Business Value Highlights

393%
five-year ROI

49%
lower five-year cost of operations

11 months
to breakeven

51%
improved database performance

$7.8 million
higher revenue per year

89%
less unplanned downtime

44%
more efficient

35%
more efficient DBAs

The Business Value of Oracle SuperCluster

EXECUTIVE SUMMARY

Digital transformation (DX) — a technology-driven business strategy — enables firms to gain or expand their competitive differentiation by embracing data-driven decision-making processes, whether for increasing operational efficiencies, developing new products and services, increasing customer satisfaction and retention, or getting a better intelligence on the market. Deploying an on-premises cloud infrastructure enables firms to accelerate their DX initiatives in a business- and opex-friendly fashion.

Fault-tolerant mission-critical systems such as Oracle SuperCluster provide a ready-to-deploy, secure, and scalable cloud infrastructure for databases and applications. As an engineered system, such systems combine computing, networking, and storage hardware with virtualization, operating system, and management software into a single system, making it easy for the IT staff to deploy, secure, manage, and maintain them.

IDC interviewed organizations that have deployed Oracle SuperCluster engineered systems to run and support significant database and application workloads. These study participants told IDC that Oracle SuperCluster has provided them the performance and scalability their businesses require. Further, they reported that it has served as a cost-effective and efficient platform for these databases and applications. Based on these interviews, IDC calculates that these Oracle customers will realize value worth an average of $37,005 per database per year ($6.70 million per organization) by:

● Driving better business results with improved database and application performance and scalability

● Enhancing the productivity of developers and employees who work heavily with databases

- Requiring less staff time to manage and support infrastructure and operate databases

- Costing less than alternative infrastructure approaches and enabling cost savings

SITUATION OVERVIEW

Cloud Infrastructure Is Crucial for Accelerating Digital Transformation

Digital transformation — a technology-driven business strategy — enables firms to increase competitive differentiation by embracing data-driven decision-making processes, whether for increasing operational efficiencies, developing new products and services, increasing customer satisfaction and retention, or getting a better intelligence on the market.

Applications are the lifeblood of modern enterprises — they are the conduit through which businesses can execute on their DX strategy. Firms must constantly evolve their application portfolio, infusing new-generation applications that run in the cloud, are delivered as microservices, are open source based, and are increasingly (infrastructure) platform independent. They must converge systems of record, engagement, and insight, which means an increased emphasis on databases to store structured and semistructured data.

From an infrastructure perspective, DX is all about application and data elasticity and scalability. The challenge with executing DX using traditional IT infrastructure is a mismatch of requirements and service quality. In the traditional approach, IT procures various components from different vendors and pieces them together. Servers and storage systems end up locked into an inflexible, silolike structure, often running just one application.

On the other hand, deploying an on-premises cloud infrastructure enables firms to accelerate their DX initiatives in a business- and operations-friendly fashion. Furthermore, the use of engineered systems enables all compute and storage resources to be managed as one large, virtualized, and automated environment that can be divided into any number of smaller resources, which provide a range of operational and business benefits.

ORACLE SUPERCLUSTER

Using Engineered Systems for Cloud Infrastructure

Fault-tolerant mission-critical systems such as Oracle SuperCluster provide a ready-to-deploy, secure, and scalable cloud infrastructure for multitiered applications and databases, besides serving as a platform for enterprisewide consolidation. This common foundational layer enables IT to run current- and new-generation applications and databases, in the cloud and on-premises, and utilize a variety of computing options such as bare metal, virtualization, and containerization. The more versatile and open the system, the better equipped IT is to support the firm's application portfolio and hence the firm to take on the digital economy. Furthermore, as an engineered system, Oracle SuperCluster combines computing, networking, and storage hardware with virtualization, operating system, and management software into a single system, making it easy for the IT staff to deploy, secure, manage, and maintain them.

Benefits of Oracle SuperCluster for Deploying Mission-Critical Applications

Oracle SuperCluster is Oracle's fastest, most secure, and most scalable engineered system. It is a complete engineered system optimized for running databases and applications on a single integrated infrastructure platform. Oracle SuperCluster comes with many Oracle products that are preconfigured, pretuned, and pretested by Oracle engineers, eliminating weeks or months of effort typically required to design, integrate, and deploy a high-performance and highly available system. Extensive end-to-end testing ensures that all components work seamlessly together and there are no performance bottlenecks or single points of failure that can affect the system. The following features make Oracle SuperCluster a secure and scalable platform for cloud deployments and workload consolidation:

- **Silicon Secured Memory:** Secures databases and applications from tampering and unreliability

- **Cryptographic acceleration:** Advanced wide-key cryptographic acceleration that provides end-to-end network and data encryption with virtually no cost to performance

- **Data analytics accelerators:** Dramatically speed up analytics by offloading key operations to data analytics accelerators

- **Oracle VM Server for SPARC and Oracle Solaris:** Provides high-density multitenancy with near-zero overhead virtualization for maximum performance and scalability with minimal wasted compute, memory, power, space, or software licenses

- **Oracle SuperCluster Virtual Assistant:** Dramatically simplifies and accelerates day-to-day operation, eliminating the need for specialized system administration skills and training

- **Database automation:** Provides an easy, error-free approach to implement Oracle Real Application Clusters and highly available Oracle Database instances

- **Security automation:** Activates and configures hundreds of technologies and integrated security controls with the push of a button; easily comply with PCI-DSS or CIS-equivalent security profiles

- **Patch automation:** Executes pretested and verified rolling, full-system patches, and updates faster with less risk

- **Compliance automation:** Verifies security by running compliance reports with the push of a button

- **Elastic configurations:** Allow enterprises start with small configurations for specific projects and easily scale up as demand grows by adding compute, memory, storage, and network capacity in low-cost increments

- **SPARC high-performance and high-efficiency architecture:** Reduces software and hardware footprint with SPARC processors that deliver superior Oracle Database and Java application performance

In addition, customers can integrate Oracle SuperCluster systems with Oracle Exadata or Oracle Exalogic machines by using the available high-bandwidth, low-latency, and secure InfiniBand expansion ports and optional datacenter switches. For application environments that follow Oracle's best practices for highly scalable, fault-tolerant systems, no application architecture or design changes are required to benefit from Oracle SuperCluster systems.

Oracle SuperCluster provides optimal solutions for all database workloads, ranging from scan-intensive data warehouse applications to highly concurrent online transaction processing (OLTP) applications. With its combination of Oracle Exadata Storage Server, Oracle Database software, and the latest hardware components, Oracle SuperCluster delivers extreme performance in a highly available and highly secure environment. Each Oracle Exadata Storage Server uses Exadata Smart Flash Logging, a feature of Oracle Exadata that both improves user transaction response times and increases overall database throughput for I/O-intensive workloads by accelerating performance-critical database algorithms.

THE BUSINESS VALUE OF ORACLE SUPERCLUSTER

Study Demographics

IDC interviewed eight organizations for this study asking survey respondents a variety of quantitative and qualitative questions about the impact of deploying Oracle SuperCluster engineered systems on their IT and database operations, businesses, and costs. The average number of employees in the organizations interviewed was 10,006, and the average revenue was $3.75 billion per year. Significant numbers of business applications and databases were represented; the average number of applications across all companies was 236, and the average number of databases was 202. In terms of IT organizational profiles, the average number of IT staff was 1,633, serving 10,004 end users.

The sample of companies involved in the study represented a spectrum of geographies and vertical industries. Four companies were based in the United States, with two based in Brazil and one each in Andorra and Italy. Similarly, there was a good level of diversity among vertical industries, which included communications, financial services (3), government, professional services, recreation, and transportation. Table 1 summarizes this information along with other relevant demographic attributes.

TABLE 1 Demographics of Interviewed Organizations

	Average	Median
Number of employees	10,006	3,250
Number of IT staff	1,633	186
Number of business applications	235	150
Number of databases	202	69
Revenue per year	$3.75 billion	$487.5 million
Countries	United States (4), Brazil (2), Andorra, and Italy	
Industries	Communications, financial services (3), government, professional services, recreation, and transportation	

n = 8   Source: IDC, 2017

Overview of the Use of Oracle SuperCluster

Study participants have deployed an average of two SuperCluster engineered systems that run and support 181 databases and 50 business applications (see Table 2). Generally, these organizations have consolidated distributed and midsize legacy infrastructure systems onto their SuperCluster platforms, which has enabled them to grow environments related to critical business and database applications.

Interviewed IT managers at organizations running Oracle SuperCluster described various reasons for using the platform. A common theme was being able to create a private cloudlike environment for key databases and applications that provides:

● Improved database performance

● Enhanced ability to scale database operations

● Simplified processes enabling innovation and faster application deployment

● Automation of day-to-day infrastructure- and database-related tasks

One organization explained the overall benefit of creating a private cloud with SuperCluster: *"We are in the process of moving everything to a cloud-based infrastructure. Some of the processes cannot go into the public cloud environment. SuperCluster is a mixture of private cloud and datacenter and can support both needs … . SuperCluster is giving us consolidation and faster response. Everything is in a single space, and we are getting a faster response to transactions."*

Overall, these organizations are running a rich array of database and analytics workloads on their SuperCluster platforms. All study participants are running data warehousing and custom-designed applications; most are processing transactions, and about half are running in-memory analytics.

TABLE 2 Oracle SuperCluster Use by Interviewed Organizations

|	Average	Median
Number of Oracle SuperCluster machines	2	2
Number of databases	181	35
Number of terabytes (TB)	426	200
Number of applications	50	20
Number of users	4,041	1,290

n = 8   Source: IDC, 2017

Business Value Analysis

Study participants reported that they are benefiting from having a consolidated, high-performing infrastructure platform with Oracle SuperCluster for running database workloads and business applications. In addition, they cited scalability and reliability of databases and applications as significant benefits for their businesses. Meanwhile, they also reported that Oracle SuperCluster has provided them with a cost-effective and efficient infrastructure platform from the perspective of IT staff members who support databases and infrastructure. In total, IDC projects that interviewed organizations will realize value through their use of Oracle SuperCluster worth an average of $37,005 per database per year ($6.70 million per organization) in the following areas (see Figure 1):

- **Business productivity benefits.** Enhanced database and application scalability and performance lead to better business results and operational efficiencies. IDC puts the value that interviewed Oracle customers will achieve through revenue and productivity gains at an average of $15,274 per database per year ($2.76 million per organization).

- **IT infrastructure cost reductions.** Consolidation on the Oracle SuperCluster platform results in lower hardware and licensing costs as well as savings in terms of operational expenses. IDC calculates that study participants will deploy and operate their Oracle SuperCluster platforms at an average cost of 26% lower than alternative infrastructure solutions and save an average of $8,598 per database per year ($1.56 million per organization).

- **IT staff productivity benefits.** Efficiencies in managing and supporting infrastructure and databases and more effective application development efforts generate significant value. IDC projects that study participants will achieve time savings and productivity gains in these areas worth an average of $8,503 per database per year ($1.54 million per organization).

- **Risk mitigation — user productivity benefits.** Minimizing the frequency of outages affecting databases and applications means reduced impact on employees and business operations. Meanwhile, the ability to more efficiently comply with regulatory requirements lowers costs associated with compliance. IDC puts the value in these areas at an average of $4,630 per database per year ($0.84 million per organization).

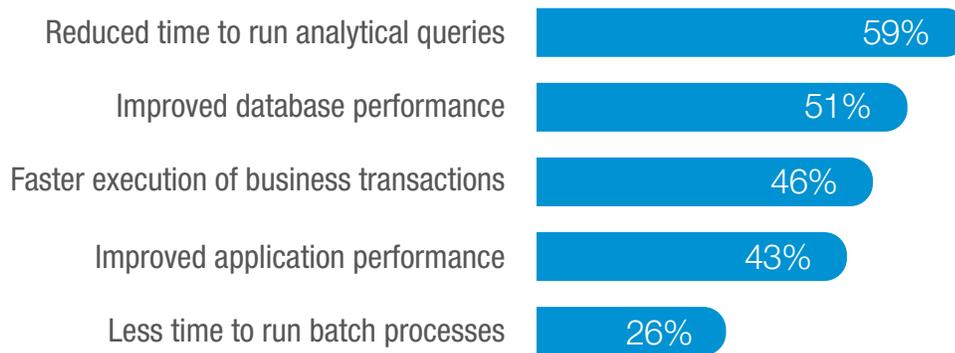**FIGURE 1** Average Annual Benefits per Database
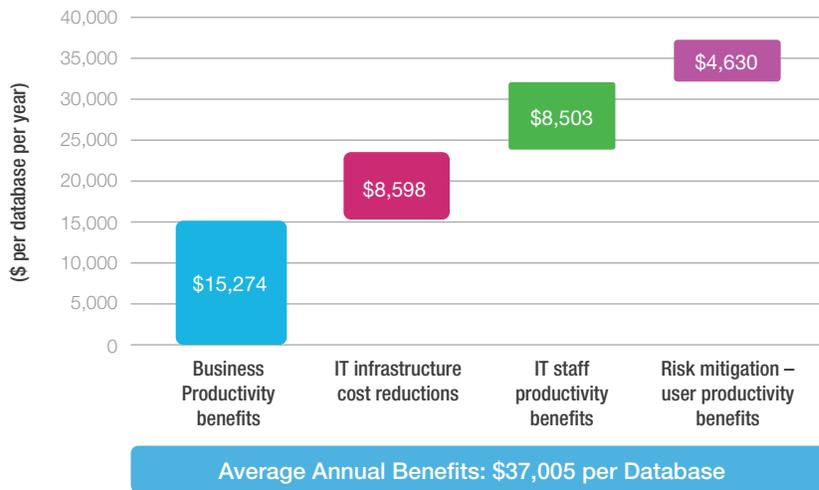
Source: IDC, 2017

Better Performing Platform for Databases and Business Applications

Deployment of Oracle SuperCluster as a platform for significant database and application workloads has brought clear benefits for study participants in terms of performance. Figure 2 reflects this performance impact, which directly affects study participants' ability to support customers and make employees as effective as possible: 59% less time to run analytics queries, 51% improvement in database performance, and 46% faster execution of business transactions. As one study participant commented: *"With Oracle SuperCluster, we are seeing improved performance with reads and writes and we have accelerated that piece. We have improved performance on workloads that normally would have taken longer. We have sped up the analytics piece and can now drive real-time analytics out in the field faster."*

Another survey respondent commented on the impact on the performance of customer-facing systems: *"At the time that we bought the Oracle SuperCluster, we were facing many challenges related to our electronic invoice system, used by almost all of our external users to get authorization to issue electronic invoices. We have more than 1 million a day, but our databases couldn't handle that workload. Oracle SuperCluster has solved a big problem for us because we were getting a lot of complaints."* Other benefits centered on enhanced performance for application development

and custom applications. As one participant noted: *"Custom applications are our bread and butter. The value of Oracle SuperCluster comes back to simulations, which are very processor intensive and require a high I/O. It was truly a breath of fresh air to look at going to the integrated VM solution and the custom configurations that SuperCluster provides."*

FIGURE 2 Impact of Oracle SuperCluster on Performance

	% improvement
Reduced time to run analytical queries	59%
Improved database performance	51%
Faster execution of business transactions	46%
Improved application performance	43%
Less time to run batch processes	26%

Source: IDC, 2017   (% improvement)

More Agile Infrastructure Platform for Databases and Business Applications

Study participants also noted that their deployment of Oracle SuperCluster has brought benefits in operational agility in terms of deployment and provisioning of compute and database resources. For example, as shown in Table 3, the time required to deploy a new database has been reduced from an average of about four days to two days, representing a 52% improvement. As one survey participant commented: *"Today, with Oracle SuperCluster, it takes no more than one day to deploy a database, whereas it probably took around one week previously. The staff time required reflected this — eight hours now with Oracle SuperCluster, compared with about 40 hours."* There were also substantial improvements in the time required to deploy new compute resources. Before the deployment, it took approximately several days, but with the deployment of SuperCluster, this was cut to one day, a 72% improvement. Similarly, VM deployment takes 42% less time on average.

For study participants, these agility benefits mean that their IT teams can better support their businesses by moving around and providing database and compute resources as needed.

IDC
ANALYZE THE FUTURE

TABLE 3 Impact of Oracle SuperCluster on IT Agility Metrics

	Before Oracle SuperCluster	With Oracle SuperCluster	Difference	Percentage Change (%))
Database deployment				
Time to deploy a new database (days)	4.0	1.9	2.1	52
Staff time to deploy a new database (hours)	28.3	12.4	15.9	56
Compute deployment				
Time to deploy new compute (days)	3.6	1.0	2.6	72
Staff time to deploy new compute (hours)	13.9	4.0	9.9	71
Time to deploy a new VM (hours)	1.3	0.8	0.5	42

n = 8   Source: IDC, 2017

Business and Operational Impact

Improved database and application performance alongside enhanced agility with Oracle SuperCluster has resulted in better business results and operational efficiencies for organizations surveyed. They described the benefits are being better able to leverage databases to support and win business and enhancing the productivity of line-of-business teams that rely on database performance in day-to-day operations. Both benefits result in improved business processes with a positive impact on business outcomes. As one IT manager described it: *"We are able to accelerate processes across the board in support of the business with Oracle SuperCluster. Whether it's spending less time in application development or auditing, it translates to being more responsive to business needs. We expect to see significant revenue gains as a result."*

Table 4 presents the revenue impact for surveyed organizations of using Oracle SuperCluster. On a per-organization basis, the additional revenue garnered by better addressing business opportunities was significant: $7.8 million per year. Study participants also reported capturing further business and operational efficiencies in terms of limiting revenue loss associated with database or application outages and higher user productivity.

TABLE 4 Business Productivity Benefits

	Per Organization	Per Database
Revenue impact — better addressing business opportunities		
Additional revenue per year	$7.80 million	$43,081
Recognized revenue per year — IDC model*	$1.17 million	$6,462
Revenue impact — unplanned downtime impact		
Additional revenue per year	$604,600	$3,341
Recognized revenue per year — IDC model*	$90,697	$501
User productivity impact — core database users		
Number of users impacted	1,104	6
Productivity gain	12%	12%
Equivalent FTE gain	22.8	0.1

* The IDC model assumes a 15% operating margin for all additional revenue.
Source: IDC, 2017

Another important business impact for study participants has been leveraging Oracle SuperCluster to ensure more effective and efficient regulatory compliance. One survey respondent detailed how it has made its regulatory compliance efforts much more efficient: *"Oracle SuperCluster helps with regulatory compliance because we don't need to run machines in different countries to ensure that the right security measures are in place, including only allowing the owner of the data to see it, which is key for some regulators … . So it's not only about saving money; it's about control and performance. And there's a cost saving for our people from better compliance — 50 people save 30% of their time."*

Robust and Reliable Platform for Databases and Applications

Study participants also noted that Oracle SuperCluster is a robust and reliable platform for their databases and applications. This benefits them in both tangible ways — reduced business and operational impact from unplanned outages — and more intangibly — from enhancing the security of their database and application environments. One organization noted that security was a key criterion in choosing Oracle SuperCluster: "We were running support through so many different channels before deploying Oracle SuperCluster. This was not only hardware support but also software support, from virtualization to databases to operating systems to

licensing. This all relates back to security, and the security that is native to the SuperCluster platform was a major reason for our decision to deploy."

Meanwhile, study participants also noted the positive impact on their business operations by reducing the frequency, duration, and impact of unplanned database and application outages with Oracle SuperCluster. As Table 5 shows, these organizations are experiencing 81% fewer impactful outages with SuperCluster and resolving them 48% faster, leading to an overall 89% lower loss of employee productivity because of unplanned outages.

TABLE 5 Impact of Oracle SuperCluster on Unplanned Downtime

	Before Oracle SuperCluster	With Oracle SuperCluster	Difference	Percentage Change (%)
Unplanned outages per year per organization	17.1	3.3	13.8	81
MTTR (hours)	4.4	2.3	2.1	48
Lost productivity per user per year (hours)	1.8	0.2	1.6	89
FTE impact — lost user productivity per year	9.6	1.1	8.6	89

n = 8   Source: IDC, 2017

Cost-Effective Platform for Databases and Business Applications

Survey participants further confirmed that Oracle SuperCluster is serving as a cost-effective database and application platform for them from a hardware, an operational, and a staff support perspective.

In terms of IT staff productivity, the organizations surveyed are benefiting from the ease of deploying, managing, and supporting their SuperCluster platforms, which frees up IT infrastructure and database administrator teams to take on other responsibilities. In addition, application developers derive benefits from the ease of provisioning resources on their SuperCluster platforms, as well as having a single consolidated system for database-related operations. Other benefits relate to having a single platform with built-in automation and efficiencies for database workloads and better reliability, resulting in fewer issues to deal with overall.

Interviewed IT managers provided examples of these efficiencies (see Table 6):

- **Application development, 19% more productive.** *"The largest impact of using Oracle SuperCluster is that the development staff now has a sandbox environment that is completely isolated and in real time. They get resources almost immediately. They used to have to spin up servers, and they had their own lab. We tore that whole lab out."*

- **IT infrastructure team and support efficiencies, 44% and 57% more efficient, respectively.** *"Not maintaining the legacy equipment and moving to Oracle SuperCluster has eliminated some of the need for monitoring and resolution of issues. Our team is spending a lot less time keeping that legacy gear up and running. We've gone from 3 FTEs to 1.5 FTEs and have reduced the time spent keeping the lights on from 70% to 30%. Teams spend a lot more time solving business problems and understanding the business."*

- **Database administration (DBA), 35% more efficient.** *"Database administration took more time previously on a day-by-day basis because it was not completely integrated like SuperCluster. For example, when we are updating our databases, we can update the operating system and software at the same time with SuperCluster — it saves us about 30% of our DBAs time."*

TABLE 6 Impact of Oracle SuperCluster on IT Staff

	Before Oracle SuperCluster	With Oracle SuperCluster	Difference	Percentage Change (%)
Ongoing hardware management, FTEs	7.4	4.2	3.3	44
Database administration, FTEs	6.8	4.4	2.4	35
Support/help desk, FTEs	9.2	3.9	5.3	57
Application developers, FTEs	24.0	19.5	4.5	19

n = 8   Source: IDC, 2017

Further, organizations using Oracle SuperCluster reported that it is a cost-effective platform for the database and application workloads they are running on it, costing less from a hardware perspective and decreasing ongoing costs such as power utilization, floor space, and rack space. Several interviewed organizations also reported a reduction in network equipment such as eliminating routers and switches, while other benefits related to the use of storage compression, contributing to more cost-effective infrastructure. Study participants put the cost of buying and running Oracle SuperCluster at an average of 26% lower than their legacy or an alternative approach in terms of hardware, warranty, and power/facilities costs.

IT staff and IT infrastructure efficiencies combine with reduced operational impact from unplanned outages to mean that these organizations incur substantially lower costs in deploying and running Oracle SuperCluster over five years — 49% lower on average, as shown in Figure 3. One survey participant that had considered the comparative costs explained: *"Using a traditional approach would cost more because we are saving with Oracle SuperCluster in terms of our personnel by standardizing our equipment and achieving economies of scale … . Overall, I think the TCO of going with a more traditional approach would be maybe more than 50% more than with SuperCluster."*

FIGURE 3 Five-Year Cost of Operations

Source: IDC, 2017
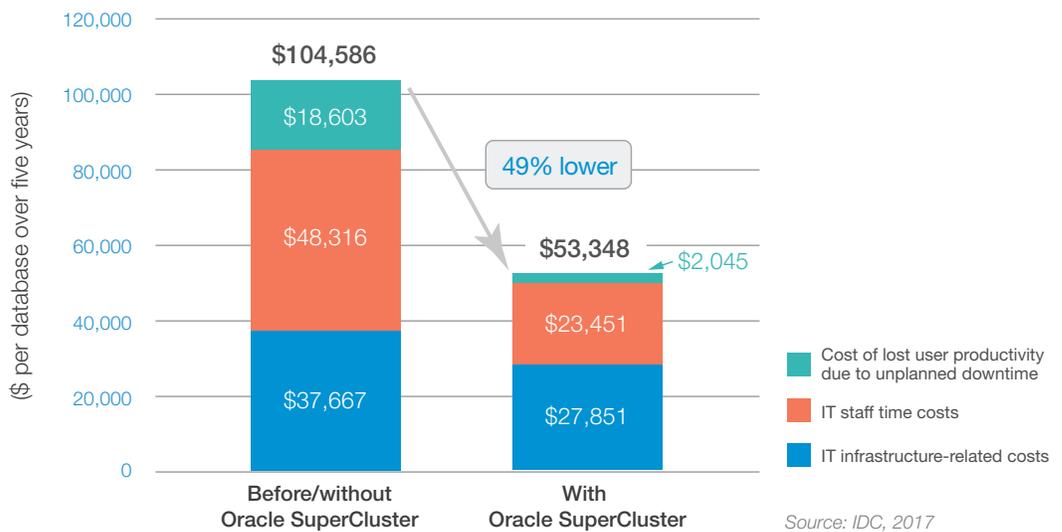
ROI Analysis

IDC based its return-on-investment (ROI) analysis on interviews with organizations that have deployed Oracle SuperCluster as a platform for running significant database and application workloads. Based on these interviews, IDC has calculated the benefits and costs to these organizations of using Oracle SuperCluster. 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 Oracle SuperCluster. In this study, the benefits included staff time savings and productivity benefits, increased revenue from better addressing business

opportunities, reducing revenue losses associated with outages, and IT- and database-related cost reductions.

2. Created a complete investment (five-year total cost analysis) profile based on the interviews. Investments go beyond the initial and annual costs of using Oracle SuperCluster engineered systems and can include additional costs related to planning, consulting, migrations, 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 Oracle SuperCluster over a five-year period. ROI is the ratio of the net present value (NPV) and the discounted investment. The payback period is the point at which cumulative benefits equal the initial investment.

Table 7 presents IDC's analysis of the benefits and costs of using Oracle SuperCluster. IDC projects that study participants will achieve five-year discounted benefits per database worth an average of $130,144 ($23.56 million per organization) based on a total investment of $26,412 per database ($4.78 million per organization). For these Oracle customers, this would result in a five-year ROI of 393% and breakeven on their investment in an average of 11 months.

TABLE 7 Impact of Oracle SuperCluster on IT Staff

	Five-Year Average per Organization	Five-Year Average per Database
Benefit (discounted)	$23.56 million	$130,144
Investment (discounted)	$4.78 million	$26,412
Net present value (NPV)	$18.78 million	$103,732
Return on investment (ROI)	393%	393%
Payback period	11 months	11 months
Discount rate	12%	12%

n = 8   Source: IDC, 2017

CHALLENGES AND OPPORTUNITIES FOR ORACLE

Even though the trend is toward moving business- or mission-critical workloads to smaller scale-out servers, with uptime protected using high-availability or clustering software, there is no comparison when it comes to an "all in" measurement of the cost of running such servers vis-à-vis engineered systems. This study proves that systems like Oracle SuperCluster provide superior return on investment by saving on indirect deployment, integration, and management costs. The opportunities and therefore challenges for Oracle are

● Showcase the might of engineered systems for the development of next-generation apps. Most vendors in the fault-tolerant server market can safely state that their systems achieve 5-9s or 6-9s (i.e., 99.999% or 99.9999%) in a very powerful and scalable system. However, this is not the source of market challenges. The greatest challenges for vendors, today, are the emerging expectations that customers have for their systems with respect to a range of digital transformation–related capabilities: quick to deploy, highly automated, easy to manage with current skill sets, fully mobile enabled and cloud ready, able to run a slew of open source solutions, able to participate in the API economy, suitable for next-generation app development and deployment, DevOps and Agile friendly, ready for the Internet of Things, easy to integrate into the datacenter, transparently priced, and demonstrably affordable. More and more, some of these customer needs are being met.

● Help customers with workload consolidation. It is important that vendors help their customers take an inventory of installed infrastructure and the workloads it support and consistency of utilization across such workloads. Not many customers are aware of the inefficiencies embedded in their infrastructure because of application sprawl and therefore indirect capex and opex wastage. Oracle has an opportunity — through its support, services, or consulting divisions — to provide its customers with a complete picture of what it means to consolidate workloads. Factored into this opportunity is to make the case for why the higher cost of an engineered system can be justified should be the potentially lost revenue or productivity if a system goes down and transactions cannot be processed.

● Focus on hybrid cloud. Enterprises that require highly available, scalable, and reliable systems for their core functions and data are unlikely to do a wholesale migration to the cloud. They will keep their data on-premises on the fault-tolerant servers, possibly built as a private cloud or connected to a private cloud in the datacenter. In general, IDC sees hybrid cloud deployments as the preferred cloud approach for enterprises. For Oracle,

the opportunity lies in delivering more technology that can enable customers to deploy hybrid clouds.

Oracle needs to continue to challenge itself to not just improve its existing systems but also dare to disrupt them on the drawing table — perhaps to launch a separate product line that delivers even more on contemporary and near-future customer needs within an uncompromisingly fault-tolerant package.

CONCLUSION

IDC believes that engineered fault-tolerant systems such as Oracle SuperCluster are attractive options for businesses looking to build private clouds and consolidate workloads. Oracle SuperCluster provides the simplicity, security, and deployment ease for IT organizations to streamline their datacenter operations; increase performance, productivity, and flexibility; and reduce capex and opex. Vendors of engineered systems promise attractive ROIs, and the proof is in the business value findings of this study. Oracle SuperCluster is a high-performing option that can provide crucial business benefits in an appliancelike package.

APPENDIX

IDC's standard ROI methodology was utilized for this project. This methodology is based on gathering data from organizations currently using Oracle SuperCluster engineered systems as the foundation for the model. Based on interviews with these study participants, IDC performs a three-step process to calculate the ROI and payback period:

● Measure the savings associated with using Oracle SuperCluster in terms of reduced IT costs (staff, hardware, software, maintenance, and IT support), increased user productivity, and business impact measured by revenue over the term of the use of Oracle SuperCluster.

● Ascertain the investment made in deploying and running Oracle SuperCluster engineered systems.

● Project the costs and savings over a five-year period and calculate the ROI and payback for the deployed solution.

IDC bases the payback period and ROI calculations on a number of assumptions, which are summarized as follows:

● Time values are multiplied by burdened salary (salary + 28% for benefits and overhead) to

quantify efficiency and manager productivity savings. For purposes of this analysis, based on the geographic locations of the interviewed organizations, IDC has used assumptions of an average fully loaded 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 five-year savings is calculated by subtracting the amount that would have been realized by investing the original sum in an instrument yielding a 12% return to allow for the missed opportunity cost. This accounts for both the assumed cost of money and the assumed rate of return.

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.

About IDC

International Data Corporation (IDC) is the premier global provider of market intelligence, advisory services, and events for the information technology, telecommunications and consumer technology markets. IDC helps IT professionals, business executives, and the investment community make fact-based decisions on technology purchases and business strategy. More than 1,100 IDC analysts provide global, regional, and local expertise on technology and industry opportunities and trends in over 110 countries worldwide. For 50 years, IDC has provided strategic insights to help our clients achieve their key business objectives. IDC is a subsidiary of IDG, the world's leading technology media, research, and events company.