



WHITE PAPER

Azure Site Recovery and Azure Backup is Helping Improve Business Operations

Sponsored by: Microsoft

Phil Goodwin
February 2019

Harsh Singh

EXECUTIVE SUMMARY

IT organizations have many choices with respect to data protection, whether traditional on-premise infrastructure (i.e., backup/recovery with tape or backup appliances) or cloud-based services (i.e., backup as a service, archive as a service and disaster recovery as a service). The choices can make product selection daunting, given different solution architectures and the claims and counter-claims made by vendors. To assist IT leaders with these decisions, IDC takes a business value approach to quantifying the impact that organizations may reasonably expect when adopting a specific solution. These are not head-to-head product comparisons, but rather an in-depth examination of a specific product based on existing customer experiences and the results they have seen. Recently, IDC was commissioned by Microsoft to produce such an analysis of Azure Site Recovery and Azure Backup. Some of the finding highlights are in the box to the right.

IDC interviewed multiple organizations that were using Microsoft Azure Site Recovery (ASR) and Azure Backup services. IDC found that these organizations were realizing significant benefits by leveraging these services as the core of their backup and recovery operations. Based on IDC's calculations, the companies surveyed realized average discounted annual benefits worth \$1.49 million per organization by:

- Driving higher IT staff productivity among IT infrastructure, data protection, and recovery teams
- Improving the overall performance of backup and data recovery operations
- Reductions in expenditures for backup and recovery hardware and software
- Realizing reductions in unplanned downtime

Business Value Highlights

- 337% five-year ROI
- 46% reduced TCO
- 6 months to payback
- 99% reduction in lost productivity
- 66% reduction in average data recovery time
- 76% faster backups
- 51% more efficient IT infrastructure teams
- 46% reduction in unplanned downtime
- 44% more efficient data recovery teams

SITUATION OVERVIEW

IDC estimates that as many as half of all businesses could not survive in the event of a true disaster impacting their organization. This is because of ill-preparation that would result in excessively long recovery times (i.e., more than a month) with a significant loss of unrecoverable data. Key deficiencies include:

- Lack of a defined DR plan and insufficiently identified and allocated infrastructure resources needed for a recovery
- Lack of written fail-over processes, instead hoping for the heroic efforts of individuals to recover the systems, leading to false starts and incomplete recoveries
- Insufficient personnel planning based on the assumption that a full staff will be available to complete the recovery, when in fact many key people may not be available.

Data protection and disaster recovery involve the classic triumvirate of people, process and technology; any recovery plan must include all three. Certainly, however, technology can be used to supplant the need for some human effort and provide automated execution of defined processes. While understanding the limits of technology, IT organizations should leverage the increasingly available data protection solutions.

Data protection and DR solution deployments are largely driven by the application architectures they are intended to protect. Modern IT organizations must contend with application deployments that include traditional on-premise applications, public cloud-based applications (both in-house and SaaS), cloud-native applications as well as structured data, unstructured data, newer NoSQL data types and more. The high number of possible permutations make data protection and DR all the more challenging.

At the same time, cloud data protection technology is fundamentally changing the data protection and DR landscape in ways that are almost universally positive. First, on-demand cloud economics are making DR a financially realistic possibility for all organizations, but especially small-medium enterprise that could not previously afford duplicate DR infrastructure.

In addition, workload migration products, data replication products and recovery orchestration products are automating the movement and recovery of applications, especially in x86 virtual environments. When combined with cloud resources, IT organizations have offsite recovery capabilities that are highly automated with the affordability of on-demand cloud economics. The excuses for IT organizations not being fully DR prepared are dwindling.

Over time, we believe the distinction between data protection, high availability and DR will diminish. As organizations implement technologies to seamlessly migrate applications across on-premise and cloud locations with minimal disruption to users, the need for separate infrastructure and processes to meet different needs will be reduced. Instead, organizations will focus on application availability with application location becoming less relevant.

IDC research shows that a more than 80% of organizations use cloud for some portion of their data protection strategy. Cloud-based tools have reached a high level of functionality and the choices are numerous. Knowing which products truly deliver value will help IT manager to make the best deployment decisions.

AZURE SITE RECOVERY AND AZURE BACKUP OVERVIEW

The products examined in this study include Azure Site recovery and Azure Backup. A brief summary of these two products is below.

Azure Site Recovery

Azure Site Recovery is a disaster recovery-as-a-service (DRaaS) solution. Azure Site Recovery is a native cloud solution that can protect on-premise workload (DR failover from on-premise to the Azure cloud) as well as Azure-to-Azure cloud recovery. The solution works for virtual infrastructure workloads, whether Hyper-V or VMware as well as physical workloads.

Azure Site Recovery provides all of the technological components needed for a DR failover, including data replication, workload migration, and recovery orchestration. The solution also allows IT organizations to test DR failover without impacting production workloads. Being a cloud solution, Azure Site Recovery allows organizations to scale necessary resources on-demand to minimize upfront costs while maintaining flexibility to meet full workload demands. Features of the solution include:

- Management console - manage replication, failover and failback from the Azure console
- VM migration - migrate VMs between Azure regions or from on-premise data centers
- Workload migration - supports workload migrations for VMs (Hyper-V and VMware) as well as Windows and Linux physical servers
- Service level management - manage both RPO and RTO with RPO as low as 30 seconds
- Application-consistent failover - snapshots capture disk data, data in memory and in-process transactions

Azure Backup

Azure Backup provides backup and recovery functionality built into the Azure platform. Its backup and restore capabilities cover VMs, files and folders, Exchange, Sharepoint, SQL and more. both in Azure and on-premise. Management of Azure Backup is performed from the Azure console, including centralized monitoring and reporting. Multi-factor authentication, alerts for suspicious behavior help reduce the threat of attack from malware or ransomware. Users are also able set data retention times to either short or long-term (up to 99 years).

Azure backup also has a number of features to help customize the service to specific needs. This includes network throttling to take advantage of off-peak times as well as incremental-forever backups. Data is both compress and encrypted for secure storage.

THE BUSINESS VALUE OF AZURE SITE RECOVERY

Study Demographics

IDC interviewed ten organizations for this study asking survey respondents a variety of quantitative and qualitative questions about the impact of deploying Microsoft Azure Site Recovery and Azure Backup services on their IT operations, businesses, and costs. The average number of employees in the organizations interviewed was slightly larger than 75,000 indicating the inclusion of several large companies in the mix, with about 1,500 IT employees supporting an internal users base of about 96% of all employees. This IT staff was supporting about 417 business applications.

Most companies were US-based with the remainder located in Australia and Switzerland. Vertical industries represented include the information technology, financial services, government, construction, education, and automotive sectors.

TABLE 1

Demographics of Interviewed Organizations

	Average	Median	
Number of employees	75,500	19,000	
Number of IT staff	1,500	400	
Number of IT users	73,000	18,905	
Number of external customers	49,000	10,000	
Number of business applications	417	275	
Industries	Information Technology (4), Financial Services (2), Government, Construction, Education, Automotive		
Countries	United States (8), Australia, Switzerland		

n=10

Source: IDC, 2019

Organization Use of ASR and Azure Backup

Study participants described to IDC both the value proposition supporting usage and the rationale behind their choice of ASR and Azure Backup as a platform. These selection criteria ranged from capex and opex-related financial considerations to the importance of having more agile backup capability and the newer integration capabilities offered by the platform. Study participants made the following specific observations about these benefits:

- **Enabling IT transformation:** “The strategy behind our IT transformation is going as high up the stack as we possibly can based on the application and the business requirements, either internally or externally. Data protection is a corner stone of this strategy because with

transformation often comes problems. So it's effectively a safeguard while being able to transform a lot faster, and probably with a lot more freedom knowing we have the backup and disaster recovery strategy in place."

- **Staff and cost savings:** "There are staff savings and cost savings uniformly across the board. For example, hardware support: we have limited the amount of hardware. We have been able to reduce about 55%-65% of our obsolete hardware. We are probably avoiding 20% in hardware costs."
- **Gaining more flexibility:** "We switched to Azure Site Recovery and Azure Backup to move away from a cost-prohibitive backup technology to something that was more flexible, cloud-based, lower cost, and more agile. Now we are able to evolve quickly with changes to the technology. "
- **Seamless integration:** "The beauty of Azure Backup is that it is built into the platform and works well. We are pretty happy with it, but we needed to be convinced that we should adopt it and that took some time. We were waiting for certain features and finally made the leap. Now we have more than 400 servers actively being backed up by Azure backup

Table 2 provides more details on the key usage metrics associated with the IT environments being supported by ASR and Azure Backup. For example, as shown, the average number of datacenters was 5 which, in the aggregate, supported 317 TB's of total capacity. In addition, the number of Azure server instances was 369 supporting a total of 58 applications.

TABLE 2

Organizational Usage of Azure Site Recovery and Azure Backup

	Average	Median	Range
Number of datacenter	5	2	1 to 10
Number of TBs	317	225	2 to 1,419
Number of countries supported	18	3.5	1 to 155
Number of sites/branches	253	9	2 to 1,000
Number of Azure server instances	360	400	8 to 872
Number of physical servers	154	105	2 to 85
Number of virtual machines	1486	700	45 to 4875
Number of applications	58	33	5 to 200

TABLE 2

Organizational Usage of Azure Site Recovery and Azure Backup

	Average	Median	Range
--	---------	--------	-------

n=10

Source: IDC, 2019

Business Value Analysis

Interviewed organizations are using Microsoft ASR and Azure Backup to provide the levels of performance they need to support their growing business operations. IDC found that deployment of ASR services resulted in reduced total cost of operation, improved operations, and less downtime. Interviewed companies are spending less on their backup environments and seeing improvements in the amount of staff time required to manage and support backup and recovery operations.

With the survey data as a base, IDC quantified these benefits using a robust methodology. Based on IDC’s calculations, these organization were realizing an average annual reduction in the total cost of operations (TCO) by 46% per organization per year. This was accomplished by:

- Driving higher IT staff productivity among IT infrastructure and data protection and recovery teams
- Improving the overall performance of backups and data recovery operations while reducing the amount of unplanned downtime they were seeing.
- Reductions in expenditures for backup infrastructure including hardware and software

Study participants spoke in detail about these benefits:

- **Reduced management burden:** “The burden of the management and ease of maintaining our backup environments shifts to Azure Site Recovery and Azure Backup so we rely on Microsoft to run that for us. The other benefit is around the speed and agility of the solution and the environment. In the past if we needed to expand our backup systems, it would take several months to procure the hardware, and then install and configure it. With Azure Backup we can increase or decrease our capacity much faster. A lot of that management burden is now on Microsoft.”
- **Good customer service and easy integration:** “We give some of our problems to Microsoft because you know they are going to be looking after you. Azure Site Recovery and Azure Backup comes integrated well, so we don’t have to worry about some of the loose ends of integration. I think that’s the best thing about the service.”
- **Easier management and strong TCO benefits:** “The best thing about Azure Backup is that it allows us to avoid managing the backup infrastructure itself such as servers, storage, and licenses. Also it gave us the ability to back up servers that are shut down. And overall, it was

cheaper. Based on our five year TCO analysis, the pricing was quite attractive for the solution.”

Risk Reduction: More Efficient Backup and Recovery

Study participants across all organizations spoke about how the ASR and Azure Backup service platform helped them reduce risks related to the corporate-wide use of data. They also reported the benefits of improved speed and agility in their backup and recovery operations. Other benefits cited included

- Ease of integration with existing systems
- Better recovery management
- More efficient performance resulting in lower RTOs and RPOs.

Study participants spoke in detail about these benefits:

- **Improved service levels and cost:** “Our RTOs and even more so, our RPOs used to be lot higher. So we have been able to reduce that a lot while at the same time reducing costs. The actual reduction in costs would be well into the 90% range.”
- **Easier recovery management:** “With Azure Site Recovery, once you go to a portal, it’s pretty simple to click and start replicating and create a policy. Anybody could walk in the door, look at a vault, and say: There’s the virtual machine I was looking for, let me hit the restore button.” and it works. You don’t have to worry about a million clicks and toggles and everything else on the backend as with our previous vendor. From that perspective, it’s widened the funnel point of people who can actually interact with our backup utility.”

Table 3 presents quantified benefits related to the backup and recovery efficiencies associated with the ASR and Azure Backup service platform. For example, the average time to run backups, measured in hours showed a 76% level of improvement. In addition, average data recovery windows showed a 66% level of improvement.

TABLE 3

Backup and Data Recovery impact

	Before ASR and Azure Backup	With ASR and Azure Backup	Difference	% Benefit
Number of disaster recovery test performed per year	9	11	1.9	22%
Number of backups per month	5,053	5,327	273	5%

TABLE 3**Backup and Data Recovery impact**

	Before ASR and Azure Backup	With ASR and Azure Backup	Difference	% Benefit
Average time to run backups, hours	13	3	9.9	76%
Average data recovery window, hours	11	4	7.1	66%
Data de-duplication rate	1.2:1	1.6:1	0.4	37%
Amount of data retained on-premise (TB)	275	156	118	43%

n=10

Source: IDC, 2019

As Table 4 shows, organizations were also reporting they were seeing better data loss recovery operations as teams that were seeing an 86% reduction in the number of data loss incidents per year. ASR and Azure Backup also had a significant impact on the time it took to resolve these data loss incidents by 94% as measured by hours. Overall, the impact to end users of these data loss incidents saw a 99% improvement in the time freed up because of improved data loss recovery operations.

TABLE 4**Data Loss Productivity Impact**

	Before ASR and Azure Backup	With ASR and Azure Backup	Difference	% Benefit
Frequency per year	27.4	3.8	23.6	86%
Time to resolve (hours)	9.3	0.50	8.8	94%
FTE impact, lost productivity due to data losses	11.1	0.03	11.1	99%

TABLE 4**Data Loss Productivity Impact**

	Before ASR and Azure Backup	With ASR and Azure Backup	Difference	% Benefit
Cost of unplanned downtime, per year	\$776,000	\$1,800	\$774,000	99%

Source: IDC, 2019

More Efficient Data Protection Teams

ASR customers stressed the importance of making both their IT infrastructure and data recovery teams as efficient as possible. They discussed how the ASR and Azure Backup solutions helped them achieve this goal by providing easier recovery management and improving related support processes. The benefits of more automated processes and easier to use technology features and enhancements served to make their data protection and recovery teams more efficient in the day to day performance of tasks. Study participants stressed the fact that both initial configuration and upgrades were much easier to accomplish with ASR and Azure Backup and spoke in detail about these and other benefits:

- **Easier set up:** “In the past we had to rely on setting up infrastructure by waiting for it to be specified out properly. Scalability was not always planned for. But with Azure Site Recovery and Azure Backup you can start with a click of the button now. We don't spend a whole lot of time interacting with internal teams to set something up. We can get it done pretty quickly. ”
- **Optimized management :** “Productivity has changed because of the switch to Azure Site Recovery and Azure Backup because there is less care and feeding needed. We can do planned maintenances during the day versus doing it off-hours. And part of that comes down to a cost perspective and avoiding having a person who has to either shift their work schedule or work a second or third shift.
- **More streamlined upgrades:** “We have streamlined processes with Azure Backup. We don't need to worry because it's part of the platform, and we don't need to think about things like, “Do we have to go the next version of the Azure Backup solution?’ or ‘ What if we are on X, Y, Z version of our virtualization platform, are these compatible with each other? ‘. You don't need to think about these kinds of things with Azure. It just works and is compatible at all times. ”

Table 5 presents granular metrics on the backup and data recovery staff impacts of both ASR and Azure Backup. For example, management of data protection and data recovery, calculated in annual FTE equivalents per organization, showed a 44% level of improvement. In addition, annual staff time costs saw a similar improvement.

TABLE 5**Data Protection and Data Recovery Team Impact**

	Before ASR and Azure Backup	With ASR and Azure Backup	Difference	% Benefit
Management of Data Protection and Data Recovery, FTE equivalent per organization per year	16.1	9.0	7.1	44%
Staff time cost per year	\$1,609,000	\$899,000	\$709,000	44%

Source: IDC, 2019

As interviewees noted, ASR and Azure Backup was much easier for them to manage. As a result, organizations were seeing an impact on overall IT infrastructure management teams which IDC calculated a 51% level of improvement as noted in Table 6.

TABLE 6**IT Infrastructure Team Impact**

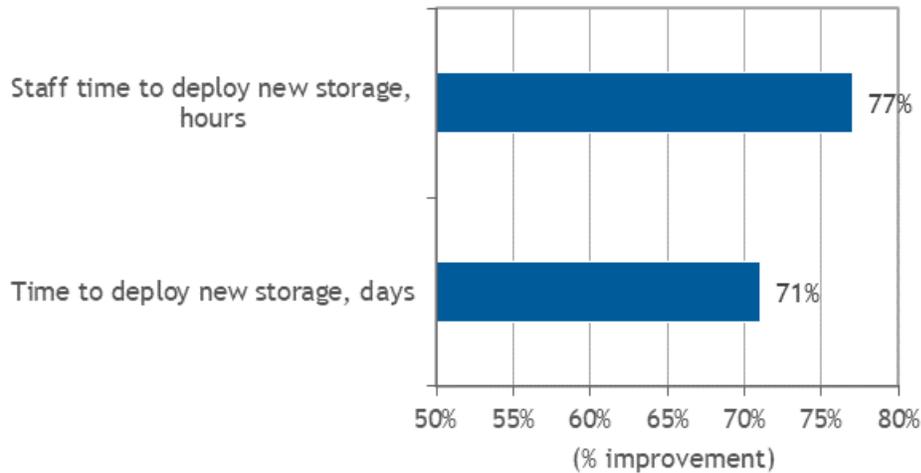
	Before ASR and Azure Backup	With ASR and Azure Backup	Difference	% Benefit
IT Infrastructure Management, FTE equivalent per organization per year	6.2	3.0	3.1	51%
Staff time cost per year	\$618,000	\$304,000	\$313,000	51%

Source: IDC, 2019

Finally, deployment of new resources was also more efficient with ASR and Azure Backup as shown in Figure 1. The figure indicates a 77% improvement in the staff time required to deploy new storage, measured in hours while the total time to deploy new storage saw a 71% improvement.

FIGURE 1

IT Agility Impact



Source: IDC, 2019

Impacts on Unplanned Downtime

ASR customers reported positive impacts on unplanned downtime and business productivity. These organizations found that they could reduce the incidence of outages as the result of deploying the ASR and Azure Backup services platform. This in turn translated into benefits for line of business (LOB) users and business outcomes.

In this context, one study participant described the benefit of easier recovery management: “Because we’ve already proven that disaster recovery tests are better, our disaster recovery coordination group has become an ally instead of constantly haggling. This is because they now understand what Azure Site Recovery does and what it can do with some of these applications. So from a business perspective, it has absolutely improved confidence in our capability to recover their applications.”

Table 7 shows the unplanned downtime impacts for both ASR and Azure Backup. As shown, the time to resolve, measured in hours, showed a substantial level of improvement (67%). In addition, the frequency of outages showed a similar level of improvement at 69%.

TABLE 7**Unplanned Downtime Productivity Impact**

	Before ASR and Azure Backup	With ASR and Azure Backup	Difference	% Benefit
Frequency per year	24.6	7.6	16.9	69%
Time to resolve (hours)	93.4	30.80	62.7	67%
FTE impact, lost productivity due to data losses	25.5	13.70	11.7	46%
Cost of unplanned downtime, per year	\$1,782,000	\$960,000	\$822,000	46%

Source: IDC, 2019

In addition, the ripple effect of unplanned downtime showed up in business results: Table 8 shows average total additional revenue per year calculated at \$571,000 as organizations are able to capture more revenue because of better availability of key applications and workloads.

TABLE 8**Risk Mitigation-Unplanned Downtime Revenue Impact**

	Per Organization
Total additional revenue per year	\$571,000
Total recognized revenue, IDC model, per year	\$85,600
*The IDC model assumes a 15% operating margin for all additional revenue.	

Source: IDC, 2019

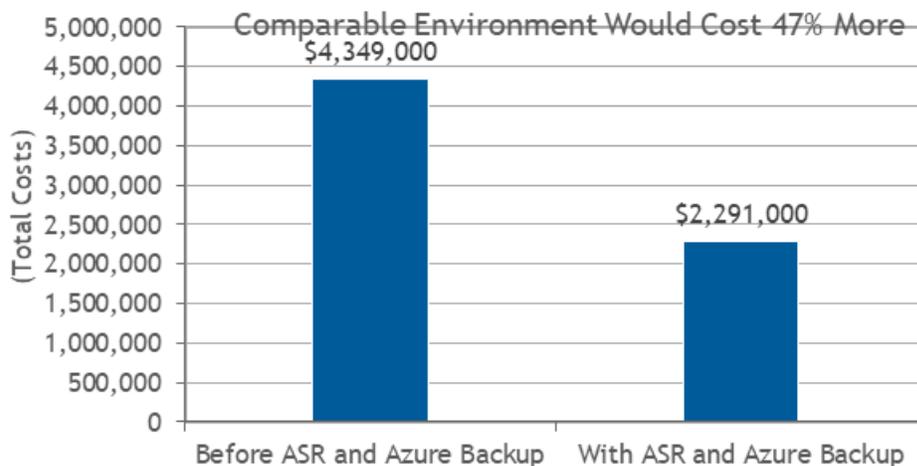
More Cost-effective Backup Systems and Functionality

Study participants noted that ASR and Azure Backup offered a cost-effective solution for their businesses when compared against other commercial options. Cost savings included both hardware and software capex and opex which in the aggregate rolled up into total cost of ownership (TCO) benefits. Companies found that leveraging a cloud-based infrastructure obviated the need for the purchase of backup and recovery on-premises solutions or operational oversight of solutions already in place.

ASR and Azure Backup customers noted that they are seeing lower costs to build out their IT Backup and Site Recovery environments which IDC projects to be about 47%. Figure 2 presents metrics related to IT infrastructure savings comparing pre- and post-deployment environments.

FIGURE 2

Five year IT Infrastructure Costs



Source: IDC, 2019

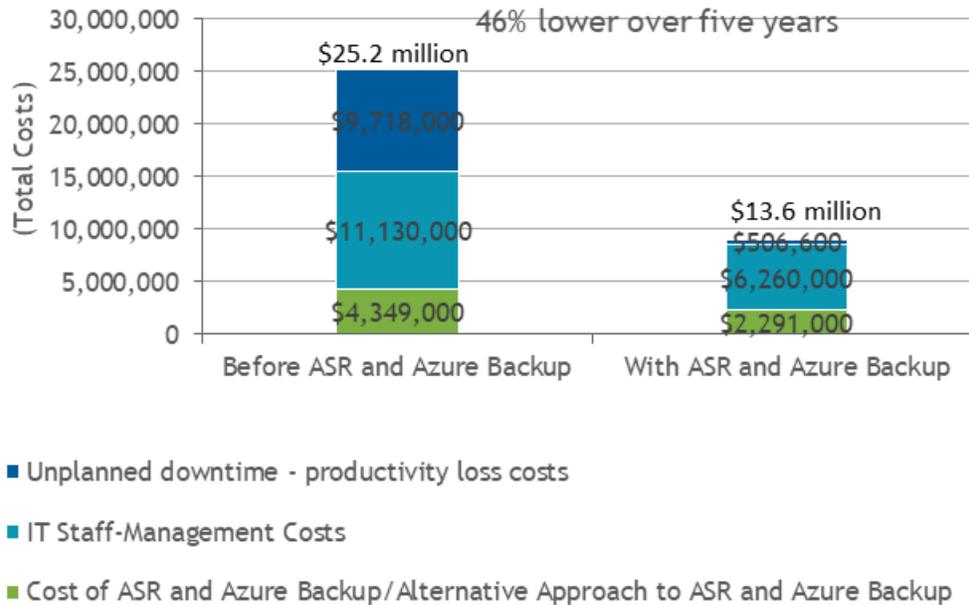
IDC also calculated the TCO for these organizations. IDC used three evaluation criteria to arrive at these calculations:

- Cost of lost productivity
- IT staff management costs
- ASR cost vs. cost of a competing solution

As shown in Figure 3, IDC calculations show that these organizations total costs were about 46% after the deployment of the ASR and Azure Backup service platform.

FIGURE 3

Five-Year Cost of Operations



Source: IDC, 2019

Impacts and Improvements for Line of Business Users

Study participants spoke to IDC about how ASR provided the performance required by their business operations and how this improvement resulted in higher levels of employee productivity and increased revenue. Functional areas impacted included application development and the ability to innovate. Study participants spoke specifically about these benefits:

- **User-friendly attributes:** “Azure Site Recovery is very user-friendly. You can have your own code for doing things after you recover your virtual machines. For example, you can add little scripts to finalize the small details around processes. So it’s DevOps friendly and increases confidence.”
- **More confidence to innovate:** “Since the security of our data is better, we can be braver about innovation. Azure Site Recovery and Azure Backup also helps us reduce the number of security products by limiting the number of security apps that we need. “
- **Increased confidence for application development:** “Our application developers definitely trust our backup operations a lot more and are more free to roam and experiment. They are saving time because they know that Azure Backup is working in the background with more frequent backups so they don’t have to do backups themselves. For example, they are sometimes not even worried about the Dev/Test stage and they go straight into production knowing that production is backed up. ”

Table 9 shows the end user impacts resulting from deploying the ASR and Azure Backup service platforms. As shown, the average number of productive hours gained post-deployment was 1371.

TABLE 9**End User Impact**

	Per Organization
Number of users impacted	45.2
Average productivity gains	2%
Productive hours gained	1,371
End user impact, FTE equivalent per organization per year	0.7
Value of end user time	\$51K

Source: IDC, 2019

ROI Analysis

Table 10 presents IDC's analysis of the benefits and costs related to participating organizations' use of ASR and Azure Backup. IDC projects that these organizations will realize over five years discounted benefits of \$7.47 million per organization (\$10,250 per 100 internal users). When compared against a discounted investment of \$1.71 million (\$2350K per 100 internal users), these organizations will see an ROI of 337% and a breakeven on their investment in 6 months.

TABLE 10**ROI Analysis**

	Per Organization	Per 100 Users
Benefit (discounted)	\$7.47 million	\$10,250
Investment (discounted)	\$1.71 million	\$2,350
Net present value (NPV)	\$5.83 million	7904
Return on investment (ROI)	337%	337%
Payback period (months)	6	6
Discount rate	12%	12%

TABLE 10

ROI Analysis

	Per Organization	Per 100 Users
--	------------------	---------------

Source: IDC, 2019

CHALLENGES AND OPPORTUNITIES

Cloud-based data protection is one of the fastest growing data protection-related markets today. IDC estimate this market, comprised of disaster recovery as a service, backup as a service and archive as a service, to reach \$6.7 billion in 2019 growing at 16.2% composite CAGR. We also estimate that more than 2,000 cloud service providers (CSP) have some DPaaS offering. Thus, while growing rapidly, it is also highly competitive. Remaining technologically competitive in this market will challenge all participants, including Microsoft.

Over time, we believe the trend is toward application-centric data protection, whereby data backup and disaster recovery are elements in the continuum of application availability. This application centricity will be especially acute among SaaS applications, where the stand-alone nature of the application will demand specific recovery requirements. However, the applications will not be truly standalone - many will share data through containers or gather information from IoT devices.

All of this adds up to a challenge and an opportunity - a rapidly growing market, but one with almost endless permutations of requirements. To be successful, even a large organization like Microsoft must focus on specific requirement areas and partner for many those it cannot address. Using its position as a major cloud platform, Microsoft certainly has the means and opportunity to do so.

SUMMARY AND CONCLUSION

[[To be drafted after Microsoft review of first full draft]]

APPENDIX - METHODOLOGY

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from current users of Recorded Future as the foundation for the model. Based on interviews with organizations using Recorded Future, 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 Recorded Future.** In this study, the benefits included staff time savings and productivity benefits, and operational cost reductions.
2. **Created a complete investment (five-year total cost analysis) profile based on the interviews.** Investments go beyond the initial and annual costs of using Recorded Future 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 Recorded Future reports over a five-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 five-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.

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.

Global Headquarters

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

Copyright Notice

This IDC research document was published as part of an IDC continuous intelligence service, providing written research, analyst interactions, telebriefings, and conferences. Visit www.idc.com to learn more about IDC subscription and consulting services. To view a list of IDC offices worldwide, visit www.idc.com/offices. Please contact the IDC Hotline at 800.343.4952, ext. 7988 (or +1.508.988.7988) or sales@idc.com for information on applying the price of this document toward the purchase of an IDC service or for information on additional copies or web rights.

Copyright 2019 IDC. Reproduction is forbidden unless authorized. All rights reserved.