

Sponsored by: **IBM****Authors:**Amita Potnis
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Business Value Highlights

>3.5 times

benefits-to-costs ratio over three years

8 months

to payback

44% lower

three-year cost of storage operations

76% more

efficient to manage

12% higher

developer productivity

43% faster

to deploy new storage

3.7% average

percentage increase in revenue per organization



The Business Value of IBM Cloud Object Storage

EXECUTIVE SUMMARY

Technology enables business and digital transformation (DX) and 3rd Platform technologies (social, mobile, Big Data, and cloud) that are changing IT infrastructure requirements at a rapid pace. Adoption of innovation accelerators such as Internet of Things (IoT), artificial intelligence (AI) and analytics, augmented reality and virtual reality (AR/VR), and robotics is also fueling data growth. Because of this, the need to secure and store data for extended periods of time is not limited to simply compliance or governance but also extends to deriving insights and thereby steering business direction for product and service development/improvement. Storage technologies such as object-based storage (OBS) have emerged as the de facto alternative to storing hundreds of petabytes (PBs) of data and are widely known for their deployment flexibility (on/off-premises or public cloud). Many vendors in this space offer OBS solutions that enable organizations to get a handle on their data growth and DX strategies. IBM Cloud Object Storage (COS) is one such OBS solution.

IDC spoke with organizations using IBM Cloud Object Storage about their experiences. These IBM customers reported benefiting from having a cost-effective, scalable object storage solution. The result is that these customers have changed the economics of extending object storage to support their operations, allowing them to address and support more business operations dependent on significant volumes of data. Based on interviews with these organizations, IDC finds that they are achieving strong value with IBM Cloud Object Storage that results in benefits worth more than 3.5 times their investment costs by:

- » Reducing storage costs
- » Requiring less staff time to manage their storage environments
- » Enabling developers whose work depends on object storage
- » Winning new business by having the ability to extend storage environments and the use of unstructured data in a timely and cost-effective manner

SITUATION OVERVIEW

IDC predicts that worldwide spending on digital transformation technologies will expand at a compound annual growth rate (CAGR) of 17.9% through 2021 to more than \$2.1 trillion. Digital transformation initiatives are underpinned by the need to get business insights quicker and more accurately to more decision makers. A growing number of executives are placing premium value on data-driven decision making and the ability of analytics and technology to derive differentiated insights from the wide variety and large volume of internal and external data available to organizations. IDC expects that growth in every industry will be driven by digitally enhanced offerings, operations, and relationships. The success of a digital transformation initiative relies on the organization's ability to acquire, process, and actuate data from multiple sources. Organizations undergoing digital transformation to stay relevant and grow profitability are looking at investing in IT infrastructure that will support DX objectives. Storage solutions supporting business goals will be essential for digital transformation initiatives.

IDC predicts that the Global DataSphere will grow from 33ZB (zettabytes) in 2018 to 175ZB by 2025, at a compound annual growth rate of 61%. IDC forecasts that, to keep up with the storage demands stemming from all this data creation, over 22ZB of storage capacity must ship across all media types from 2018 to 2025. Much of the data growth comes in the form of unstructured data — documents, photos, videos, images, and so forth — across industries. Further, the data growth problem will be compounded by data from innovation accelerators such as Internet of Things, artificial intelligence and analytics, and augmented reality and virtual reality that are steadily infiltrating our daily personal and professional lives. As organizations grapple with the growing concerns of data growth, many storage vendors are offering an alternative to traditional network-attached storage (NAS) solutions such as object-based storage. OBS is now a mature technology and, therefore, a viable and de facto choice for storage either on-premise or in private, public, or hybrid cloud environments. In general, OBS solutions offer the right balance of scale, complexity, and costs.

By way of their core design principles, OBS solutions deliver high scale at reduced complexity and reduced costs over the long term. Many OBS solutions match or exceed scale-out file-based platforms in performance and allow not only efficient file ingestion but also retrieval concurrently across multiple sites.

In Worldwide File- and Object-Based Storage Forecast, 2017–2022 (IDC #US42280717, September 2017), we estimate that, by 2022, 762EB of capacity will be deployed to support object-based storage solutions, growing at a compound annual growth rate of 40.3%. As mentioned previously, OBS can be consumed in many delivery models — appliances, software-defined storage (SDS) software on commodity hardware, or as services offered by public cloud providers. Many vendors offer OBS solutions as appliances or SDS software, but few cater to all three delivery models. IBM's Cloud Object Storage is one such OBS solution that spans all three delivery models.

IBM CLOUD OBJECT STORAGE

IBM's entry in the OBS space is via acquisition, and today, the company supports a variety of solutions via the flexibility offered by many solution offerings and partnerships. IBM's Cloud Object Storage can be procured as software only, as an appliance, or as a private or public cloud deployment in IBM Cloud. IBM COS does not require replication to provide fault tolerance; rather, it uses information dispersal algorithms for a geodispersed system deployed in three or more datacenters. It also supports per-object/bucket retention policy, which prevents objects from being deleted or overwritten. IBM COS targets traditional use cases such as archival and backup as ideal, cost-effective replacements for tape and, with the support for WORM, can cater to customers with stringent regulatory requirements. IBM COS also has a growing list of customers that have large-capacity deployments with tens of petabytes or even hundreds of petabytes for cloud-native applications and AI/analytics repositories. IBM's partnership with Komprise enables data movement from primary performance-oriented tiers to IBM COS based on how often data is accessed.

Currently, IBM's COS supports third-party cloud gateways or the new IBM Cloud Object Storage File Access integrated option. Keeping in mind the need for smaller-capacity OBS deployments, IBM introduced a smaller configuration of IBM COS, called Concentrated Dispersal, starting at 72TB of usable capacity. Most recently, the solution has extended support for newer use cases such as media streaming and web serving in production environments. Customers that have chosen to deploy the solution claim that its ability to handle small files is advantageous in such deployments.

IBM's COS is also available as part of IBM Cloud and offers analytics capabilities using several services that include Watson Studio and IBM Analytics Engine. With a slew of partner-enabled solutions, IBM COS supports a variety of next-generation use cases such as cloud-native applications and data lakes for analytics across verticals. As more workloads move to the cloud, customers can also take advantage of high-speed data transfers to IBM COS in the cloud using IBM Aspera with no ingest charge.

THE BUSINESS VALUE OF IBM CLOUD OBJECT STORAGE

Study Demographics

IDC interviewed organizations with operations around the world about their experiences with IBM Cloud Object Storage. These IBM customers ranged in size from small and medium-sized businesses to enterprise organizations. Table 1 demonstrates the significant storage environments these organizations rely upon (42PB average; 12PB median), as well as the fact that object-based storage accounts for a significant component of their overall storage (18PB average; 7PB median), despite the variance in company size. Interviewed IBM customers represented the experiences of a variety of vertical industries and organizations from North America, EMEA, and APAC (see Table 1).

TABLE 1

Demographics of Interviewed Organizations		
	Average	Median
Number of employees	23,746	350
Number of IT staff	440	65
Total overall storage, raw (petabyte)	42	12
Object-based storage, raw (petabyte)	18	7
Revenue per year	\$21.81 billion	\$605.33 million
Countries	United States (3), United Kingdom (2), Netherlands, South Korea	
Industries	Cloud services, healthcare managed services, higher education research, managed services, media, technology, telecommunications	

n = 7

Source: IDC, 2019

Reasons for Choosing IBM Cloud Object Storage

Interviewed organizations deployed IBM Cloud Object Storage both to replace existing storage solutions and as net-new greenfield storage. In explaining their choice of IBM Cloud Object Storage, the interviewed organizations focused on their need to address the rapid growth of their unstructured data environments. In short, these organizations were challenged to provide storage that could cost effectively meet the needs of their unstructured data, upon which their businesses increasingly rely, putting the scalability and performance of their storage environments at risk. In describing their choice of IBM Cloud Object Storage, interviewed IBM customers cited their conclusion that the IBM solution allowed them to overcome both cost and performance challenges:

- » **Cost-effective and secure storage for large volumes of data:** *"We chose IBM Cloud Object Storage because we can archive large amounts of data cost effectively and securely for almost infinite periods of time."*
- » **Cost basis for profitable business growth:** *"We added the IBM Cloud Object Storage solution because it is more mature than alternatives and its storage efficiency significantly improves our profit calculations."*
- » **Ability to handle a high volume of small objects:** *"We reviewed all the major object storage competitors and tested most of them. We have a lot of very small objects, and IBM Cloud Object Storage was just the only solution that could handle them efficiently."*

Use of IBM Cloud Object Storage

Interviewed IBM customers reported significant use of IBM Cloud Object Storage to support their unstructured data environments. As shown in Table 2, these organizations are using IBM Cloud Object Storage for nearly all of their object-based storage requirements, with an average of 18TB of raw storage and 10TB of used storage capacity. These organizations explained that they are using IBM Cloud Object Storage for a targeted group of applications that depend on the ability and performance of unstructured data, many of which are critical business applications, including:

- » Customer backups
- » Unstructured data used for core business service delivered to customers
- » Archiving of data used for core business operations

As shown in Table 2, these applications are data hungry, with these IBM customers reporting an average year-on-year growth of 21% to their IBM Cloud Object Storage environments.

TABLE 2

IBM Cloud Object Storage Environments		
	Average	Median
Number of petabytes (raw capacity)	18	7
Number of petabytes (capacity being used)	10	5
Number of business applications	11	3
Growth to storage environment per year (%)	21	15

n = 7
Source: IDC, 2019

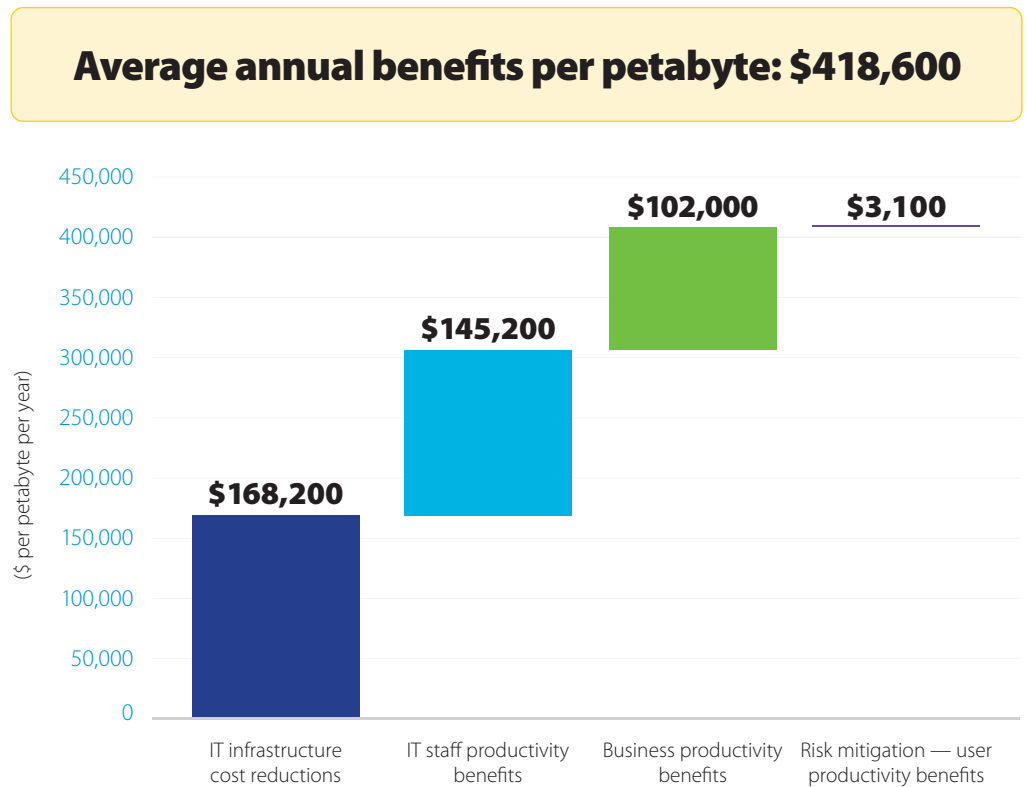
Business Value Results

Study participants reported that IBM Cloud Object Storage provides them with a cost-effective and high-performing object storage solution that supports critical business workloads. Because these IBM customers can grow and scale their IBM Cloud Object Storage environments cost effectively and with ease, they can better develop certain business cases, which results in higher revenue and improved ability to serve their customers. IDC quantified the value that these organizations reported achieving with IBM Cloud Object Storage at an annual average of \$418,600 per petabyte (\$4.34 million per organization) in the following areas (see Figure 1):

- » **IT infrastructure cost reductions:** Study participants make more efficient use of their IBM Cloud Object Storage environments and save on associated costs that include server, power, and datacenter space requirements. IDC puts the value of these storage-related savings at an average of \$168,200 per petabyte per year (\$1.74 million per organization).
- » **IT staff productivity gains:** Study participants need substantially less staff time to manage their IBM Cloud Object Storage environments, and their application development teams benefit from increased agility in their object-based storage environments. IDC quantifies the value of these staff time savings and productivity gains at an average of \$145,200 per petabyte per year (\$1.50 million per organization).

- » **Business productivity gains:** Study participants have the scalability and performance they need from their object-based storage environments to address and win more business. IDC projects that these organizations will recognize additional revenue worth an average of \$102,000 per petabyte per year (\$1.06 million per organization).
- » **Risk mitigation — user productivity gains:** Study participants benefit from fewer storage-related outages and faster resolution of issues, saving productive employee time worth an average of \$3,100 per petabyte per year (\$0.03 million per organization).

FIGURE 1 Average Annual Benefits per Petabyte



Source: IDC, 2019

Cost-Effective Storage

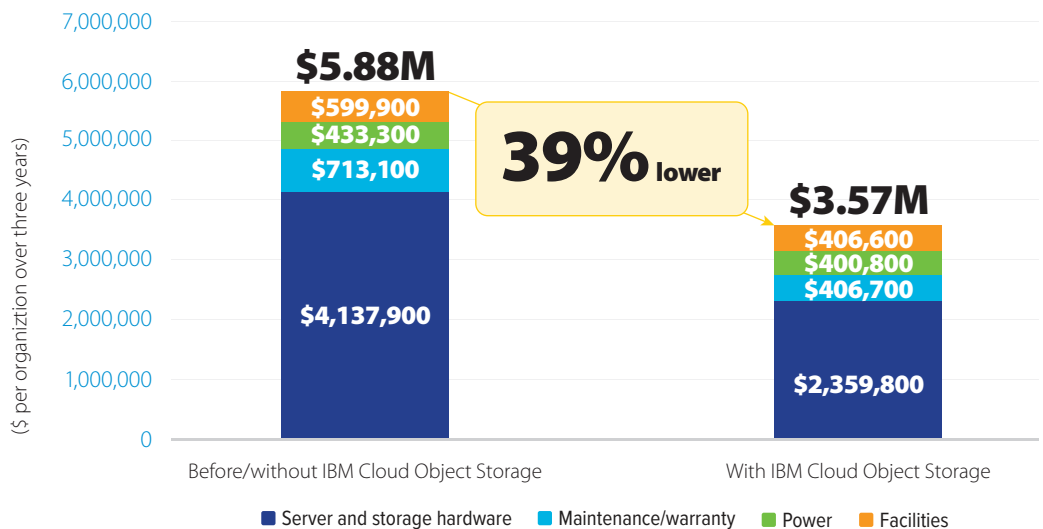
Study participants explained that a core benefit of deploying IBM Cloud Object Storage is its cost-effective nature. More specifically, they reported leveraging its strong performance and functionality to require less storage capacity than they otherwise would. The result is that these organizations spend less on object-based storage capacity with IBM Cloud Object Storage than they otherwise would, thereby ensuring a cost-effective storage foundation for data-heavy applications. As shown in Figure 2, interviewed IBM customers reported deploying and operating IBM Cloud Object Storage at a 39% lower cost over three years than their legacy or alternative storage platforms, which means cost savings of more than \$2.3 million per organization over three years.

Interviewed organizations offered additional details about why IBM Cloud Object Storage is a cost-effective object-based storage platform for their organizations:

- » **Requires less capacity than alternative solutions:** *“We would need a different amount of storage with another solution. IBM Cloud Object Storage is significantly cheaper from an efficiency point of view . . . If we had a different solution, we would need more petabytes of storage — three times as much raw storage capacity.”*
- » **Cost effective compared with cloud:** *“If you cost it all out plus all the additional fees, it’s cheaper to buy IBM Cloud Object Storage than to use public cloud somewhere around the 18-month mark . . . And the whole reason we have storage on-premise is so that we can run our applications on-premise locally.”*
- » **Creates efficiencies to be invested in other areas:** *“Before IBM Cloud Object Storage, we were struggling to get big enough storage systems that could hold the data. Now, we can give our entire business access to a directory server that is effectively a petabyte or more in storage capacity and not have to worry about it. That means our IT team can just put whatever they need to in the system and not have to worry about it . . . It’s allowing the breathing room to solve other business problems.”*

As discussed in the sections that follow, having a cost-effective object-based storage platform is important for interviewed organizations not only because they benefit from limiting storage-related expenditures but also because they can support growing data requirements and scale their storage environments as needed when new business opportunities arise.

FIGURE 2 Three-Year Cost of Storage



Source: IDC, 2019

IT Staff Productivity Impact

In addition to lower direct costs of buying and running their storage environments, study participants reported that IBM Cloud Object Storage requires significantly less staff time to deploy, administer, and manage. They cited various reasons for this functionality including their ability to maintain more streamlined storage environments, its reliability, and functionality that ensures fewer day-to-day touch points for IT storage teams. For study participants, the result is a strong 76% reduction in the amount of staff time required for these types of activities for the applications they are supporting with IBM Cloud Object Storage, freeing up staff time to take on other projects and making it easier to accommodate growing unstructured data environments (see Table 3).

Interviewed IBM customers spoke to the drivers of these efficiencies in detail. One organization cited the ease of maintaining and accessing data: *“We benefit from the maintainability of IBM Cloud Object Storage, the fact that this is just one named space and that we have one entry point where we push data through and get data from. Also, because IBM has written the software, we just have to use our APIs to fetch inputs, which is really simple, as opposed to pulling in and creating scripts ourselves.”* Another organization referenced IBM COS’ strong performance: *“One of the things that makes it quite difficult to talk about IBM Cloud Object Storage [for this interview] is the fact that we don’t ever need to touch it. The damn thing just keeps working. It’s rare for us to ever get any incidents about it, we’ve never had any problems with it, and it doesn’t run out of capacity. It just works.”*

TABLE 3

IT Staff Productivity: Storage Management

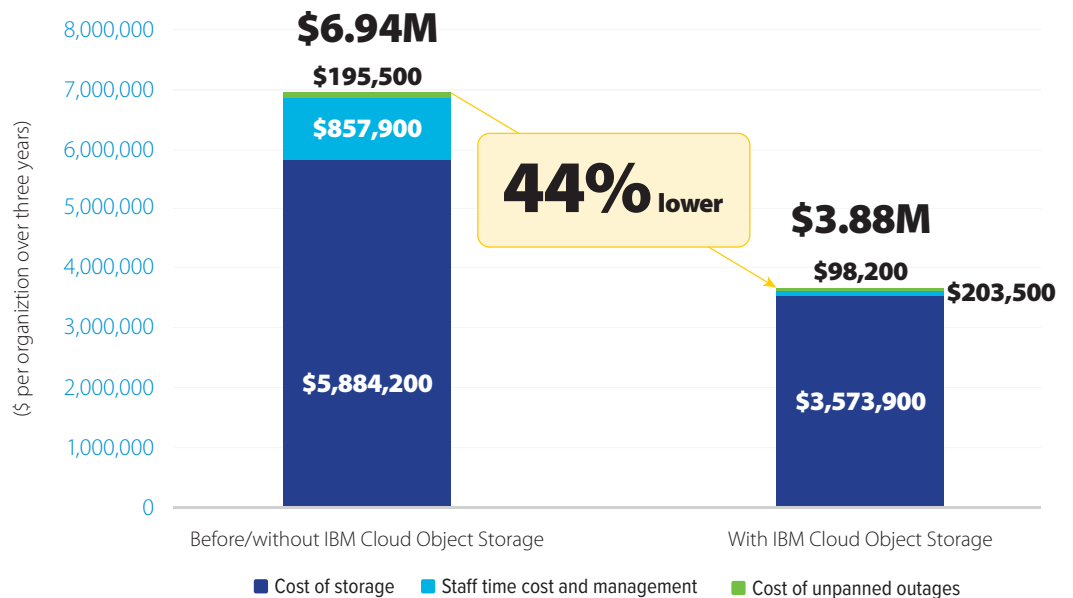
	Before/Without IBM Cloud Object Storage	With IBM Cloud Object Storage	Difference	Benefit (%)
FTEs per year per organization	2.9	0.7	2.2	76
Staff hours per petabyte per year	519	123	396	76
Equivalent salary cost per year per organization (given higher productivity)	\$286,000	\$67,800	\$218,200	76

Source: IDC, 2019

Lower Overall Cost of Operations

By reducing costs related to buying and running storage and requiring less staff time to support and manage their IBM Cloud Object Storage environments, interviewed organizations are delivering a much more cost-effective storage platform to support business operations. When also including the reduced cost of lost productive employee time due to unplanned outages, IDC calculates that these organizations will have an average of 44% lower costs over three years compared with their legacy or alternative storage environments (see Figure 3).

FIGURE 3 Three-Year Cost of Operating Storage Environment

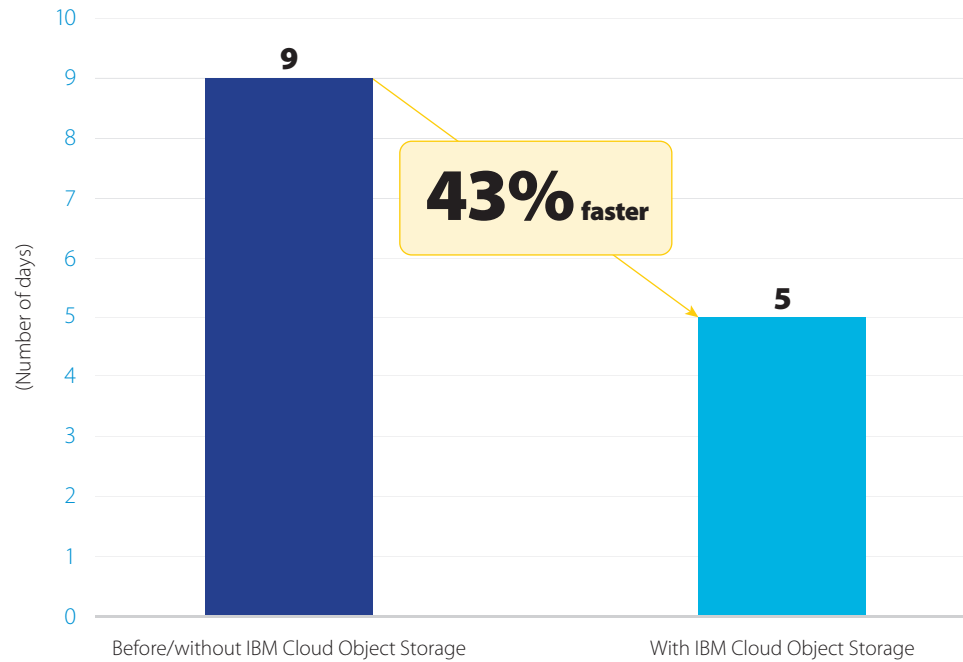


Source: IDC, 2019

Scalability and High Performance

Study participants reported valuing their ability to scale their IBM Cloud Object Storage environments to meet demand from their businesses and applications. This is especially beneficial in the context of significant growth to unstructured data, which contributes to average growth of more than 20% per year to their IBM Cloud Object Storage environments (refer back to Table 2). Without a sufficiently flexible storage platform, interviewed organizations reported that they risked either missing business opportunities or facing the unappetizing choice of incurring higher costs associated with overprovisioning storage. One interviewed organization commented: *“The fact that we can grow our IBM Cloud Object Storage environment very quickly without too much effort is a real benefit — that was the problem we had with the old system, it was difficult to scale. . . . In the future, we might use different kinds of data that will be even larger, and the fact that we can keep using that same namespace, that same platform to scale through maybe 50 or 60PB over several years is a huge bonus.”* As shown in Figure 4, study participants reported requiring 43% less time on average to deliver new storage capacity with IBM Cloud Object Storage, helping them address demand from the business in a timely fashion.

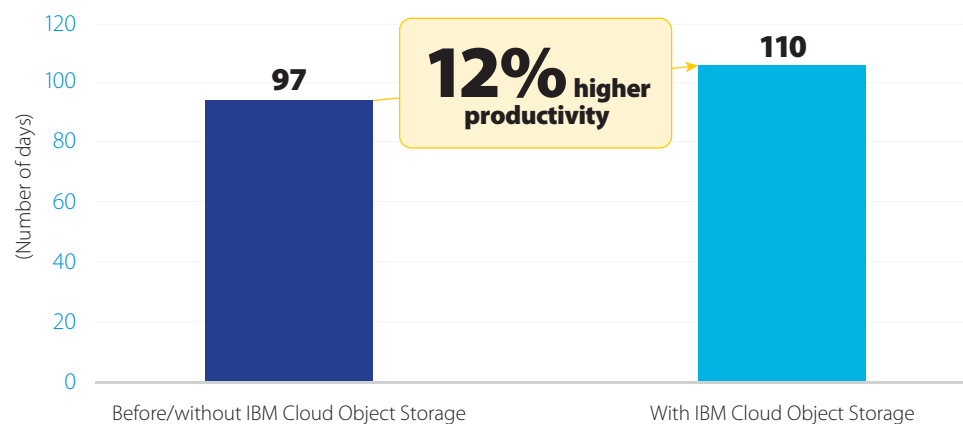
FIGURE 4 Time to Deploy New Storage



Source: IDC, 2019

Several interviewed organizations noted that their application development teams benefit from enhanced scalability and agility with IBM Cloud Object Storage. These developers require access to storage resources in a timely and robust manner to test and deliver applications and new features, and IBM Cloud Object Storage is delivering on these fronts. As shown in Figure 5, this is helping development teams work more effectively and efficiently, increasing their value to their organizations. IDC puts the increased productivity for developers working on the IBM Cloud Object Storage platform at an average of 12%.

FIGURE 5 Application Development Team Productivity Impact



Source: IDC, 2019

Generating Improved Business Outcomes

As noted, study participants are using IBM Cloud Object Storage to support a number of mission-critical applications and services, including those accessed directly by customers and maintaining customer use information. Given the context of significant continued growth to unstructured data that they must handle and use, these organizations need a storage solution that offers strong performance and scalability. In many cases, study participants reported that IBM Cloud Object Storage positively affects their ability to carry out business with its performance and scalability. Interviewed organizations provided various examples of this impact including:

- » **Being able to scale to meet business demand:** *“IBM Cloud Object Storage has absolutely been easier to scale because it’s all in one place and we can add to its capacity seamlessly. . . For example, when we add a new business unit, it comes on pretty quickly, so we might need to add 50TB over the course of two weeks, and we can do that.”*
- » **Supporting timely and lower-risk acquisitions:** *“IBM Cloud Object Storage has definitely helped us complete acquisitions. Again, we know we’ve got the capacity for it and don’t have to check if it’s going to affect our budgets. We know we can take whatever data they’ve got and put it on the system and we’re done. . . Once it’s there, we know it is safe and will just work. Basically, we’re able to just take any acquisition we’ve got, take all the data, lump it onto this platform, and then let those users carry on using the data as they were before. . . As a result, we’ve been able to grow our brands without any real concern.”*

A number of interviewed organizations have leveraged having a robust and scalable object storage platform with IBM Cloud Object Storage to achieve improved business results — with organizations attributing an average increase in revenue per organization of 3.7% to the IBM platform, worth an average of just over \$7 million per organization in higher revenue per year. For study participants, this reflects an important improvement in their ability to run and expand their businesses with IBM Cloud Object Storage and demonstrates an improved ability to extract value from the huge amounts of unstructured data that their businesses generate and leverage on a daily basis (see Table 4).

TABLE 4

Business Operations Impact: Increased Revenue		
	Per Organization	Per Petabyte
Increased revenue due to scalability		
Additional revenue per year	\$6.60 million	\$637,300
Assumed operating margin (%)	15	15
Recognized revenue impact per year	\$990,300	\$95,600
Other revenue increases		
Additional revenue per year	\$440,200	\$42,500
Assumed operating margin (%)	15	15
Recognized revenue impact per year	\$66,000	\$6,400
Total revenue impact per year		
Total additional revenue per year	\$7.04 million	\$679,700
Total recognized revenue impact per year	\$1.06 million	\$102,000
Average percentage of higher revenue per organization	3.7	3.7

Source: IDC, 2019

ROI Analysis

Table 5 presents IDC's analysis of the benefits and investment costs for interviewed organizations related to their use of IBM Cloud Object Storage. Based on interviews with these organizations, IDC projects that they will achieve discounted benefits worth \$1 million per petabyte over three years (\$10.38 million per organization) when compared with total discounted investment costs of \$0.28 million per petabyte (\$2.92 million per organization). These levels of benefits and investment costs would result in a return on their investment of 255%, with organizations breaking even on their investment in IBM Cloud Object Storage in an average of eight months.

TABLE 5

Three-Year ROI Analysis

	Per Organization	Per Petabyte
Benefit (discounted)	\$10.38 million	\$1,001,900
Investment (discounted)	\$2.92 million	\$282,300
Net present value (NPV)	\$7.46 million	\$719,600
Return on investment (ROI)	255%	255%
Payback period	8 months	8 months
Discount rate	12%	12%

Source: IDC, 2019

CHALLENGES AND OPPORTUNITIES

IBM's strength lies in the company's experience to bring storage and the surrounding portfolio of software and services to the industry for many decades. IBM owns and invests in its unstructured portfolio with IBM Spectrum Scale, IBM Cloud Object Storage, and analytics platforms including IBM Watson.

IBM has an opportunity and vision to penetrate the market as a platform provider — for storage and analytics, not to mention security, disaster recovery, and so forth with its hybrid cloud and multicloud approach. But it must recognize that there is still a play for standalone appliances or the SDS software market for its IBM Cloud Object Storage. In addition, IBM Cloud Object Storage is historically known for its strength in archival and cold storage. As the market continues to adopt OBS for primary and secondary applications, IBM's opportunity lies in educating the company's potential customers on how IBM Cloud Object Storage solution fits the requirements of an evolving OBS world.

CONCLUSION

As enterprises embark on digitally transforming themselves, there is a greater need to store data more cost effectively and securely. IBM's recent advancement in data management across the company's unstructured data storage offerings with IBM Spectrum Discover allows users to leverage IBM Cloud Object Storage, Spectrum Scale and other data sources for advanced search and analytics. IBM's COS was placed in the Leaders category in *IDC MarketScape: Worldwide Object-Based Storage 2018 Vendor Assessment* (IDC #US42665518, June 2018), a testament to the solution's ability to serve as a cost-effective, secure, and reliable solution for a variety of traditional and next-generation workloads.

This study demonstrates the value that organizations can achieve by deploying IBM Cloud Object Storage to address escalating demand from business operations for object storage. These organizations reported that IBM Cloud Object Storage not only is cost effective but also allows them to better scale their object storage environments to match data-driven business operations. As a result, these organizations can deploy object-based storage faster and more cost effectively, helping them not only win new business but also realize operational efficiencies in areas such as development. These IT and business benefits are generating strong value for these IBM customers in terms of cost savings, higher staff productivity levels, and increased revenue, with IDC calculating that total value will be worth more than 3.5 times total investment costs over three years (255% three-year ROI).

APPENDIX

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from organizations currently using IBM Cloud Object Storage as the foundation for the model. Based on interviews with these study participants, IDC has calculated the benefits and costs to these organizations of using IBM Cloud Object Storage. IDC used the following three-step method for conducting the ROI analysis:

1. **Gathered quantitative benefit information during the interviews using a before-and-after assessment of the impact of use of IBM Cloud Object Storage.** In this study, the benefits included staff time savings and productivity benefits, increased revenue, and storage-related cost reductions.
2. **Created a complete investment (three-year total cost analysis) profile based on the interviews.** Investments go beyond the initial and annual costs of using IBM Cloud Object 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 study participants' use of IBM Cloud Object Storage 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 productivity savings. For purposes of this analysis, based on the geographic locations of the interviewed organizations, IDC has used assumptions of an average fully loaded salary of \$100,000 per year for IT staff members and an average fully loaded salary of \$70,000 per year for non-IT staff members. IDC assumes that employees work 1,880 hours per year (47 weeks x 40 hours).
- » Downtime values are a product of the number of hours of downtime multiplied by the number of users affected.
- » The impact of unplanned downtime is quantified in terms of impaired end-user productivity and lost revenue.
- » Lost productivity is a product of downtime multiplied by burdened salary.
- » The net present value of the three-year savings is calculated by subtracting the amount that would have been realized by investing the original sum in an instrument yielding a 12% return to allow for the missed opportunity cost. This accounts for both the assumed cost of money and the assumed rate of return.
- » Because every hour of downtime does not equate to a lost hour of productivity or revenue generation, IDC attributes only a fraction of the result to savings. As part of our assessment, we asked each company what fraction of downtime hours to use in calculating productivity savings and the reduction in lost revenue. IDC then taxes the revenue at that rate.
- » Further, because IT solutions require a deployment period, the full benefits of the solution are not available during deployment. To capture this reality, IDC prorates the benefits on a monthly basis and then subtracts the deployment time from the first-year savings.

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

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