

The Business Value of Amazon ElastiCache



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Table of Contents



CLICK ANY HEADING TO NAVIGATE DIRECTLY TO THAT PAGE.

Executive Summary	3
Business Value Highlights	3
Situation Overview	4
Amazon ElastiCache	4
The Business Value of Amazon ElastiCache	5
Study Firmographics	5
Choice and Use of Amazon ElastiCache	6
Business Value and Quantified Benefits of Amazon ElastiCache	8
IT-Related Amazon ElastiCache Benefits	10
DBA and Security Benefits of Amazon ElastiCache	12
Development and Analytics Benefits of Amazon ElastiCache	16
Business Enablement Benefits	18
ROI Summary	20
Challenges/Opportunities	20
Conclusion	21
Appendix 1: Methodology	21
Appendix 2: Supplemental Data	23
About the IDC Analysts	24

Executive Summary

Maintaining, optimizing, and tuning data-caching technology is tricky and challenging. Increasingly, using such technology in the form of a cloud-based service makes the most sense because it ensures 24 x 7 professional management of the environment and delivers the dynamic scalability that only a cloud-native configuration can provide. One outstanding example of a cloud-based service is Amazon ElastiCache, which enables organizations' applications to achieve a higher scale while reducing their costs. There are many cost advantages to using a cache, including reducing or eliminating costs otherwise needed to scale your databases, such as licensing costs.

IDC interviewed organizations about their usage of Amazon ElastiCache to manage and deliver real-time data accessibility for high-performing applications (such as generative AI) and databases. A major theme across all interviewed organizations was that Amazon ElastiCache improved performance, stability, and scalability to support business growth and strategic initiatives.

Based on interviews with organizations currently using Amazon ElastiCache, IDC calculates that they will realize an average of \$3.9 million in benefits — revenue gains and cost savings — per organization (\$787,000 per 10 databases) by:

- Enabling better business results and customer satisfaction through improved performance of mission-critical applications and real-time data availability
- Automating administrative tasks that enable developers to focus on the creation and deployment of highly rated applications and functions
- Improving the efficiency of DBA, DevOps, and security teams by managing database provisioning, deployments, maintenance, and security
- Decreasing IT costs from the simplification of highly manual infrastructure server and storage management tasks



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BUSINESS VALUE HIGHLIGHTS

449%

three-year return on investment

7 months

payback on investment

48%

lower three-year cost of operations

\$158,000

in IT cost avoidances

54%

more efficient IT infrastructure team

53%

more efficient DBA team

59%

quicker deployment of new databases

24%

more efficient security team

68%

reduction in unplanned downtime

47%

more productive developers

Situation Overview

In the fast-moving business world, data caching is becoming a critical element in ensuring success. Until recently, many enterprises have insisted on managing their own caching, usually on premises (on prem), believing that they can set up the most optimal combination of server, storage, and networking hardware, combined with a finely tuned software layer to maximize their throughput. Such technology is used for optimizing database access performance and capturing fast-moving streaming data. Such uses place a high premium on performance and scalability.

Over time, the variability of demand for data caching, combined with spikes in service requirements beyond what an on-prem configuration can handle reasonably, has created a situation in which those in-house managed approaches simply don't work out, either in terms of performance or cost. In such cases, a cloud approach is the only sensible option. When you consider the need for continuous operation, and therefore an expert, highly professional management staff to be supporting the service night and day, you can see that choosing a data-caching technology as a managed cloud service is the only practical option; preferably one with optimized integration into the cloud environment.

Amazon ElastiCache

Amazon ElastiCache fits the bill — and it is part of a larger family of data-management technologies available on AWS. It delivers microsecond reads and sub-millisecond writes response times, regardless of data volume, and scales to hundreds of trillions of requests per day. Amazon ElastiCache is designed for 99.99% availability with automatic failover and recovery. Its Global Datastore provides cross-region replication to support low-latency reads and disaster recovery across regions. Customers can write to an ElastiCache cluster in one region and have the data available to be read from two other cross-region replica clusters. In the event the application is unable to connect to a regional endpoint, a cross-region replica can be promoted to be the primary cluster in under a minute. The data can be encrypted both in transit and at rest, and it supports multiple audit controls and authentication mechanisms.

Amazon ElastiCache lowers database costs and improves application performance by offloading read-heavy workloads to the cache. It features data tiering for what AWS declares to be up to 60%+ price/performance savings. For those moving from an environment running open source Redis, re-coding of applications is not necessary because Amazon ElastiCache is open source Redis compatible with full access to data structures. It is also Memcached compatible to enable the smooth transfer of code that uses that open source caching technology.

AWS also continuously invests in ease of use and performance capabilities. As an example, after this study was conducted, Amazon ElastiCache launched Serverless, which enables users to create a highly available cache in under a minute without any infrastructure provisioning or configuration. Serverless instantly scales vertically and horizontally to meet the application's demand with no administration. It removes all the complex, time-consuming processes of capacity planning and management. In addition, ElastiCache for Redis version 7.1 now delivers up to 100% more throughput and 50% lower P99 latency compared with ElastiCache for Redis version 7.0. You can achieve over 1 million requests per second per node, or 500 million requests per second per cluster, on r7g.4xlarge nodes or larger. This performance advancement is ideal for throughput-bound workloads with multiple client connections as its benefits scale with the level of workload concurrency. These investments are accretive to the existing operational excellence that you can rely on.

Like any cloud service, it obviates the need on the part of the enterprise for database management tasks, such as hardware provisioning, setup, patching, and backups. Further, because it is based in and runs on AWS, it integrates easily with other AWS services and data-management platforms.

The Business Value of Amazon ElastiCache

Study Firmographics

IDC conducted seven in-depth interviews with organizations currently using Amazon ElastiCache to manage and deliver real-time data accessibility for high-performing applications and databases. Interviews were designed to explore the value, benefits, and costs of using Amazon ElastiCache for participating organizations. Those interviewed were required to have robust knowledge about the impact of Amazon ElastiCache on their costs, staff time requirements, database and application performance, and overall organization. To obtain this information, study participants were asked a wide variety of quantitative and qualitative questions.

Table 1 (next page) provides the study firmographics of participating Amazon ElastiCache customers. The study included a range of company sizes from 750 to 150,000 employees, with an average of 29,679 employees and \$2.6 billion in revenue per year. For the most part, these organizations were in the United States (6), with a large variety of vertical market representation.

TABLE 1
Firmographics of Interviewed Organizations

Firmographics	Average	Median	Range
Number of employees	29,679	10,000	750–150,000
Number of IT staff	8,004	200	25–55,000
Number of IT users	20,107	5,000	750–90,000
Number of business applications	236	200	20–900
Revenue per year	\$2.65B	\$3.00B	\$350.00M–\$5.00B
Countries	United States (6), India		
Industries	Financial services (2), gaming, manufacturing, media, medical devices, warehousing		

n = 7; Source: IDC Business Value In-Depth Interviews, February 2024

Choice and Use of Amazon ElastiCache

Interviewed organizations detailed the drivers that led them to ultimately deploy and use Amazon ElastiCache. Study participants expressed the need for a seamless in-memory cache that was high performing, scalable, and cloud based to manage their database and application workloads. In selecting Amazon ElastiCache, they wanted to gain real-time data access with applications that had lower latency and better response times. They also felt that Amazon ElastiCache was a cost-effective solution that would help them gain greater data accessibility to help inform strategic business decisions and improve customer satisfaction.

Interviewed Amazon ElastiCache customers added additional detail below regarding their purchase decision:

Real-time data analysis (media organization):

“My organization selected Amazon ElastiCache because we were developing the web application and needed to analyze all the click streams from Google Analytics. We have more than 200 websites and portals to post all the content. We want to know who is reading, where they’re from, and what type of demographic. Our previous solution slowed down when you had a high volume of news content. We needed a high-performance, high-availability, real-time, in-memory database to collect and analyze the data in real time.”

Better application performance (manufacturing organization):

“My organization was having trouble quickly accessing session data from our product infrastructure. We switched to ElastiCache and can access it quicker. Our applications perform more efficiently, it helps with application response time, and we can retrieve data from the cache without any heavy-duty operations.”

Scalability to support growth (medical devices organization):

“My organization selected AWS over competitive solutions because it is a more forgiving environment. We needed a good, reliable environment to grow efficiently and cost-effectively. It was clear that we would gain great flexibility to scale over time.”

Higher performance and scalability (financial services organization):

“My organization was challenged by the latency we were facing when we selected Amazon ElastiCache. Performance was very low for critical application data and memory. We were also facing challenges related to scalability.”

Cloud capabilities (warehousing organization):

“My organization selected Amazon ElastiCache because we wanted a solution that was in cloud, in cache, rather than sitting on a database.”

As **Table 2** shows, Amazon ElastiCache usage was expansive at interviewed organizations. At the time of interviews, Amazon ElastiCache was used to support 74 business applications and 49 databases. A significant number of internal users (12,583) depended on Amazon ElastiCache, and it supported 11% of their overall revenue.

TABLE 2
Organizational Usage of Amazon ElastiCache

	Average	Median
Business applications	74	22
Databases	49	15
Internal users	12,583	1,600
Storage TBs	2,533	26
Percentage of revenue	11%	6%

n = 7; Source: IDC Business Value In-Depth Interviews, February 2024

Business Value and Quantified Benefits of Amazon ElastiCache

IDC asked study participants to describe the most significant benefits that they achieved using Amazon ElastiCache. A major theme across all interviewed organizations was that Amazon ElastiCache improved performance, stability, and scalability to support business growth and strategic initiatives. They appreciated that Amazon ElastiCache automated and managed highly time-intensive tasks, such as patching, infrastructure management, deployments, and upgrades. This not only freed up the time of highly skilled staff but also created a more stable and secure atmosphere.

Interviewed organizations discussed the benefits below:

Cloud capabilities to support growth (financial services organization):

“In the last several years, my organization really focused on our transition from on prem to cloud. Using ElastiCache gives us less reliance on on-premises infrastructure and the capability of working in the global cloud. This has given us enhanced performance and stability to support our tremendous growth.”

Automated approach to configuration (manufacturing organization):

“ElastiCache has given my organization the ability to use an automated approach to configuring instances, which frees up time. It is also easy to integrate with other AWS services, such as DynamoDB. The UI of ElastiCache is continually improving and doesn’t require us to manage our infrastructure.”

Improved application performance (financial services organization):

“Amazon ElastiCache has improved the performance of our web applications. It allows us to retrieve information very quickly and manage our memory cache. We have around 200 applications, which are very highly rated and have a big workload, but we’ve significantly improved latency.”

Quicker application testing and deployment (media organization):

“The most important benefit is that we have achieved quicker application development, testing, and deployment. Our environment is also being patched, secured, regulated, and updated without too much IT infrastructure involvement.”

Figure 1 (next page) illustrates the four areas of value interviewed organizations achieved in using Amazon ElastiCache.

IDC calculates that interviewed organizations will realize benefits worth an annual average of \$3.9 million per interviewed organization (\$787,000 per 10 databases) in the following areas:

- **IT-related benefits:**

Amazon ElastiCache enabled study participants to reduce annual database-related costs while simplifying and automating highly manual tasks for IT infrastructure teams. IDC quantifies the value cost avoidance and efficiency at an average of \$1.6 million per interviewed organization (\$317,000 per 10 databases).

- **Business enablement benefits:**

Amazon ElastiCache improved the performance of mission-critical applications and improved data availability. This enabled organizations to grow and better meet customer demands. IDC calculates the value of this benefit as \$1.2 million per interviewed organization (\$248,000 per 10 databases).

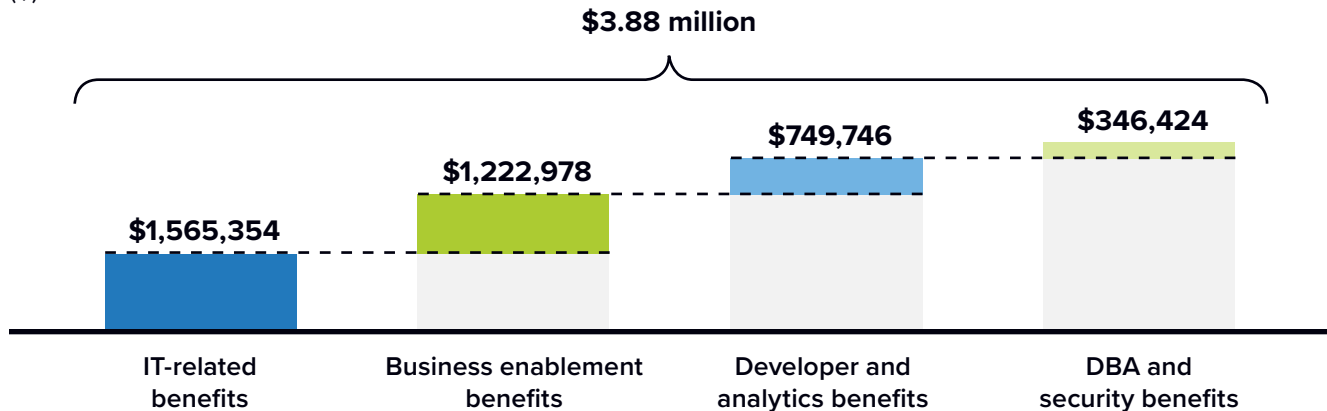
- **Developer and analytics benefits:**

Developers benefited from Amazon ElastiCache managing administrative tasks, freeing up time to focus on development. In addition, the analytics team gained productivity through real-time access to high-quality data. IDC puts the value of these staff productivity gains at \$750,000 per interviewed organization (\$152,000 per 10 databases)

- **DBA and security benefits:**

As a fully managed service, Amazon ElastiCache requires less DBA and security staff time to manage, secure, and support databases. IDC puts the value of staff efficiency gains at an average of \$346,000 per interviewed organization (\$70,000 per 10 databases).

FIGURE 1
Average Annual Benefits per Organization
 (\$)



n = 7; Source: IDC Business Value In-Depth Interviews, February 2024

For an accessible version of the data in this figure, see [Figure 1 Supplemental Data](#) in Appendix 2.

IT-Related Amazon ElastiCache Benefits

Interviewed organizations were quick to state that they benefited from the automation and service-level support provided by Amazon ElastiCache. The cloud-based in-memory data store or cache environment removed the complexity of managing the cache environment, especially when it came to server and storage management. IT infrastructure staff found the console to be user friendly, configurable, and reliable. In addition, Amazon ElastiCache proved to be more cost effective in that it was easier to scale up and down with organizational need.

Study participants elaborated on IT-related benefits below:

Less time wasted (medical devices organization):

“Amazon ElastiCache has enabled us to concentrate and put our IT people where they’re needed, when they’re needed — instead of having them do a task and wait. With AWS, there’s so much computing power behind us, we don’t have to plan on the waste of time that’s inherent in on-prem servers. This keeps our admins happy. They know they won’t have to spend all night on a job involving 10% panic and 90% boredom.”

User-friendly console and configuration (financial services organization):

“Amazon ElastiCache allowed my organization to spin up whatever we want and then shut it down when needed, which is more cost efficient. It is also imperative that we have tools that are easy to administer and easy to monitor. ElastiCache has a user-friendly management console and an easy-to-configure API.”

Less reactive administration from automation (financial services organization):

“Everything is automated with Amazon ElastiCache. If we have an issue with our cloud solutions and the way Amazon builds them, they are pretty much automated to fail over. There is not a lot of reactive administration; it’s almost down to zero.”

Interviewed organizations stated that a goal in deploying and using Amazon ElastiCache was to reduce IT costs. As shown in **Table 3** (next page), Amazon ElastiCache enabled interviewed organizations to reduce database licensing costs through better provisioning and consolidation. In addition, colocation fees were decreased by moving datacenters to the cloud. On an annual basis, interviewed organizations found that they were able to reduce IT costs by \$158,000.

TABLE 3

Annual IT Cost Avoidances

	Annual Avoidance per Organization
Colocation fees	\$116,429
Database license savings	\$41,571
Total IT cost avoidance	\$158,000

n = 7; Source: IDC Business Value In-Depth Interviews, February 2024

In addition to IT cost optimization, study participants found that in having a fully managed cloud in-memory data store and cache, IT infrastructure staff was more efficient in how they managed day-to-day work. This team depended on Amazon ElastiCache automation to relieve the pressure of highly manual and time-consuming management and maintenance tasks. Specifically, they found that server, storage, and database management was more automated and required far less staff time. This resulted in critical infrastructure running with better optimization (**Figure 2**).

FIGURE 2

IT Infrastructure Team KPIs

(Less staff time needed)



n = 7; Source: IDC Business Value In-Depth Interviews, February 2024

Keeping in mind these strong infrastructure management–related KPIs, IDC found that Amazon ElastiCache enabled those responsible for handling IT infrastructure at interviewed organizations to work with 54% greater efficiency (Table 4). Study participants linked this efficiency gain directly to automation capabilities and the managed support provided by Amazon ElastiCache. In fact, IDC found that with the support of Amazon ElastiCache, IT infrastructure teams spent 74% less time keeping the lights on, which enabled them to shift their focus to innovation. A manufacturing organization commented, “Amazon ElastiCache has helped my organization alleviate a lot of the manual work that the IT infrastructure team was doing. This allowed us to give them more freedom to do other projects and work that they didn’t have time to do before.” IDC valued this staff efficiency gain at nearly \$1.6 million per year.

TABLE 4
IT Infrastructure Team Efficiency Gain

	Before Amazon ElastiCache	With Amazon ElastiCache	Difference	Benefit
FTEs count	29.6	13.7	15.9	54%
Value of staff time per year	\$2,955,387	\$1,368,571	\$1,586,815	54%

n = 7; Source: IDC Business Value In-Depth Interviews, February 2024

DBA and Security Benefits of Amazon ElastiCache

IDC noted that Amazon ElastiCache had a positive impact on the efficiency of DBA and security teams within the interviewed organizations. It was clear that Amazon ElastiCache greatly improved their day-to-day work experience. It was far easier to provision, deploy, maintain, back up, and secure databases, largely thanks to the managed support and automation provided by Amazon ElastiCache. These tasks were very manual in nature and often took hours and hours of staff time to complete. Interviewed organizations specifically noted that the Auto Scaling function was helpful for these teams, as it automatically scaled the environment based on organizational need, which resulted in better application performance and less downtime.

Study participants discussed these benefits and more in the quotes below:

Dependable data backups (gaming organization):

“The Amazon ElastiCache auto-scaling feature is helping us save time from our engineers’ calendar. If ElastiCache was not in our hands, then at least every day for two months, we would be spending 10 straight hours of two or three people working together.”

Procurement and monitoring support (healthcare organization):

“My organization creates tickets to specify what we need, the number of machines, and the type of machine sizes when we need a database deployed, and ElastiCache does all the procurement and monitoring for us. Before, it used to take three to four days to spin up a new database, and now it only takes one hour.”

Less downtime from default configuration (gaming organization):

“Amazon ElastiCache has reduced downtime because before, we were not technically capable enough to configure things in the right fashion, so we had downtime. ElastiCache comes with nice default configured values, and we have not seen any problems so far.”

As a direct result of Amazon ElastiCache managing several database-related tasks, IDC noted several important performance improvements. As one financial services organization noted, *“My organization is using ElastiCache with DynamoDB and RedShift to improve website load time. With these solutions, we built a data warehouse for a data transformation pipeline. The data can be easily and quickly converted into different formats. As a result, we can organize data based on different characteristics — geolocation, customer ID, etc. It’s very fast to perform a query, just a millisecond.”* Figure 3 shows that across the board, database performance improved. Specifically, backups (58%), recovery (56%), query speed (53%), response time (50%), and load time (48%) were notably quicker with Amazon ElastiCache.

FIGURE 3
Database Performance KPIs
(% quicker)



n = 7; Source: IDC Business Value In-Depth Interviews, February 2024

DBA teams benefited greatly from database provisioning and deployment support provided by Amazon ElastiCache. This team was able to drastically reduce their need to perform highly manualized tasks and processes as a direct result of using Amazon ElastiCache. In fact, database deployment required 59% fewer days to complete and 44% less staff time. Further illustrating the impact of Amazon ElastiCache on new database deployment, a financial services organization noted, *“It is almost instantaneous to deploy a new database with Amazon ElastiCache because we can just set the knobs and spin it up. When we did this manually, it would take hours, and there could be issues. Anytime somebody’s doing something manually, there’s potential for failure or fault. When you automate, that goes away, so you’re not only more efficient, you’re also much more consistent.”*

In **Table 5**, IDC calculated the impact of Amazon ElastiCache on the efficiency level of DBA teams at interviewed organizations. DBA teams needed 2.9 fewer FTEs with Amazon ElastiCache in comparison with their last self-managed approach to database administration. Generally, this team had greater career satisfaction because they were able to focus on business innovation and supporting growth rather than time-intensive, tedious tasks. This resulted in a 53% efficiency gain that was valued at \$295,149 per year.

TABLE 5
DBA Team Efficiency Gain

	Before Amazon ElastiCache	With Amazon ElastiCache	Difference	Benefit
FTEs count	5.5	2.6	2.9	53%
Value of staff time per year	\$552,649	\$257,500	\$295,149	53%

n = 7; Source: IDC Business Value In-Depth Interviews, February 2024

Additionally, study participants stated that security teams were able to work with greater speed to identify and resolve security issues with Amazon ElastiCache. This team took advantage of automated database monitoring, failover, and patching. These automated functions resulted in increased resiliency and better security posture. In fact, IDC calculated that interviewed organizations were able to reduce unplanned database, application, and workload incidents by 68%. Importantly, Amazon ElastiCache played a large role in helping interviewed organizations resolve unplanned downtime. ElastiCache’s role as a database accelerator helps ensure the continuous availability of applications and databases. When an unplanned outage did occur, it took 59% less staff time to resolve.

A manufacturing organization stated, “Amazon ElastiCache has made it better to set up database security monitoring. If there is an issue with a database, it is easier for our team to investigate the issue instead of having a manual process. As a result, we are better able to stay within our regulatory and policy standards.”

In automating once highly manual processes, the security team at interviewed organizations needed one fewer FTE to manage equivalent environments with Amazon ElastiCache (Table 6). With the ever-changing and challenging world of security operations, this enabled interviewed organizations to refocus highly skilled individuals onto managing other pressing vulnerabilities. IDC calculated that Amazon ElastiCache enabled security teams to work with 24% greater efficiency, which was valued at \$95,450 in staff time per year.

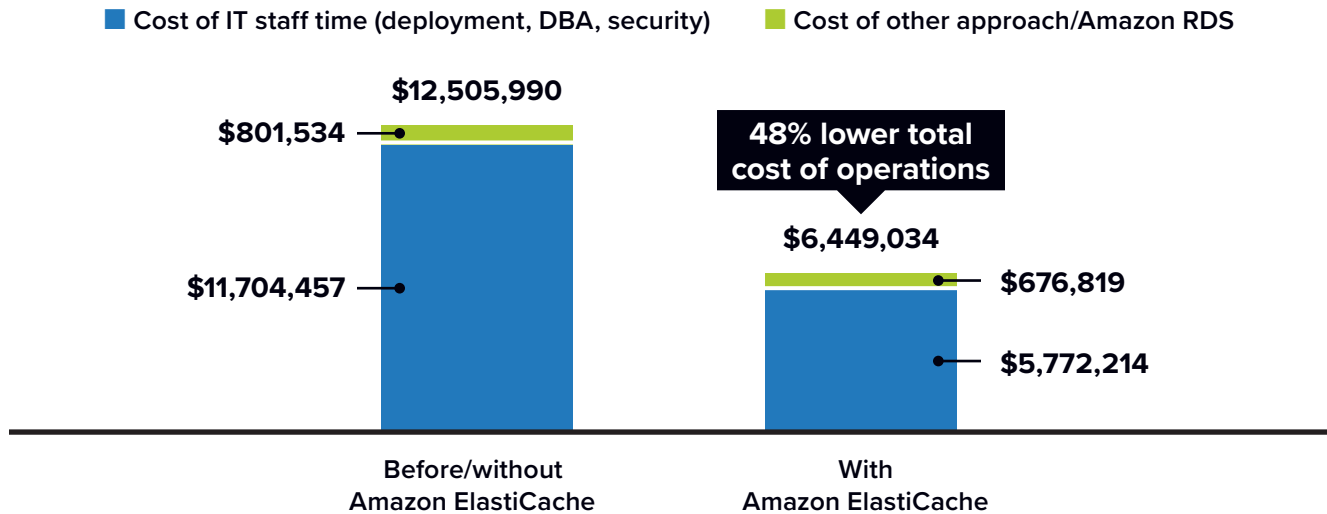
TABLE 6
Security Team Efficiency Gain

	Before Amazon ElastiCache	With Amazon ElastiCache	Difference	Benefit
FTEs count	3.9	3.0	1.0	24%
Value of staff time per year	\$393,450	\$298,000	\$95,450	24%

n = 7; Source: IDC Business Value In-Depth Interviews, February 2024

Taken together, these cost and staff efficiency benefits create a compelling value proposition for Amazon ElastiCache from a cost-of-operations perspective. IDC’s analysis shows that over three years, study participants will reduce total costs by an average of 48%, which reflects an average cost reduction of \$6,056,957 per organization over three years (see Figure 4, next page).

FIGURE 4
Three-Year Cost of Operations per Organization
 (\$)



n = 7; Source: IDC Business Value In-Depth Interviews, February 2024
 For an accessible version of the data in this figure, see [Figure 4 Supplemental Data](#) in Appendix 2.

Development and Analytics Benefits of Amazon ElastiCache

A notable theme of this study was that Amazon ElastiCache enabled organizations to do more with less. This theme also extended to developers. As business demand grew, the platform helped developers work smarter, not harder. They found that moving applications or features from proof of concept to deployment was considerably quicker. The agility gained from automating administrative work, such as provisioning and procurement, helped them focus on critical testing-, development-, and deployment-related tasks.

Interviewed organizations commented on agility-related benefits below:

Ability to do more with less (financial services organization):

“Development is more automated with Amazon ElastiCache, so it aligns well with our continuous improvement and delivery methodology. We haven’t changed the team, but it has enabled us to do more with less.”

Quicker bug fixes (media organization):

“Before Amazon ElastiCache, when we had production issues, especially on the new releases during the warranty cycle, it may take two to three days to fix issues. Today, we can do the majority of release-cycle bug fixes in the same day, or at least within 24 hours.”

Agile IT operations (gaming organization):

“Amazon ElastiCache has enabled my organization to deliver things faster in the sense that we are able to think from proof of concept to bringing that feature into production in an agile fashion.”

As referenced in several of the quotes above, developers gained considerable productivity from the deployment and use of Amazon ElastiCache. This team benefited from Amazon ElastiCache, which removed administrative tasks such as provisioning, procurement, configuration, capacity planning, and help desk from their day-to-day work. This gave them time to focus on the delivery of highly rated applications and features. A financial services organization stated, *“Developers in my organization can quickly get through more of their development, testing, and deployment with Amazon ElastiCache. The fact that they don’t have to administer or help the groups administer the environment is one way that they have gained this agility.”*

As a direct result of Amazon ElastiCache, IDC found that developers at interviewed organizations were able to work with the equivalent productivity level of having an additional 6.7 FTEs on staff. This amounted to a productivity gain of 47% and was valued at \$672,778 per year in staff time (Table 7).

TABLE 7
Development Team Productivity Gain

	Before Amazon ElastiCache	With Amazon ElastiCache	Difference	Benefit
Equivalent productivity level, FTEs	14.4	21.1	6.7	47%
Value of staff time per year	\$1,441,667	\$2,114,444	\$672,778	47%

n = 7; Source: IDC Business Value In-Depth Interviews, February 2024

Lastly, IDC noted that analytics team members benefited from Amazon ElastiCache. By using the in-memory cache which produced better application performance, this team gained real-time access to data that was high quality, detailed in nature, and very reliable. A financial services organization stated, *“Our analytics team is more productive because with Amazon ElastiCache, they’re spending their time working on valid data. The data is more refined, so it is easier to look up something or provide a report.”* As a result, analysts at interviewed organizations were 29% more productive than with their previous solution. This was valued at \$172,573 per year (Table 8).

TABLE 8
Analytics Team Productivity Gain

	Before Amazon ElastiCache	With Amazon ElastiCache	Difference	Benefit
Equivalent productivity level, FTEs	8.6	11.1	2.5	29%
Value of staff time per year	\$602,000	\$774,573	\$172,573	29%

n = 7; Source: IDC Business Value In-Depth Interviews, February 2024

Business Enablement Benefits

Interviewed organizations attributed business growth to their use of Amazon ElastiCache. They stated that their applications could scale better with rapidly changing business environments. This meant that mission-critical applications had higher performance, lower latency, and better churn rates. The dependability of applications enabled interviewed organizations to better serve their customers, which ultimately led to higher revenue achievements.

Study participants discussed the business benefits of Amazon ElastiCache below:

Faster job completion (manufacturing organization):

“Amazon ElastiCache allows my organization to enhance our application performance efficiency. The whole organization uses it, and when we’re talking to clients, it helps us get the job done a lot faster.”

Greater dependability and scalability (medical devices organization):

“Amazon ElastiCache has made my organization dependable. We don’t panic or worry about a server not working or alignment being down. From a business perspective, leadership doesn’t worry about the 250,000 customers waiting on us. They are confident that the business can scale with customer demand. We’re in good hands because we’re in the hands of Amazon.”

Increased revenue (financial services organization):

“Amazon ElastiCache is very easy to use. We have a bunch of enterprise-grade applications, which are very highly rated. We wanted to speed those up to ensure that customers could retrieve data in real time. Before, we had a bad churn rate and lost customers and 2%–3% of revenue per year. We wanted to speed things up using the memory cache and memory data store. In doing so, we have achieved just milliseconds of latency and increased our retention rate and revenue by 5%.”

Real-time application monitoring (media organization):

“The biggest benefit of ElastiCache is it being integrated with CloudWatch and dashboards so that we have real-time visibility about how many people are using our applications and whether it’s up and down.”

As illustrated by the quotes above, interviewed organizations attributed additional net revenue to scalability, resiliency, and real-time data availability provided by Amazon ElastiCache. As shown in **Table 9**, factoring in a 15% operating margin, interviewed customers credited \$1.4 million in additional net revenue per year to their use of the platform.

TABLE 9
Business Enablement — Higher Revenue

	Per Organization	Per 10 Databases
Total additional gross revenue per year	\$9,192,857	\$1,862,518
Assumed operating margin	15%	15%
Total additional net revenue, IDC model	\$1,378,929	\$279,378

n = 7; Source: IDC Business Value In-Depth Interviews, February 2024

ROI Summary

Table 10 illustrates IDC’s calculation of the benefits and investment costs for study participants of using Amazon ElastiCache. On average, IDC found that interviewed customers realized three-year discounted benefits worth \$9.2 million per organization (\$1.9 million per 10 databases) in IT cost savings, staff efficiencies, and higher net revenue. These benefits compare with three-year discounted investment costs of \$1.7 million per organization (\$339,444 per 10 databases). These benefits and investment costs yielded a three-year ROI of 449% and a payback period of seven months.

TABLE 10

Three-Year ROI Analysis

	Per Organization	Per 10 Databases
Discounted benefits	\$9,198,400	\$1,863,641
Discounted investment	\$1,675,400	\$339,444
Net present value	\$7,523,000	\$1,524,197
ROI	449%	449%
Payback	7 months	7 months
Discount factor	12%	12%

n = 7; Source: IDC Business Value In-Depth Interviews, February 2024

Challenges/Opportunities

Amazon ElastiCache is focused on performance assurance for high-throughput workloads. This is a fast-moving market space, and technologies enhancing database performance and streaming data management are changing all the time. This need is heightening with the rapid development of generative AI use cases. A common challenge of Amazon ElastiCache is that AWS doesn’t recommend accessing it outside of Amazon Virtual Private Cloud.

AWS will be challenged to maintain a leadership position in this area, which will require continual innovation of both Amazon ElastiCache and its related cloud services. But if it can do so, AWS will be the caching technology solution across use cases for many years to come.

Conclusion

As the pace of business accelerates, and as streaming data plays an increasingly important role in managing business, caching becomes a critical element in ensuring that data systems can keep up. Many enterprises have turned to specialty hardware and roll-your-own configurations of open source software to address this need, but increasingly, the obvious choice for most businesses is to favor a managed caching software deployment, and the best form of such a deployment is as part of a managed cloud platform.

The cases cited in this study demonstrate the obvious benefits of such an approach, which include operational simplicity, continuously current software, a caching system designed to take maximum advantage of the cloud platform on which it runs, reliability of the service, and, summing it all up, peace of mind. Amazon ElastiCache is an outstanding example of this, and so the excellent experiences that these companies have had should come as no surprise.

Amazon assures us that, going forward, integration of generative AI functionality will make their caching software even smarter and more resilient, enhancing data access and further reducing cost. For those who are looking for an alternative to their current caching configuration, and for those who see the need to accelerate their data operations, Amazon ElastiCache deserves serious consideration.

Appendix 1: Methodology

IDC's standard business value/ROI methodology was utilized for this project. This methodology is based on gathering data from organizations currently using Amazon ElastiCache database services.

Based on interviews with organizations using Amazon ElastiCache, 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 using Amazon ElastiCache:** In this study, the benefits included database and infrastructure cost savings, staff time savings in managing databases and infrastructure, development and other productivity gains, and net revenue gains.
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 Amazon ElastiCache 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 Amazon ElastiCache over a three-year period. The ROI is the ratio of the net present value 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 the 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).
- 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 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.

Appendix 2: Supplemental Data

This appendix provides an accessible version of the data for the complex figure in this document.

Click “Return to original figure” below the table to get back to the original data figure.

FIGURE 1 SUPPLEMENTAL DATA

Average Annual Benefits per Organization

	Amount
IT-related benefits	\$1,565,354
Business enablement benefits	\$1,222,978
Developer and analytics benefits	\$749,746
DBA and security benefits	\$346,424
Total	\$3,884,502

n = 7; Source: IDC Business Value In-Depth Interviews, February 2024

[Return to original figure](#)

FIGURE 4 SUPPLEMENTAL DATA

Three-Year Cost of Operations per Organization

	Before/Without Amazon ElastiCache	With Amazon ElastiCache
Cost of other approach/Amazon RDS	\$801,534	\$676,819
Cost of IT staff time (deployment, DBA, security)	\$11,704,457	\$5,772,214
Total	\$12,505,990	\$6,449,034 (48% lower total cost of operations)

n = 7; Source: IDC Business Value In-Depth Interviews, February 2024

[Return to original figure](#)

About the IDC Analysts



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Megan Szurley is a senior research analyst for the Business Value Strategy Practice, responsible for creating custom business value research that determines the ROI and cost savings for enterprise technology products. Megan's research focuses on the financial and operational impact of these products for organizations once deployed and in production. Prior to joining the Business Value Strategy Practice, Megan was a consulting manager within IDC's Custom Solutions division, delivering consultative support across every stage of the business life cycle: business planning and budgeting, sales and marketing, and performance measurement. In her position, Megan partners with IDC analyst teams to support deliverables that focus on thought leadership, business value, custom analytics, buyer behavior, and content marketing. These customized deliverables are often derived from primary research and yield content marketing, market models, and customer insights.

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