Red Hat Integration because of the benefits of an integrated platform and for vertical integration with Red Hat OpenShift.

A SaaS application provider adopted Red Hat Integration purely to automate manual activities that were becoming increasingly expensive. In this case, the SaaS provider adopted Red Hat to create a digital platform for its customers to exchange data with their partners. Automating customer-to-partner communications became a priority to replace the more expensive manual approach.

Red Hat Integration Overview

Red Hat Integration is a suite of hybrid integration and messaging technologies used to connect applications and data across a distributed, hybrid infrastructure. Red Hat Integration was designed to run seamlessly on Red Hat OpenShift and includes the following Red Hat components:

Red Hat Fuse is open source-based integration software built on Apache Camel, with packaged connectors to popular on-premises and SaaS-based applications. It also supports common design patterns to simplify integration design. Red Hat Fuse was re-engineered to run on a cloud-native architecture. Using Red Hat Fuse, a microservices app can be built and deployed with Red Hat Fuse components (transformation, connectivity) embedded. Alternatively, a Red Hat Fuse application can be built and deployed alongside other microservices.

Red Hat 3scale API Management provides API management and also serves as an API gateway. The gateway is built on open source NGINX and sits in front of a cluster of services, providing security, authentication, load balancing, and other capabilities. Its API management features include managing the API life cycle, documenting APIs, publishing APIs into a common catalog, analyzing APIs, and measuring usage.

Red Hat AMQ is a messaging platform based on open source ActiveMQ-based messaging with packaged messaging patterns to support real-time messaging use cases.

Red Hat AMQ Streams provides Apache Kafka event streaming through the use of OpenShift operators that simplify the deployment, configuration, management, and use of Kafka on Red Hat OpenShift.

Change Data Capture, based on Debezium, is a distributed platform that monitors databases and creates change event streams. This is built on Apache Kafka and is deployed and integrated with AMQ Streams.

Service Registry, based on Apicurio Registry, is a data store for sharing standard event schemas and API designs, supporting API-based connectivity and event-driven architectures.

Red Hat Runtimes is a collection of cloud-native and enterprise-standard runtimes for developing Java and JavaScript applications. The goal of Red Hat Runtimes is to offer a simple developer experience to build containerized and non-containerized Java and JavaScript applications to run on Kubernetes through the use of automation and simple configurations to stand up, begin using, and integrate with DevOps.

The Business Value of Red Hat Integration

Study Demographics

IDC conducted research that explored the value and benefits for organizations of using Red Hat Integration to support and enhance their DevOps and application development initiatives. The project included seven interviews with organizations that were using this solution and had experience with or knowledge about its benefits. During the interviews, companies were asked a variety of quantitative and qualitative questions about the impact of the solution on their application development operations, businesses, and costs.

Table 1 (next page) presents study demographics and profiles. Organizations interviewed had a base of 89,427 employees, indicating the presence of several large organizations. This workforce was supported by an IT staff of 1,819 engaged in managing 1,040 business applications for 89,057 internal users and 16.1 million external users and/or customers. In terms of geographical distribution, five companies were based in the United States, with the remainder in Argentina and Indonesia. These organizations represented several vertical markets, including the financial services, information technology, healthcare, media and entertainment, and transportation sectors. (Note: All numbers cited represent averages.)

TABLE 1

Firmographics of Interviewed Organizations

	Average	Median	Range
Number of employees	89,427	12,000	3,000 to 450,000
Number of IT staff	1,819	410	100 to 7,500
Number of IT users	89,057	10,800	3,000 to 450,000
Number of external customers	16.1M	2.0M	3,300 to 100.0M
Number of business applications	1,040	400	80 to 4,500
Company revenue	$10.4B	$2.3B	$750.0M to $50.0B
Countries	United States (5), Argentina, Indonesia		
Industries	Financial services (2), information technology (2), healthcare, media and entertainment, transportation		

n = 7, Source: IDC In-depth Interviews, March 2021

Choice and Use of Red Hat Integration

The companies that IDC surveyed described usage patterns for the Red Hat solution as well as provided a snapshot of their overall IT, application development, and business environments. They also discussed the rationale behind their choice of Red Hat (Red Hat Fuse, Red Hat 3scale API Management, Red Hat AMQ) over competing approaches. All seven organizations were using multiple Red Hat Integration solutions in their day-to-day work. Interviewed customers cited a number of factors for their choice, such as the need to modernize application development efforts along with the positive synergies that were available with Red Hat's partner ecosystems. They also called out improved process optimization as an important decision factor.

Study participants commented on these benefits:

- **A solution that helps modernize application development efforts:**
  "The main reason for the choice is that our application development in terms of reference architecture has been changing toward more microservices, container use, API-driven environments. Previously, it was more legacy ESB traditional type of development and workloads were 100% on-premise. Now, significant on-prem is still in play but we are starting to use cloud and multi-cloud. We want something more modernized."

- **Good synergies with Red Hat's larger ecosystems:**
  "We have this vision around having OpenShift container as the main part of our new generation of applications…OpenShift containers will allow us to have a hybrid cloud strategy to move workloads from on-prem to public cloud. After we chose OpenShift,

we thought that vertical integration is always a good thing in terms of having one conversation with one vendor. We understand that we need 3scale and [3scale] is already integrated into the platform. Red Hat will keep investing around those technologies in order to have more features. That's why we chose it."

- **Better process optimization:**
  "One of our big strategic initiatives is the optimization of our processes. We have a parallel project for robotic process automation. While this is fundamentally different, of course, it follows that same strategic initiative around automation and orchestration of business processes. So, taking advantage of Red Hat technology means that integration capabilities allow us to achieve that optimization."

Table 2 describes Red Hat organizational usage across all companies. There was a substantial Red Hat Integration footprint (including Red Hat 3scale API Management) with, on average, 119 commercial business applications, 41,792 endpoints, and 1,236 cores or vCores in play across all companies. In terms of cloud usage, study participants reported 19 public cloud and 2 private cloud implementations. (Additional metrics are presented and all numbers cited represent averages.)

TABLE 2
Red Hat Integration Environment

	Average	Median
Number of commercial business applications connected	119	50
Number of endpoints connected	41,792	288
Number of APIs managed in 3scale	509	170
Number of sites/locations running	18	2
Number of public cloud locations running	19	3
Number of private cloud locations	2	2
Number of 3scale gateways running	30	6
Number of monthly outbound calls or messages	2.30M	1.50M
Number of monthly inbound calls or messages	3.15M	1.50M
Number of services in catalog	1,740	500
Number of cores, vCores running Red Hat Integration	1,236	32
Percent of revenue from applications/workloads running on Red Hat Integration support	56%	55%

n = 7, Source: IDC In-depth Interviews, March 2021

Business Value and Quantified Benefits

IDC's Business Value model expresses the benefits for organizations using Red Hat Integration to support their ongoing Red Hat infrastructure and application development. Survey data obtained from Red Hat customers was applied to this model to arrive at an array of quantified post-deployment benefits. Using this methodology, IDC found that these customers realized significant value for their IT infrastructure and business operations.

The use of Red Hat Integration fostered more efficient application development that allowed interviewed companies to better respond to business needs by delivering more new applications, features, and APIs and by accelerating application life cycles. This helped the companies win more business and increase revenue with higher-quality and more timely applications and application support services. It also served to increase the productivity of employees by ensuring the reliability of these business-critical applications and by minimizing unplanned downtime.

Study participants described the most significant benefits:

- **Easier to containerize microservices:**
  "We could containerize without the tools. But with Fuse and AMQ, we now make it mutable and can run across an OpenShift platform. So, they integrate better into applications. This also allows us to get into the microservice design of applications. Microservices are easier to create and offer time to market."

- **More capabilities to develop revenue-generating applications:**
  "We did develop a few applications to boost revenue. For example, with Red Hat Integration, with the platform, we are able to now more personalize data analytics using the API and with third-party integration as well. So we are more doing the customer segmentation and today we are adding more customer personalization profiles. We are making, I would say, more around a million [dollars] per year because of this change."

- **Centralized platform leading to better IT staff efficiencies:**
  "The biggest benefit is the consistency delivered by a centralized platform. Staff efficiencies are also pretty big in terms of the use of automation. And it puts us on more secure footing in our IT representations with the rest of the company. We use integration to demonstrate that we're doing a given task. Or we use it to show we know what we're doing. We think we gain more trust from people we support by using it."

- **Easier integration allowing for new development model:**
  "The most significant benefit is the integration. We moved from a pure in-house development to focus on application integration to support a hybrid model."

Improvements in Application Development and DevOps

Application development is growing in importance as companies undergo the process of digital transformation. Application development and DevOps teams are tasked with rapidly delivering highly functional business-critical applications that their companies depend upon and doing so with as little organizational friction as possible. To help companies with the challenges posed by this rapid growth, Red Hat Integration offers a set of integration technologies that connect applications and data across various hybrid infrastructures. The solution is designed to be agile, distributed, and containerized while supporting the full spectrum of modern application development processes and tasks.

Study participants confirmed that Red Hat Integration helped them manage their application development efforts more effectively. They discussed various ways that the solution helped their IT, DevOps, and application development teams increase overall efficiency and optimize tasks associated with server management. They also commented on how the Red Hat solution allowed their IT teams to spend less time on patching and pivot to initiatives more directly related to managing Red Hat OpenShift.

Study participants commented on these and related benefits:

- **More efficient IT:**
  "The benefit really is the efficiency. We have a pretty complex environment and Integration helped us streamline everything a lot better than before. It's made it easier for people to jump in and work on our systems."

- **Easier-to-manage servers:**
  "The biggest thing is having a level environment. All the servers are running the same OS, which makes it easier to maintain, resulting in several efficiencies."

- **IT time freed up to work on other initiatives:**
  "We've got the patching automation down pretty well, and that's allowed our Level 2 to become more proficient in and better able to support containerization initiatives. They have moved on to supporting OpenShift on a 24 x 7 basis, because they don't have to spend all their time patching."

- **Institutional knowledge leading to easier IT staff onboarding:**
  "Integration affords us the ability to shift some employees away from just doing builds and patching. This helps when we have staff turnover. When staff with institutional knowledge leave, everything is codified in Integration, and the ability to onboard new staff to take over activities becomes much easier. In one case we had one of our leads from the build team move over to another team, and we seamlessly were able to have one of our other operation team members move over to help with the build. The standardization inside Integration made the transition of onboarding and off-boarding resources to different teams within the IT group easier and seamless. And now we don't have outages because a new member of the team doesn't know how to do something. We don't have the hard lessons learned being repeated by new staff coming in."

Implementation and use of DevOps is a key part of moving toward accelerated application delivery. However, successful adoption is dependent on a variety of organizational and technical factors, including staff performance. Survey data from study participants indicates that the use of Red Hat Integration increased DevOps staff productivity by 21%, as shown in **Table 3**, which means that the existing team of 131.4 FTEs are now as productive as a team of nearly 160 FTEs. This resulted in an annual business value of $2.82 million.

TABLE 3

DevOps Impact

	Before Red Hat Integration	With Red Hat Integration	Benefit Value	% Benefit
Productivity impact, equivalent FTEs	131.4	159.6	28.2	21%
DevOps cost per year per organization	$13.1M	$16.0M	$2.8M	21%

n = 7, Source: IDC In-depth Interviews, March 2021

Red Hat Integration is designed to help developers integrate applications with diverse internal and external systems across hybrid architectures. Study participants reported that Red Hat helped their DevOps teams integrate more applications and do so more efficiently. IDC quantified these improvements as shown in **Table 4**. Especially noteworthy is the number of applications integrated annually, a very substantial improvement of 106%. Another noteworthy improvement was the number of cloud-based applications that interviewed companies were able to deploy, an increase of 168%. Additional metrics are presented in the table.

TABLE 4

Application Integration Impact

	Before Red Hat Integration	With Red Hat Integration	Benefit Value	% Benefit
Number of applications integrated per year	17.7	36.5	18.8	106%
Total calendar weeks to integrate applications	6.5	3.5	2.9	45%
Number of initiatives/projects delivered	39.8	43.8	4.0	10%
Number of cloud-based applications deployed	7.5	20.1	12.6	168%

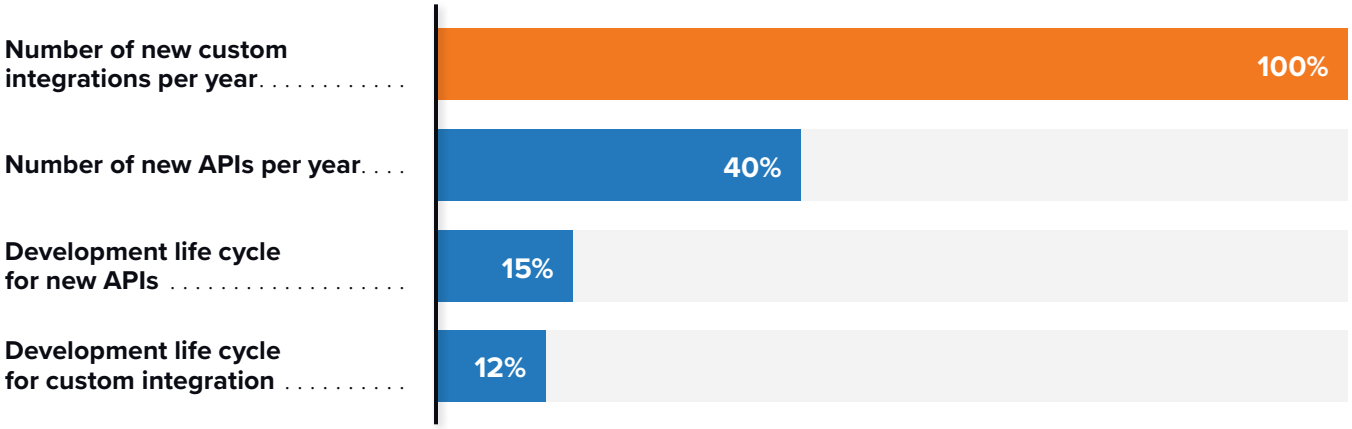
n = 7, Source: IDC In-depth Interviews, March 2021

As described, the Red Hat solution is designed to streamline integration development to connect applications and data across hybrid clouds. Interviewed companies reported that improvements in task efficiency from adopting Red Hat Integration had significant implications for IT infrastructure teams working on custom integration and APIs. Using customer input, IDC identified a series of tasks that these teams were typically responsible for in supporting DevOps and application development efforts, and then quantified adoption benefits as shown in **Figure 1**. The greatest improvements were seen in the number of new custom integrations per year (100%), the number of new APIs per year (40%), and the development life cycles for new APIs (15%).

FIGURE 1

Infrastructure Management Staff Time Efficiency Gains by Activity

(% improvement)



n = 7, Source: IDC In-depth Interviews, March 2021

Red Hat Integration supports microservices developers and DevOps teams with various automated software development tools. Study participants reported that these and other platform capabilities had positive productivity benefits for tasks performed by DevOps and other application development teams. As shown in **Table 5** (next page), by improving productivity, study participants were able to increase the number of new applications developed annually by 38%. In addition, the number of new features developed annually increased even more substantially (63%).

TABLE 5

Application Development Impact

	Before Red Hat Integration	With Red Hat Integration	Benefit Value	% Benefit
Number of new applications developed per year	15.7	21.5	5.9	38%
Development life cycle for new applications, weeks	19.0	16.4	2.6	14%
Number of new features developed per year	1,013	1,645	633	63%
Development life cycle for new features, weeks	3.6	3.0	0.6	18%

n = 7, Source: IDC In-depth Interviews, March 2021

IDC then looked at the impact of Red Hat adoption on the Centers of Excellence (COE) at interviewed companies that were engaged in exploring IT performance issues such as best practices, research, and training. Survey data from study participants indicated that the use of Red Hat Integration increased COE productivity by 10%, as shown in **Table 6.**

TABLE 6

Center of Excellence Team Impact

	Before Red Hat Integration	With Red Hat Integration	Benefit Value	% Benefit
Productivity impact, equivalent FTEs	10.4	11.4	1.0	10%
CoE cost per year per organization	$1.0M	$1.1M	$103.8K	10%

n = 7, Source: IDC In-depth Interviews, March 2021

Additional application management benefits are shown in **Table 7**. Red Hat Integration helped interviewed companies increase IT staff efficiency by 29%, which frees up staff to work on other tasks. This resulted in an annual productivity-based business value of $249,200.

TABLE 7
IT Application Management Impact

	Before Red Hat Integration	With Red Hat Integration	Benefit Value	% Benefit
Productivity impact, equivalent FTEs	8.7	6.2	2.5	29%
Application management cost per year per organization	$866.7K	$617.5K	$249.2K	29%

n = 7, Source: IDC In-depth Interviews, March 2021

In another key area, better DevOps reliability translated to companies' having fewer help desk issues. IDC evaluated the extent to which Red Hat adoption was able to provide ancillary benefits for help desk operations specifically related to application development. As shown in **Table 8,** after adoption there was an 8% increase in productivity, resulting in an average annual business value of $68,800.

TABLE 8
Application-Related Help Desk Impact

	Before Red Hat Integration	With Red Hat Integration	Benefit Value	% Benefit
Help desk productivity impact, equivalent FTEs	9.2	8.5	0.7	8%
Salary cost per year per organization	$916.7K	$847.9K	$68.8K	8%

n = 7, Source: IDC In-depth Interviews, March 2021

Delivering Better Business Results

The benefits that study participants experienced from adopting Red Hat Integration enabled better business results and boosted operational efficiencies. These benefits helped companies better address business opportunities through faster delivery of new applications and services for customers and internal users. Organizations reported that they saw a 17% improvement in their time to market. Study participants called out specific improvements, such as being able to make APIs more customer-friendly and having a better application repository to work from. They also appreciated that the solution kept their subscription costs low.

Study participants commented specifically on these benefits:

- **More customer-friendly applications/APIs:**
  "On the business side, we are able to deliver more for our customers because integrations are much faster. Because the APIs are exposed, now customers can consume at will. In other words, the API is exposed from our 3scale so their developers can connect to it, and that avoids work for the customer."

- **Better application depository to work from:**
  "Integration supports our developers when they need a specific set of applications or open source software and their third-party products haven't been deployed in the environment. Integration allows us to keep track of those products. So we'll add a repository specifically for a new product that's being evaluated and that also helps us set up a repository specific to that customer's systems. As we move into the production environment and need to apply updates, we are able to leverage Integration's capability to synchronize with third-party vendor RPMs. So, when updates for products need to be done or a development team needs to upgrade, they have the ability to enable or disable the repository if they want to stay with an older version. We can stay compliant with patching requirements to update those third-party products that we're providing from Integration."

- **Ability to be more flexible when thrown a curveball:**
  "The pandemic is the biggest example of our ability to evolve with business needs. We're reducing our time to market by about 25% and it would have gone in the opposite direction during the pandemic. So 25% improvement may not seem like much, but if we had not adopted it, if we had not been prepared, then we would have invested weeks of effort or even had to cancel projects. That would have resulted in higher costs. I feel like we avoided at least $100K in costs through this fiscal year."

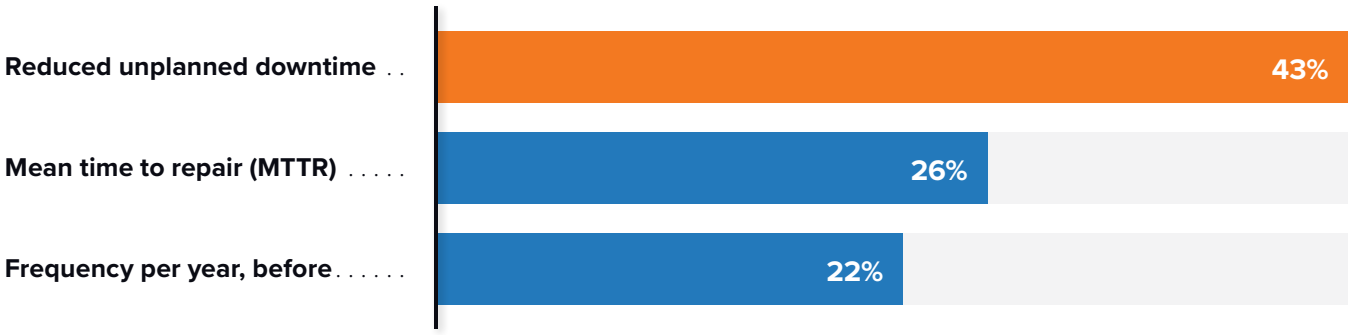
- **Subscription costs kept low:**
  "Integration is making sure that we have accurate subscription counts so that we're not oversubscribing or undersubscribing. This helps manage and keep costs down."

Interviewed organizations also reported that the significant improvements in application performance previously described served to minimize the frequency and impact of unplanned downtime. For internal users, business partners, and customers, this translated into an improved IT experience, with less business and operational risk from outages involving key business services. As shown in **Figure 2** (next page), after adoption, end-user productivity improved 43%, while the time needed to remediate disruptive events was reduced by 26%.

FIGURE 2

Impact on Unplanned Downtime

(% improvement)



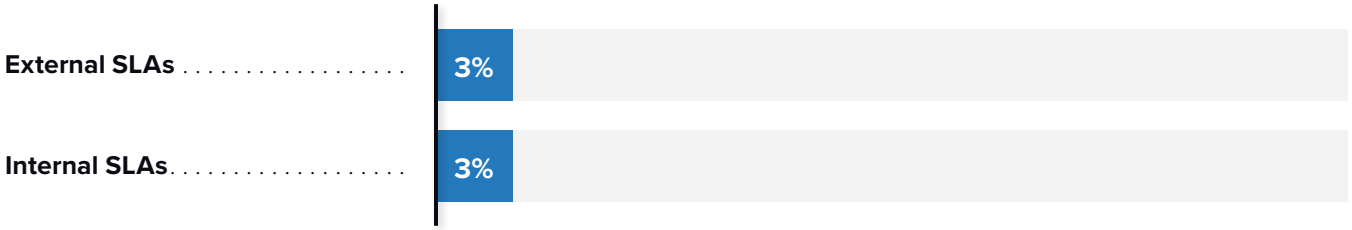
n = 7, Source: IDC In-depth Interviews, March 2021

Interviewed organizations also reported an improvement in application performance running on their network. **Figure 3** shows a 3% improvement for both internal and external service-level agreements (SLAs).

FIGURE 3

Impact on SLAs

(% improvement)



n = 7, Source: IDC In-depth Interviews, March 2021

Study participants also were able to identify and capitalize on worthwhile business opportunities through better analytics and application performance. **Table 9** (next page) quantifies the revenue impacts from better addressing business opportunities. The total average annual revenue that accrued after adoption of Red Hat Integration was $1,879,000.

TABLE 9

Business Operations and User Impact

(Business impact: Revenue from better addressing business opportunities)

	Per Organization
Total additional revenue per year	$1,879,000
Assumed operating margin	15%
Total recognized revenue, IDC model, per year	$282,000

n = 7, Source: IDC In-depth Interviews, March 2021

Business benefits were also clearly linked to improvements for end-user experience. End users benefited from having improved access to their organization's network and better performance of applications that require strong network access. As shown in Table 10, after adoption there was a 17% increase in average productivity. This resulted in an average annual business value of $138,600.

TABLE 10

End-User Impact

(Enhanced user productivity)

	Per Organization
Number of users impacted	11.6
Average productivity gains	17%
Productive hours gained	3,723
End-user impact, FTE equivalent per organization per year	2
Value of end-user time	$138.6K

n = 7, Source: IDC In-depth Interviews, March 2021

ROI Summary

IDC's analysis of the financial and investment benefits related to study participants' use of Red Hat Integration is presented in **Table 11**. IDC calculates that, on a per-organization basis, interviewed organizations will achieve total discounted three-year benefits of $8.41 million ($51.1K per 100 newly developed features) based on IT staff efficiencies, better application performance, and improved business results. These benefits compare with projected total discounted investment costs over three years of $1.39 million on a per-organization basis ($8.43K per 100 new features developed). At these levels of benefits and investment costs, IDC calculates that these organizations will achieve a three-year ROI of 507% and break even on their investment in six months.

TABLE 11

3-Year ROI Analysis

	Per Organization	Per 100 New Features Developed
Benefit (discounted)	$8.4M	$51.1K
Investment (discounted)	$1.4M	$8.4K
Net present value	$7.0M	$42.7K
ROI (NPV/investment)	507%	507%
Payback (months)	6 months	6 months
Discount factor	12%	12%

n = 7, Source: IDC In-depth Interviews, March 2021

Challenges/Opportunities

Challenges

One challenge cited by a customer in this assessment is the complexity of determining how to move off the incumbent vendor's enterprise license agreement, which has penalties beyond cost differences. These agreements make it difficult to simply compare head-to-head pricing. In this case, the team had to project head-count reduction as part of the analysis. The benefit of reducing expensive head count created the cost justification and also illustrates the importance of pre-integrated tooling and vendor use of automation to drive down labor costs.

Another challenge is the trade-off analysis required to determine whether the pre-integrated portfolio is better than purchasing individual best-of-breed components and then building out the equivalent integration.

Modernizing integration running on Kubernetes can be complicated, because there is a learning curve with how to implement Kubernetes if you haven't already deployed it. Then there is the need to reorient integration to support microservices, especially in understanding which microservices are utility-like versus others that are specific to a unique requirement. If both Kubernetes skills and microservices skills are already in place, the integration modernization learning curve is made much easier.

Opportunities

The opportunity of modernizing integration is to standardize, scale, and make integration services and assets available wherever needed to all developers to speed up the development of features and applications that require integration. And today, most applications require API-based connectivity and integration.

Modernizing integration means that the integration team is able to:

- Use standard tools to build standalone integration services and combine with third-party APIs into a central catalog or library.
- Call or build a custom integration from within a microservices cluster.
- Efficiently deploy integration assets wherever they are needed.
- Provide self-service integration capabilities to all development teams to access assets built and maintained in the integration portfolio. Because use of API connectivity and integration are pervasive across application development, all developers would be able to use these self-service assets to speed up the integration and connectivity microservices that are part of a larger application project.
- Create capacity within the integration team to ensure integration skills are available across application projects where complex or custom integration development is required.

Conclusion

Speeding up time to market for the delivery of new and updated applications is a top priority for customers interviewed in this study. Because application development has a growing dependency on integration and API-based connectivity, customers looked for an integration platform that enabled microservices-based integration development and a cloud-native architecture.

Interviewees told IDC they were achieving their goals using the Red Hat Integration solutions. They were able to double the number of applications they could integrate and were able to develop and get to market more application features. This enabled better SLA targets and opportunities for more revenue for these organizations. Because of these benefits, the organizations are able to achieve a 6-to-1 return on their investment in these Red Hat Integration solutions.

Appendix—Methodology

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from current users of the Red Hat solution as the foundation for the model.

Based on interviews with organizations using it, IDC performed a three-step process to calculate the ROI and payback period:

1. Gathered quantitative benefit information during the interviews using a before-and-after assessment of the impact of Red Hat Integration. In this study, the benefits included staff time savings and productivity benefits, and operational 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 Red Hat Integration and can include additional costs related to migrations, planning, consulting, 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 Red Hat 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.

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 $100,000-per-year salary 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).

- 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.
- 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.

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Harsh Singh is a Senior Research Analyst for the Business Value Strategy Practice, responsible for developing return-on-investment (ROI) and cost-savings analysis on enterprise technological products. Harsh's work covers various solutions that include datacenter hardware, enterprise software, and cloud-based products and services. Harsh's research focuses on the financial and operational impact these products have on organizations that deploy and adopt them.

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