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The Business Value of Amazon Web Services Storage

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BUSINESS VALUE HIGHLIGHTS

Click on highlights below to navigate to related content within this white paper.

354%
five-year ROI

43% reduced
total cost of operations

11 months
to payback

40% more efficient
storage administrators

47% more efficient
IT infrastructure management

62% reduction
in unplanned downtime

32% reduction
in storage-related infrastructure costs

$4.2 million additional
new revenue gained per year

22% more productive
data analytics teams

51% more productive
application developers

16% more efficient
end users

Executive Summary

Cloud infrastructure is increasingly seen by organizations as the preferred backbone for digital transformation (DX) initiatives and IT modernization. This is evidenced by the continued pace of growth in cloud spending, up 38% in 2019 to a worldwide total of $49 billion and forecast to increase 34% in 2020 to a worldwide total of $66 billion. There's no doubt that increasing adoption of cloud compute and storage resources is driving market growth, and there are important nuances to this growth as well — regarding the depth and breadth of adjacent cloud services that organizations also adopt once data is accessible to them.

As cloud adoption matures, organizations are rapidly expanding their use in terms of the diversity of applications and use cases. In the early days of the market, organizations used cloud primarily for developing "greenfield" applications or for non-production use cases. However, current trends in buyer behavior indicate businesses are increasingly deploying their existing enterprise workloads on cloud. Examples of cloud application deployments include SQL databases for storing structured data, enterprise resource planning (ERP) and customer relationship management (CRM) applications, analytics, and high-performance computing (HPC) applications. Organizations prefer to move these workloads into the cloud in a minimally disruptive manner, with little or no changes to their existing IT environment or operations.

IDC interviewed organizations about their use of Amazon Web Services (AWS) Storage services for a variety of use cases. Study participants identified key benefits in adopting AWS Storage.

Based on these interviews with AWS Storage customers, IDC puts the value they will achieve at an annual average of $4.8 million per organization ($78,400 per 100 users) by:

- **Fostering more efficient and productive** IT infrastructure management, data analytics, and application development teams
- **Improving the productivity** of storage administrators
- **Helping organizations better address business opportunities and increase revenue** by enabling new capabilities, extending existing services, and adding the agility to adapt to market conditions and capitalize on new customer trends
- **Enabling more efficient use of resources** to reduce the cost of both operations and IT infrastructure
- **Reducing the incidence of unplanned downtime** affecting end-user productivity

Situation Overview

IDC's Global DataSphere indicates that the amount of data created over the next three years will be more than the data created over the past 20 years, and the world will create over three times more data over the next five years than it did in the previous five years. The simple reality is that organizations are generating more data than ever before through digital tools and operations needed to meet evolving customer behaviors and needs. It's important to note that while not all of this data will be stored — much of it will be transient in nature — as businesses search for new avenues of innovation and drive competitive advantage, they will look to store as much data as possible for as long as possible as they explore new ways to create value with it, provided this can be done in a cost-effective manner. The real and perceived value of stored data has never been higher, and as a result, organizations are scrambling to keep up with capacity growth and data access demands and the need to connect increasingly sophisticated tools and services to this stored data.

AWS Storage Overview

AWS is a proven market leader in cloud storage. As of 1H20, IDC estimates that AWS' share in the cloud storage market represented over half of the total market and was three times larger than the closest competitor. This leadership is also demonstrated at the product level; AWS has the most extensive portfolio of cloud storage services available, from extremely low-cost object storage to high-performance block and shared file storage, including fully managed storage services. Furthermore, it is important to note that AWS Storage services such as Amazon Simple Storage Service (Amazon S3) have been extremely successful and also that the S3 storage API has become the de facto standard for developers writing to object storage.

Critical in the context of this analysis is the fact that AWS services overall are continually expanding — including services to enable optimization and automation of AWS usage, higher-layer use cases such as databases and cloud-native applications, and accelerating the time to market for new capabilities such as artificial intelligence/machine learning (AI/ML) and IoT. New capabilities are a key motivator for organizations moving to cloud, and the availability of adjacent services to make use of their data leads them to cloud storage. As of mid-2020, AWS offers more than 175 cloud services (growth of over 100 services in the past three years). These are further enhanced by a broader program to support the onboarding of customers through partners. These adjacent services help make customer adoption of more mature services and use cases in the cloud a reality.

AWS Storage includes solutions such as Amazon Simple Storage Service, S3 Glacier and S3 Glacier Deep Archive, Amazon Elastic File System (Amazon EFS), Amazon FSx for Windows File Server, Amazon FSx for Lustre, Amazon Elastic Block Store (Amazon EBS), and the AWS Transfer Family. Amazon S3 is an object storage service that is designed to provide scalability, data availability, security, and performance. Use cases include data lakes, websites, mobile applications, backup and restore, archive, enterprise applications, IoT devices, and big data analytics. Other offerings in the solution set, S3 Glacier and S3 Glacier Deep Archive, are designed to offer secure, durable, and low-cost Amazon S3 cloud storage for data archiving and long-term backup with added security and compliance capabilities. Amazon EFS provides a fully managed elastic NFS file system for use with AWS Cloud services and on-premises resources. FSx for Windows File Server provides fully managed file storage that is accessible over the industry-standard Server Message Block (SMB) protocol. FSx for Lustre is a fully managed service that provides high-performance storage for compute-intensive workloads, which rely on compute instances accessing the same set of data (e.g., machine learning, high-performance computing, video rendering, financial simulations). Amazon Elastic Block Store is a high-performance block storage service designed for use with Amazon Elastic Compute Cloud (EC2) for both throughput and transaction-intensive workloads (e.g., relational and non-relational databases, enterprise applications, containerized applications, big data analytics engines, file systems, and media workflows).

The Business Value of AWS Storage

Study Demographics

IDC conducted research that explored the value and benefits for organizations in adopting AWS Storage. The project included nine interviews with organizations that had experience with and knowledge about the benefits and costs of using AWS. The interviews posed a variety of quantitative and qualitative questions about its impact on their IT and storage operations, cost profiles, and business results.

Table 1 (next page) presents the demographics and profiles of study participants. On average, the organizations that IDC interviewed had a base of 79,062 employees, which indicate the involvement of several large companies. All of these employees were IT end users. This workforce was supported by an IT staff of 927 engaged in managing 215 business applications used by those employees along with 7.4 million external customers and/or end users in other categories.

In terms of geographical distribution, three companies were based in the United States, with the remainder in Australia, Belgium, France, New Zealand, Singapore, and the United Kingdom. An array of vertical industries were represented, namely government, healthcare, media and entertainment, financial services, insurance, and manufacturing. (Note: All numbers cited represent averages.)

TABLE 1

Firmographics of Interviewed Organizations

Firmographics	Average	Median	Range
Number of employees	79,062	32,000	650–500,000
Number of IT staff	927	400	30–4,000
Number of IT users	79,062	32,000	650–500,000
Number of external customers/users	7.4 million	4.0 million	40,000 to 20 million
Number of business applications	215	160	100–500
Revenue per year	$36.6 billion	$6.4 billion	$182.4 million to $197.4 billion
Countries	United States (3), Australia, Belgium, France, New Zealand, Singapore, United Kingdom		
Industries	Government (2), healthcare (2), media and entertainment (2), financial services, insurance, manufacturing		

n = 9 | Source: IDC In-depth Interviews, November 2020

Choice and Use of AWS Storage

Interviewed organizations discussed the rationale behind their decisions to adopt AWS Storage. They cited the ability to scale storage capacity as needed as perhaps the most important consideration in their choice of AWS Storage. They also cited management tools that helped the various teams that were managing the applications and improved time to market as important factors in their decision.

Study participants explained these considerations:

- **Desire for scalable storage:**
  "Our datacenter with respect to networking and storage exploded … almost doubling in three years. Storage capacity grew from 500TB to 1.5PB and continues to grow. That has led us to consider cloud solutions and eventually we chose AWS."

- **Improved time to market:**
  "The factors that made us choose AWS were the readily available services and options to choose database technologies. But time to market was the main driver, both technologically and financially."

- **Ability to manage unpredictable workloads:**
  "The ability to easily scale up and down was important. We're a longtime TV broadcaster from New Zealand. We have digital online delivery such as Netflix and also have radio and satellite TV. If you can't easily plan your workloads, and you have peaks and troughs in usage, then a cloud provider is better. AWS is more mature in that regard and very suited for engineering-heavy workloads and things that are customized to be able to carve out uniqueness in the market."

- **Easier to manage:**
  "The management tools available on AWS are very usable to manage the cloud application, storage, compute, and so on. That can save a lot of time for users managing the cloud application. Another big reason is that AWS has been in the market for the longest time. A lot of engineers or professionals start their cloud experience with AWS, so you can find a lot of AWS-experienced professionals compared with other cloud offerings."

AWS Storage encompasses a portfolio of services including Amazon S3, S3 Glacier, Amazon EFS, FSx for Windows File Server, FSx for Lustre, and Amazon EBS. The combination of solutions implemented varies according to the size and scope of IT operations, applications requiring support, and other considerations. Table 2 provides a snapshot of AWS Storage use by interviewed organizations and shows how these individual solutions were represented in terms of associated terabytes of data capacity. The combined amount of storage in use among the various solutions are a total of 289.5TB across participants. On average, study participants reported running 70 business applications on various Amazon Cloud Storage services, representing 32% of all business applications in play. Additional metrics are presented in Table 2.

TABLE 2

AWS Product Use by Interviewed Organizations

Firmographics	Average	Median
Number of Amazon EC2 server instances	310	150
Number of databases	77	150
Number of applications	70	10
Number of internal users	6,131	1,350
Percentage of revenue	14	6
Number of terabytes for AWS Storage	289.5	13.0

n = 9 | Source: IDC In-depth Interviews, November 2020

Business Value and Quantified Benefits

Interviewed organizations attributed significant value to running their business applications on AWS Storage. They cited the benefits of having more efficient and productive IT infrastructure management, data analytics, application development, and storage management teams. In addition, more efficient use of storage resources served to reduce the cost of both operations and IT infrastructure. Study participants confirmed that the agility, scalability, and performance of AWS Storage helped their organizations address business opportunities and thereby increase revenue. Reductions in unplanned downtime also provided revenue-related benefits.

Interviewed customers spoke to these and other advantages of AWS Storage:

- **Faster time to market:**
  "The main benefit is time to market. What I mean by that is getting the AWS Storage up and running and moving into agile operations, which improves time to market. It is designed and built as an agile environment. You learn and improve as you release services. Over time, we see it transforming services for security and automating DevOps. It removes bottlenecks and liberates the right people to improve overall operations."

- **Can expand or decrease usage to suit seasonal needs:**
  "The thing that is most beneficial is help with some of our programs like running the health insurance exchanges that might be seasonal. AWS provides us with technology in the datacenter and you are not stuck with it. You can use it when you need it, then spin it down."

- **Can adjust to customer needs:**
  "If we leverage AWS properly, we should be much better at pivoting with customer trends compared to being on prem. It also means that if suddenly something is no longer successful in terms of customer usage, you can turn it off. You don't have this hardware sitting around that you've already paid for. There's more scope for automated assistance as well. It basically just makes you faster and more agile if you're doing it the way AWS recommends."

- **Lower barriers of entry for skills required to run AWS:**
  "We really love the AWS Cloud. We can save our time and spare ourselves having to learn new skills. I think for the maintenance too because the cost becomes feasible. If we buy a server for $20,000, we don't know how valuable that server is the next year. But for AWS, everything is transparent: How much we spent for each instance, on each network, and on each item is very clear."

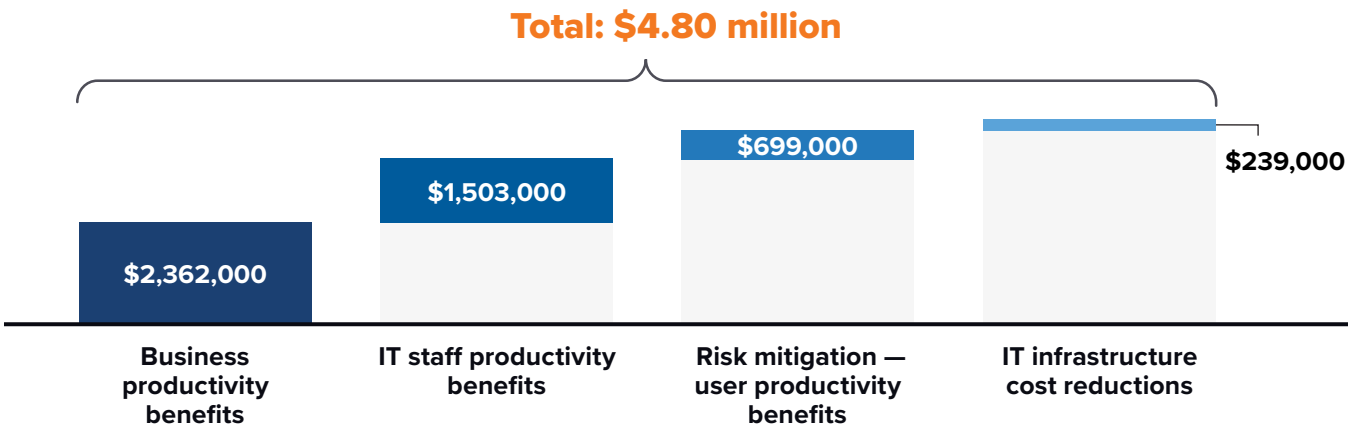
Based on interviews with AWS customers, IDC calculates that these customers will achieve value worth an annual average of $4.80 million per organization ($78,400 per 100 users) in the following areas (see Figure 1, next page):

- **Business productivity benefits:**
  Study participants can support their business operations with greater agility and scalability, thereby improving existing business operations and better addressing new opportunities. IDC puts the value of higher revenue at an annual average of $2.36 million per organization ($38,500 per 100 users).

- **IT staff productivity benefits:**
  Study participants derive benefits from the robust functionality of AWS Storage, which served to minimize day-to-day operations for various IT teams as described. As a result, IDC projects that they will realize staff time savings and productivity gains worth an average of $1.50 million per organization ($24,500 per 100 users).
- **Risk mitigation — user productivity benefits:**
  Study participants reduced lost employee productivity and revenue caused by unplanned outages. IDC calculates that they will see benefits worth an average of $699,000 per organization ($11,400 per 100 users) in higher productivity and revenue.
- **IT infrastructure cost reductions:**
  Study participants realize savings in both capital expenditure and operational costs with the use of AWS Storage. IDC estimates that participants will save an average of $239,000 per organization ($3,900 per 100 users).

FIGURE 1

Annual Average Benefits per Organization



n = 9 | Source: IDC In-depth Interviews, November 2020

The Business Benefits of AWS Storage

IDC evaluated how adopting AWS Storage affected the business processes and results of interviewed companies. The agility, durability, and performance features of AWS helped study participants better address business opportunities and meet customer expectations. Study participants cited specific benefits such as improved productivity for application development and analytics teams. They also highlighted AWS Auto Scaling that adjusted to spiking demands created by calendar-driven business and marketing plans and the advantages of built-in self-service functionality.

Study participants commented on these and related benefits:

- **AWS Auto Scaling can help users work better:**
  "We use AWS Auto Scaling for promotional events to handle the overwhelming traffic, so we don't have to worry about server capacity. Our business marketing can work thoughtfully on those campaigns without worrying about the capacity issue."

- **Analytics teams can take on more data:**
  "There is more data [we can access] with AWS. It's more broadly disseminated, and more analysis is being done. That is a real positive. People can work on solutions from the simplest to the more complex."

- **Business users require less IT support:**
  "Basically, we're in a self-service model. From a business standpoint, line-of-business teams can use the template and turn on operations for their own environment without relying on our IT staff. I believe that this self-service benefit is the biggest one for the business side."

In today's always-on 24 x 7 environments, managing disruptive events that affect IT resource availability is a constant concern. Interviewed organizations reported that they experienced reduced downtime and could address issues that did occur quickly with AWS tools and customer support. The high reliability of AWS Storage with 99.999999999% (11-9s) of data durability was also an important consideration. As one study participant commented: *"Staff savings are definitely a benefit. We can do more with the same number of employees because we no longer have to manage physical machines. Our ability to do this is getting better and better. Five years ago, there were downtime events, but now we don't have to worry about systems being down."*

IDC quantified the impacts of reducing unplanned downtime. As shown in Table 3, the number of annual unplanned outages that organizations saw with the applications and databases being supported by AWS Storage was reduced by 35%. When events did occur, remediation efforts took 42% less time to complete because IT teams could focus on their workloads where resolution was a software or administrative fix, rather than debugging infrastructure, which was more stable with AWS. As a result, business end users experienced a 62% reduction in the annual number of hours lost to unplanned downtime disruptions, which helped keep business operations running smoothly. IDC calculated the annual productivity business value related to minimizing unplanned downtime at $796,000.

TABLE 3

Unplanned Downtime: User Productivity Impact

	Before/ Without AWS Storage	After Implementing AWS Storage	Difference	Benefit
Number of outages per year	14.3	9.3	4.9	35%
MTTR (hours)	3.4	2.0	1.4	42%
FTEs (lost productive time per organization per year)	18.4	7.0	11.4	62%
Hours per user of lost productive time per year	0.4	0.2	0.3	62%
Value of lost productive time per organization per year (based on FTEs)	$1.29 million	$490,500	$796,000	62%

n = 9 | Source: IDC In-depth Interviews, November 2020

IDC looked at how deployment on AWS Storage affected application performance while also reducing latency for IT systems and resources used by internal end users. As mentioned previously, interviewees reported improved performance across a number of key areas by utilizing AWS Storage. As shown in Figure 2, after deployment, application performance improved by 25% and overall latency was reduced by 18%.

FIGURE 2

Performance Metrics

(% improvement)

n = 9 | Source: IDC In-depth Interviews, November 2020

The interviewed companies represented a cross-section of industries, and the extensive digital transformation taking place in many vertical industries means that business applications are a critical dependency for successful business operations. Interviewed companies reported that their application developers were more productive as a result of deploying on AWS Storage. As one study participant noted: *"Our application development teams are twice as efficient. The difference is incredible. We had a contact tracing application that we took from scratch in about a three-week time frame. That would not have been possible in the past."*

By having more storage to work with, more automation, and ease of use, application developers have the ability to develop and deploy new applications 51% more effectively as shown in Table 4. Over time, this improvement yielded a productivity-based business value of $898,100.

TABLE 4

Application Development Impact

	Before/ Without AWS Storage	After Implementing AWS Storage	Difference	Benefit
Equivalent FTEs per year per organization (based on productivity)	17.7	26.6	9.0	51%
Equivalent productivity value per year per organization (based on FTEs)	$1.77 million	$2.66 million	$898,100	51%

n = 9 | Source: IDC In-depth Interviews, November 2020

IDC further evaluated benefits for application development and found that by using AWS Storage, application developers saw significant improvements in their development time and deployment for projects. Interviewees reported this is due to having more scalable storage at the ready, so they have the space they need for testing and deployment. As shown in Figure 3, there was a 56% improvement in development life-cycle times and a 25% increase in the number of new applications that were able to be deployed.

FIGURE 3

Application Development Metrics

(% improvement)

n = 9 | Source: IDC In-depth Interviews, November 2020

In addition to business-critical applications, the ability to ensure robust big data and analytics operations is also an essential success factor for the vertical industries in this study. Interviewed organizations reported gaining better ability to scale up storage capacity with AWS. This helped provide their data and analytics teams with more relevant and usable data for their projects and tasks. Table 5 shows that after deployment on AWS Storage, there was a 22% boost in productivity for these teams.

TABLE 5

Data and Analytics Team Impact

	Before/ Without AWS Storage	After Implementing AWS Storage	Difference	Benefit
Equivalent FTEs per year per organization (based on productivity)	33.3	40.6	7.4	22%
Equivalent productivity value per year per organization (based on FTEs)	$3.33 million	$4.06 million	$739,800	22%

n = 9 | Source: IDC In-depth Interviews, November 2020

The improved time to market for both new applications and associated marketing campaigns, combined with IT team efficiencies that will be described in the section that follows, enabled interviewed organizations to bolster their revenue results. As shown in Table 6, IDC calculated total additional annual revenue improvement for AWS customers at $4,167,000.

TABLE 6

Business Operations Impact

Business Impact — Revenue from Better Addressing Business Opportunities	Per Organization	Per 100 Users
Total additional revenue per year	$4,167,000	$68,000
Assumed operating margin	15%	15%
Total recognized revenue, IDC Business Value model, per year	$625,000	$10,200

n = 9 | Source: IDC In-depth Interviews, November 2020

The value chain fostered by AWS Storage extended to line-of-business end users as well as external end users including the customers, partners, and prospects of these organizations' customers. These end users all benefitted from AWS self-service tools and from having scalable cloud storage available when needed to handle their applications, transactions, and workloads. As shown in Table 7, end users experienced an average productivity gain of 16% after deployment on AWS Storage.

TABLE 7

User Impact

Enhanced User Productivity	Per Organization
Number of users impacted	121
Average productivity gains	16%
Productive hours gained	35,617
End-user impact (FTE-equivalent gain per organization per year)	18.9
Value of end-user time gained	$1.33 million

n = 9 | Source: IDC In-depth Interviews, November 2020

Improved Storage Operations and Performance

The companies that IDC spoke with highlighted the benefits of agility, scalability, and durability. They called out various operational aspects of AWS Storage such as the ability to support global operations and to reduce the footprint of on-premises infrastructure thereby minimizing datacenter space. Others spoke about a more streamlined procurement process for new resources and efficiencies for IT staff as will be discussed in greater detail in this section.

Study participants commented on these benefits:

- **Can support global operations:**
  "Our parent company operates globally and regionally in the United States, Europe, and Asia. Our road map allows us to centralize this expertise. We can do this at a global level with AWS and regions can focus on local business."
- **Single source of truth and reduced cost:**
  "The biggest benefit is having a single source of truth that's cloud based. Also reducing on-premises infrastructure to minimize space in the datacenter."
- **Reduced procurement process means better IT agility:**
  "Deploying a new server was a long procurement process and could take about 2.5 months. Now, it's less than a day and we can have everything ready."

Interviewed companies reported that AWS Storage made it easier for storage administrators to manage their IT environments. Some resources are able to re-task their time and expand their scope with the changing roles of IT management, while remaining administrators are more efficient because they can access better management tools and are less concerned about the impacts of reduced downtime on their other responsibilities. Table 8 quantifies these benefits. As shown in Table 8, IT storage management productivity increased 40%, resulting in an annual salary savings of $264,500.

TABLE 8

Storage Administrator Impact

	Before/ Without AWS Storage	After Implementing AWS Storage	Difference	Benefit
FTEs per year per organization	6.6	4.0	2.6	40%
Salary cost per year per organization (based on FTEs)	$663,800	$399,300	$264,500	40%

n = 9 | Source: IDC In-depth Interviews, November 2020

Study participants reported that AWS Storage offered benefits for IT infrastructure teams because they needed less staff time to manage and support IT systems. This freed them up to work on other more business-oriented initiatives and projects.

As one study participant noted: *"We don't need to allocate people to focus on the physical environment now. They are moved to cloud management and are doing some security to help the team improve the security standard."* IDC calculated that, after deployment, the staff time required for IT infrastructure management was reduced by 47% as shown in Table 9. This translated into an annual business value of $550,100.

TABLE 9

IT Infrastructure Staff Impact

	Before/ Without AWS Storage	After Implementing AWS Storage	Difference	Benefit
FTEs per year per organization	11.7	6.2	5.5	47%
Salary cost per year per organization (based on FTEs)	$1.17 million	$623,100	$550,100	47%

n = 9 | Source: IDC In-depth Interviews, November 2020

With reduced procurement processes and the AWS Auto Scaling feature with AWS Storage, IT departments were able to get new IT compute and storage resources up and running in significantly less time. Table 10 quantifies these improvements. As shown in Table 10, the number of days needed to deploy new compute resources was improved by 83%. Further, the number of days needed to deploy new storage resources was improved by 84%.

TABLE 10

Storage and IT Agility Metrics

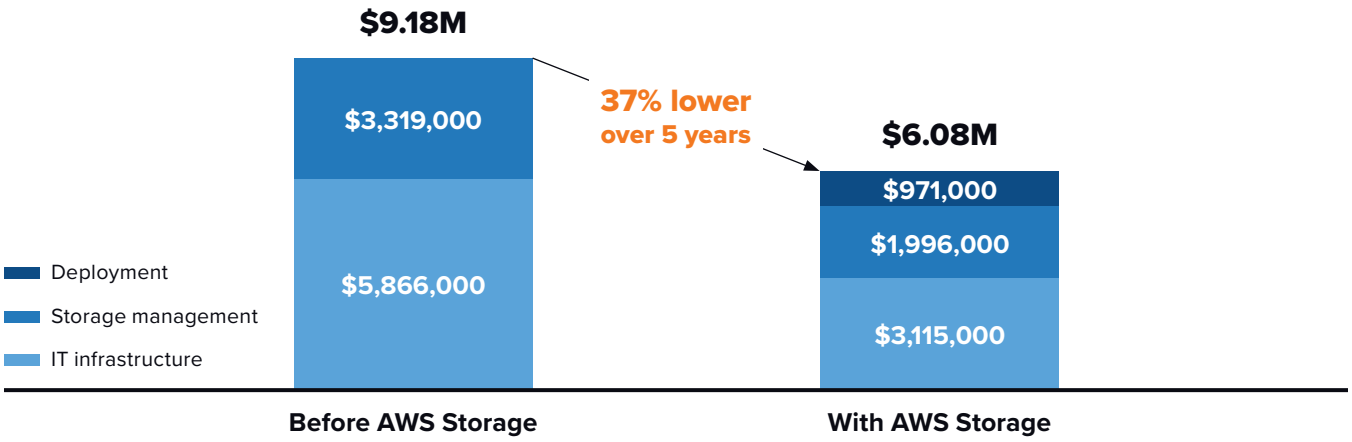
	Before/ Without AWS Storage	After Implementing AWS Storage	Difference	Benefit
Storage resources				
Time to deploy new storage (days)	6.3	1.0	5.3	84%
Staff time to deploy new storage (hours)	24.7	6.8	17.9	73%
Compute resources				
Time to deploy new compute resources (days)	7.3	1.2	6.1	83%
Staff time to deploy new compute resources (hours)	27.2	6.9	20.3	75%

n = 9 | Source: IDC In-depth Interviews, November 2020

IDC evaluated the cumulative staff time impacts experienced by study participants after deployment on AWS Storage. IDC calculated that over a five-year period, as shown in Figure 4, the IT staff involved with managed processes related to resource deployment, storage, and other IT infrastructure would require 37% less time to complete these tasks and projects.

FIGURE 4

Total IT Staff Time Impact Over Five Years

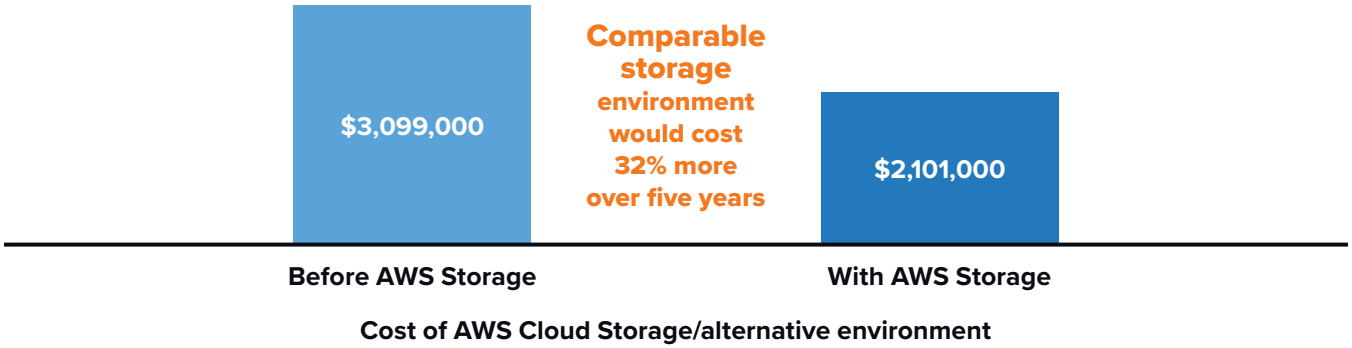


n = 9 | Source: IDC In-depth Interviews, November 2020

As a cloud solution, AWS Storage removes the need for building out existing or additional on-premises infrastructure, including related infrastructure to run applications that access the data. Because organizations no longer have to purchase, operate, and maintain as much hardware, they can reduce their infrastructure costs significantly. Commenting on these savings, one study participant noted: *"We have roughly 20% in cost savings because we don't have to purchase new servers. When a physical server runs for five years, the performance decreases. If you want the servers to perform consistently, you have to keep investing money, which we don't have to do with AWS."* Figure 5 shows these storage-related infrastructure savings, projected out over a five-year span through a combination of less physical infrastructure to purchase and reduced costs of maintenance, power, and physical space. As shown in Figure 5, a comparable storage environment would cost 32% more.

FIGURE 5

Storage Infrastructure Savings Over Five Years

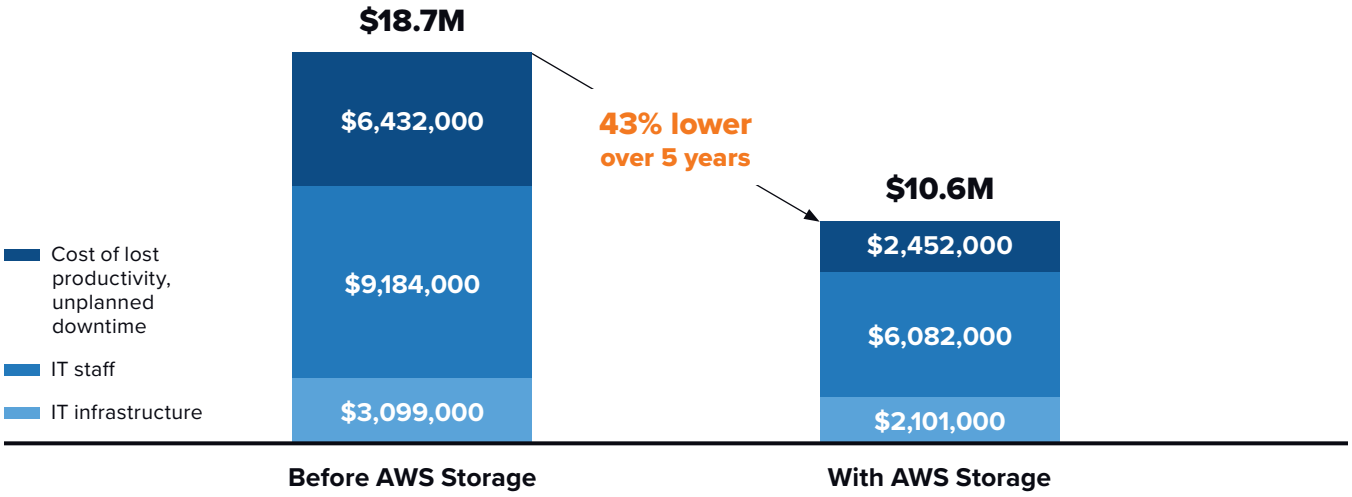


n = 9 | Source: IDC In-depth Interviews, November 2020

IDC then looked at the cumulative impact of savings from the staff efficiencies, IT infrastructure, and unplanned downtime reductions that is shown in Figure 6. Interviewed organizations were able to reduce their total cost of operations by 43% because of better performance, reduced infrastructure costs, and easier management (see Figure 6).

FIGURE 6

Cost of Operations Over Five Years



n = 9 | Source: IDC In-depth Interviews, November 2020

ROI Summary

IDC's analysis of the financial benefits and investment costs related to study participants' use of AWS Storage is presented in Table 11 (next page). IDC calculates that, on a per-organization basis, study participants will achieve total discounted five-year benefits of $16.7 million ($273,100 per 100 users) in employee productivity gains, IT staff efficiencies, higher revenue, and lower storage infrastructure costs as presented in Table 11. These benefits compare with projected total discounted investment costs over three years of $3.69 million on a per-organization basis ($60,100 per 100 users). At these levels of benefits and investment costs, IDC calculates that interviewed AWS Storage customers will achieve a three-year ROI of 354%, with breakeven on their investment occurring in an average of 11 months.

TABLE 11

Five-Year ROI Analysis

Five-Year ROI Analysis	Per Organization	Per 100 Users
Benefit (discounted)	$16.7 million	$273,100
Investment (discounted)	$3.7 million	$60,100
Net present value (NPV)	$13.1 million	$213,000
ROI (NPV/investment)	354%	354%
Payback (months)	11 months	11 months
Discount factor	12%	12%

n = 9 | Source: IDC In-depth Interviews, November 2020

Challenges/Opportunities

Opportunities

AWS offers a broad range of services and continues to expand offerings to meet customer demands. The opportunities for AWS are numerous, from bringing unique services and features to market, such as Amazon FSx or S3 Intelligent-Tiering, to expanding into entirely new offerings with solutions such as AWS Outposts. As a market leader, AWS is also positioned to continue to expand its influence and opportunity with both partners and the developer ecosystem. Overall, the experience and success of AWS in delivering cloud services are best evidenced by its ability to support availability and capacity needs of its customer base, despite the multibillion-dollar growth in its demand in recent years.

With this context in mind, we would advise AWS to focus on three areas of key opportunity for the near term, including:

- **Help customers strike the right balance** between cost optimization and the security and compliance requirements of their storage use cases.
- **Continue to make adjacent data services intuitive and cost effective** to adopt.
- **Continue to position cloud storage services** as an essential enabler of digital transformation and emerging use cases such as AI/ML and HPC.

Challenges

AWS does not have as much of a presence in the enterprise on-premises environment as some of its competitors in the cloud market. The company is working diligently to build capabilities and partnerships to accommodate on-premises deployment requirements, including native offerings such as AWS Outposts and partner solutions such as VMware Cloud on AWS.

This is an area where AWS solutions will face competition from a mix of cloud storage services providers as well as traditional on-premises storage providers. The breadth of storage tiers within AWS Storage services can be a strength and a challenge. The flexibility of tiering and pricing offered by AWS is valuable in storage-led use cases such as backup and archiving, where organizations look to achieve the lowest dollar per gigabyte in order to manage retention of huge volumes of data over time. In compute-led use cases where storage cost and capacity do not need to be optimized at such granular levels, customers may prefer a simplified approach where storage performance and billing are delivered at fixed rates.

Conclusion

Digital and cloud-native enterprises do not measure the value of their IT infrastructure simply by looking at the dollar cost of compute and storage volumes or by potential cost savings compared with alternatives. Increasingly, organizations measure the value of their IT infrastructure by assessing the workloads it can support and the potential value it can generate in terms of data access, automation, and innovation. Over the past 10 years, cloud storage services have matured and improved to support this customer need. AWS has remained at the forefront of this growth, delivering a portfolio of storage services that have continuously improved customer access and visibility to data and consistently expanded the universe of adjacent services customers can integrate with as their use cases mature. The breadth of AWS Storage services gives customers the flexibility to begin their cloud journey at a level appropriate for their use case (whether that means "cheap and deep" cost-effective object storage or high-performance shared file storage) and continuously improve their infrastructure capabilities at the speed their business requires. This study helps reinforce those points, as interviewees told IDC that they were looking for a storage solution that was scalable to fit their various needs while enabling them to improve their time to market. While IT teams that manage storage on a day-to-day basis saw improvement because AWS automated several management functions, they also found AWS Storage management tools easier to learn or easier to find talent that knew how to use AWS effectively. End users such as application developers, product development teams, and marketing teams stood to benefit by having the storage they need to support their activities. This in turn allowed interviewees to capture additional revenue opportunities by improving their time to market.

Appendix: Methodology

IDC used the following three-step method for conducting the ROI and business value analysis informing this study's results and conclusions:

1. **Gathered quantitative benefit information during the interviews using a before-and-after assessment for interviewed organizations of using AWS Storage and a comparison of anticipated time and costs required for migrating compared with another cloud alternative.** In this study, the benefits of using AWS Storage included cost savings, IT staff time savings and efficiencies, and higher user productivity and revenue.

2. **Created a complete investment (five-year total cost analysis) profile based on the interviews.** Investments go beyond the initial and annual costs of deploying on and using AWS Storage 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 AWS Storage over five years. 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's standard ROI methodology was utilized for this project. This methodology is based on gathering data from current users of AWS Storage.

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

- **Measure the benefits from the use of AWS Storage solutions** in terms of IT staff efficiencies and productivity gains, reductions in IT costs, and higher user productivity and revenue.
- **Ascertain the investment** made in deploying AWS Storage and associated migration, training, and support costs.
- **Project the costs and savings over a five-year period** and calculate the ROI and payback for the use of AWS Storage.

IDC bases the payback period and ROI calculations on assumptions that are summarized as follows:

- **Time values are multiplied by burdened salary (salary + 28% for benefits and overhead) to quantify efficiency and productivity savings.** IDC assumes a fully burdened salary of $100,000 per year for IT staff, including developers, and $70,000 for other employees, with an assumption of 1,880 hours worked per year.
- **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 benefits is calculated** by subtracting the amount that would have been realized by investing the original sum in an instrument yielding a 12% return to allow for the missed opportunity cost. This accounts for both the assumed cost of money and the assumed rate of return.
- **Because every hour of downtime does not equate to a lost hour of productivity or revenue generation, IDC attributes only a fraction of the result to savings.** As part of our assessment, we asked each company what fraction of downtime hours to use in calculating productivity savings and the reduction in lost revenue. IDC then taxes the revenue at that rate.
- **Further, because IT solutions require a deployment period, the full benefits of the solution are not available during deployment.** To capture this reality, IDC prorates the benefits on a monthly basis and then subtracts the deployment time from the first-year savings.

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

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Andrew Smith is a Research Manager within IDC's Enterprise Infrastructure Practice. Andrew's research focuses on public cloud infrastructure-as-a-service platforms and solutions, with specific focus on storage services. Andrew contributes to market sizing and forecast efforts across IDC's Public Cloud IaaS segments, as well as adjacent markets like multi-cloud data management, data protection as a service, and public cloud cold storage.

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Amita Potnis is a Research Director within IDC's Future of Trust research practice. In this role, Amita is responsible for leading the development of IDC's global thought leadership research around the growing influence of security, privacy, GRC, social responsibility and ethics that contribute to organizational Trust. Her research focuses on global trends that can measure, enhance and amplify Trust.

In her prior role at IDC, Amita was responsible for leading research on infrastructure for unstructured data and infrastructure for artificial intelligence and analytics. She expanded IDC's research on unstructured data management by delivering compelling "Data Management: Success with Method to the Madness". Since publishing this paper, several startups and established vendors have introduced or expanded existing products/services to address data management requirements.

More about Amita Potnis

Message from the Sponsor

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