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Running SQL Server Workloads in the Cloud

Users report high levels of satisfaction with their cloud choice

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Executive Summary

Overall Landscape for Migrating and Running SQL Server Workloads in the Cloud

- IDC research has shown that Microsoft SQL Server is one of the **leading database management systems for business data processing.**
- As with other technology users, SQL Server users are looking to **migrate to the cloud to enjoy more scalability at a lower overall cost.**
- As SQL Server users migrate their operations to the cloud, they have **a choice of cloud providers and how to deploy SQL Server using those providers.**
- In a recent survey of 2,259 organizations, a clear majority of those polled indicated that **Amazon Web Services (AWS) is their chosen primary cloud provider for deploying SQL Server.**
- AWS offers **two options for the deployment of SQL Server:** self-managed on Amazon Elastic Compute Cloud (Amazon EC2) or AWS-managed on Amazon Relational Database Service (Amazon RDS).
- Users of **Amazon EC2 indicated strong satisfaction (85%)** due to the ease of migration from on premises, the ability to move the software license, and the ability to self-manage with operating system (OS) access in the cloud.
- Survey respondents deploying SQL Server on **Amazon RDS reported very high satisfaction: 99% said it met or exceeded their expectations** in high performance, high availability, and high scalability.
- **Lower total cost of ownership with Amazon RDS** is another key benefit reported by users after migrating from on premises.

Cloud Trends in Database Workloads

IDC forecasts the public cloud to be the fastest-growing platform for all data generation.

With a forecasted **38%** compound annual growth rate over the five-year period ending in 2027, **the public cloud is the fastest-growing location for all data generation.**

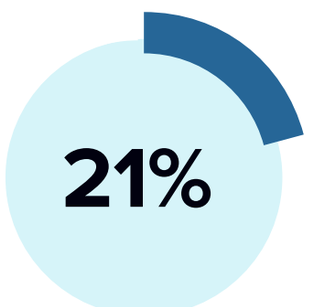
Source: IDC's *Global DataSphere*, 2023

- Cloud adoption is driven by key advantages, including high performance/availability, ease/speed to deploy and run workloads, flexible and efficient pricing models, reduction of in-house support costs, and standardization.
- According to a recent IDC survey (*Data Composite Management Survey,* December 2022), the public cloud is the preferred platform for deploying new database workloads.
- Those surveyed who deployed new database workloads in 2022 indicated by a 64% majority that they were deployed in the public cloud.
- Additional IDC research shows that the complexity of modern data environments will drive the need for more intelligence about data so that organizations can take control of highly distributed, diverse, and dynamic data sets. Business leaders are accelerating their use of AI and generative AI, and cloud providers are the primary source of AI and generative AI technologies that organizations consume to create business-differentiating, intelligent applications, leading further towards the cloud.
- As one of the most mature relational databases, SQL Server is no exception to these trends in cloud deployment.

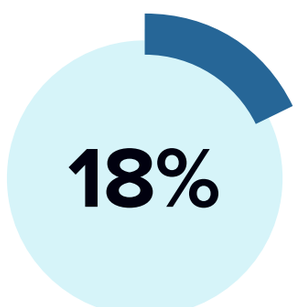
Cloud Criteria for SQL Server

High performance, security, scalability, and ease of management top the list of criteria for running SQL Server in the cloud.

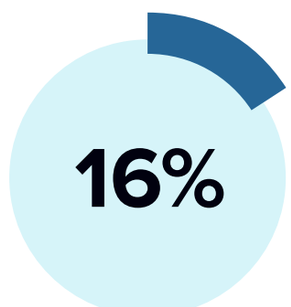
IDC conducted a survey of 2,259 organizations to understand how they are running SQL Server workloads in the cloud. When asked why they chose their cloud provider for running SQL Server workloads, the usual suspects rose to the top of the list of criteria.



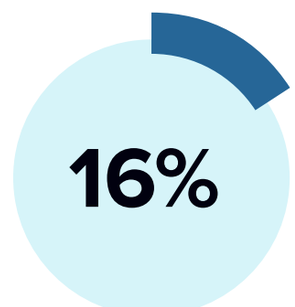
High performance



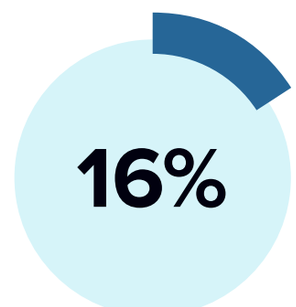
Excellent data security and compliance



High scalability



Trustworthy provider (reputation for security, customer support, and resilient services)



Easy to manage

Q: Why did you choose your current cloud provider to run your SQL Server workloads? [Select up to three.) | n = 2,259 IDC's *North America Relational Database Service Study,* August 2023

Running SQL Server in the Cloud

A majority of SQL Server users chose AWS as their primary cloud provider when polled.

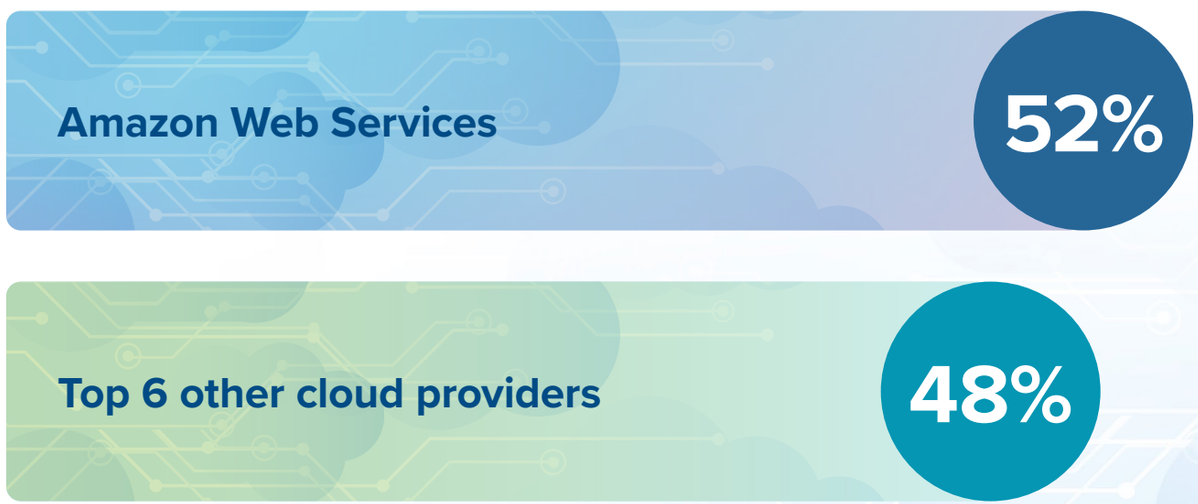
Respondents were asked to choose from a list of eight options:

- **Top 7 public cloud providers running SQL Server workloads** on either Infrastructure as a Service (IaaS) or Platform as a Service (PaaS)
- **Other cloud provider**

Regardless if they chose one or more cloud provider, they were then asked to choose which one they considered **their primary provider for running SQL Server workloads in the cloud.**

Primary Cloud Provider Used to Run SQL Server Workloads

(Percentage of respondents)

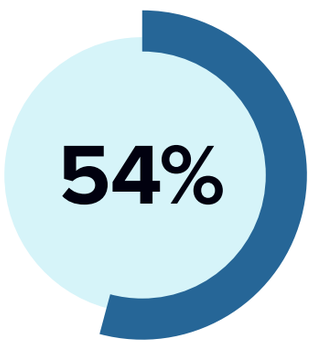


Q. You selected the following cloud providers [that you use for running SQL Server workloads in the cloud]. Which do you consider your primary cloud provider for running SQL Server workloads? [Select 1]. n = 2,259; Source: IDC's *North America Relational Database Service Study,* August 2023

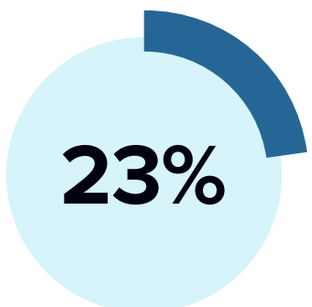
Migration of SQL Server to AWS

Organizations continue to migrate SQL Server workloads from on premises for the most demanding types of applications.

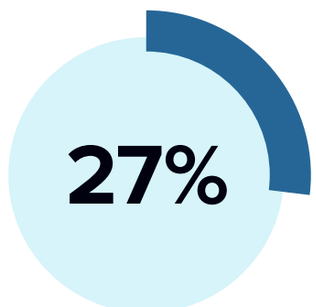
Respondents report the following origination of SQL Server workloads for Amazon RDS:



migrated from on premises



migrated from other public cloud provider's service



born in the cloud

Organizations are migrating the most demanding types of applications using SQL Server to the cloud. **CRM (38%), ERM (37%), and HCM (34%) come out on top.**

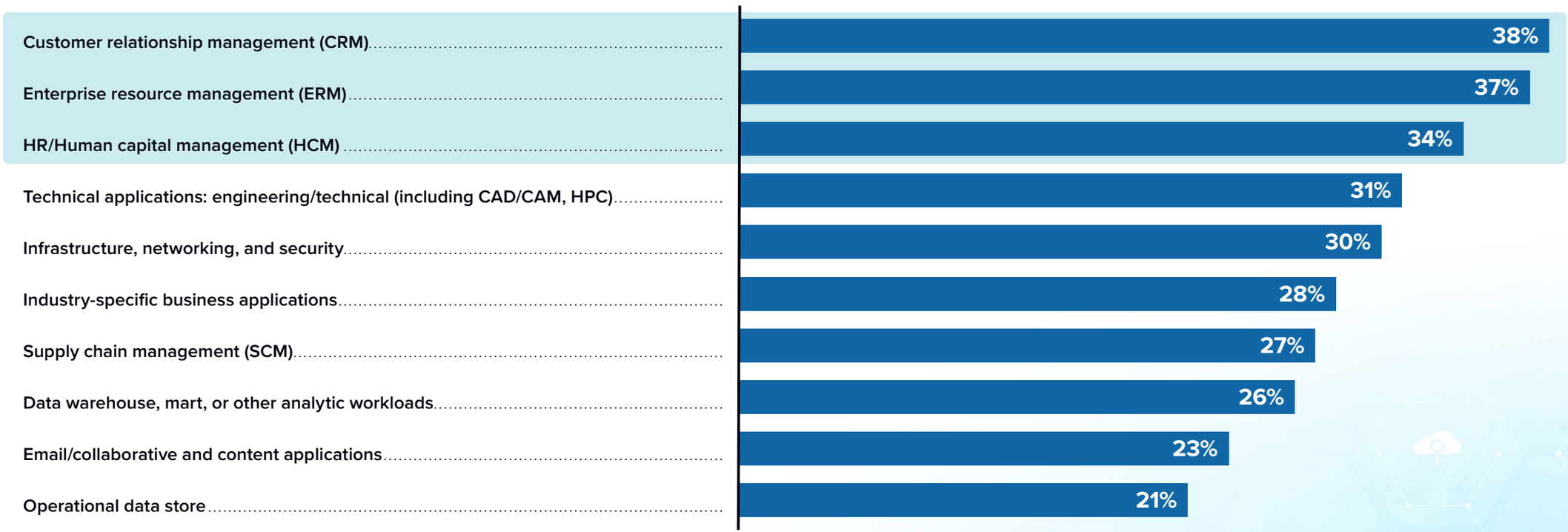
See next page for complete data.

Q: You answered that you are using Amazon RDS for SQL Server workloads. From where did you migrate those SQL Server workloads? [Select all that apply]
Note: Totals may not sum to 100% due to rounding. n = 1,454; Source: IDC's *North America Relational Database Service Study,* August 2023

Migration of SQL Server to AWS (continued)

Top 10 Types of Applications Using SQL Server Migrated to Amazon RDS

(Percentage of respondents)



Q: What types of applications that use Microsoft SQL Server have you migrated to Amazon RDS? [Select all that apply] | n = 1,454; Source: IDC's North America Relational Database Service Study, August 2023

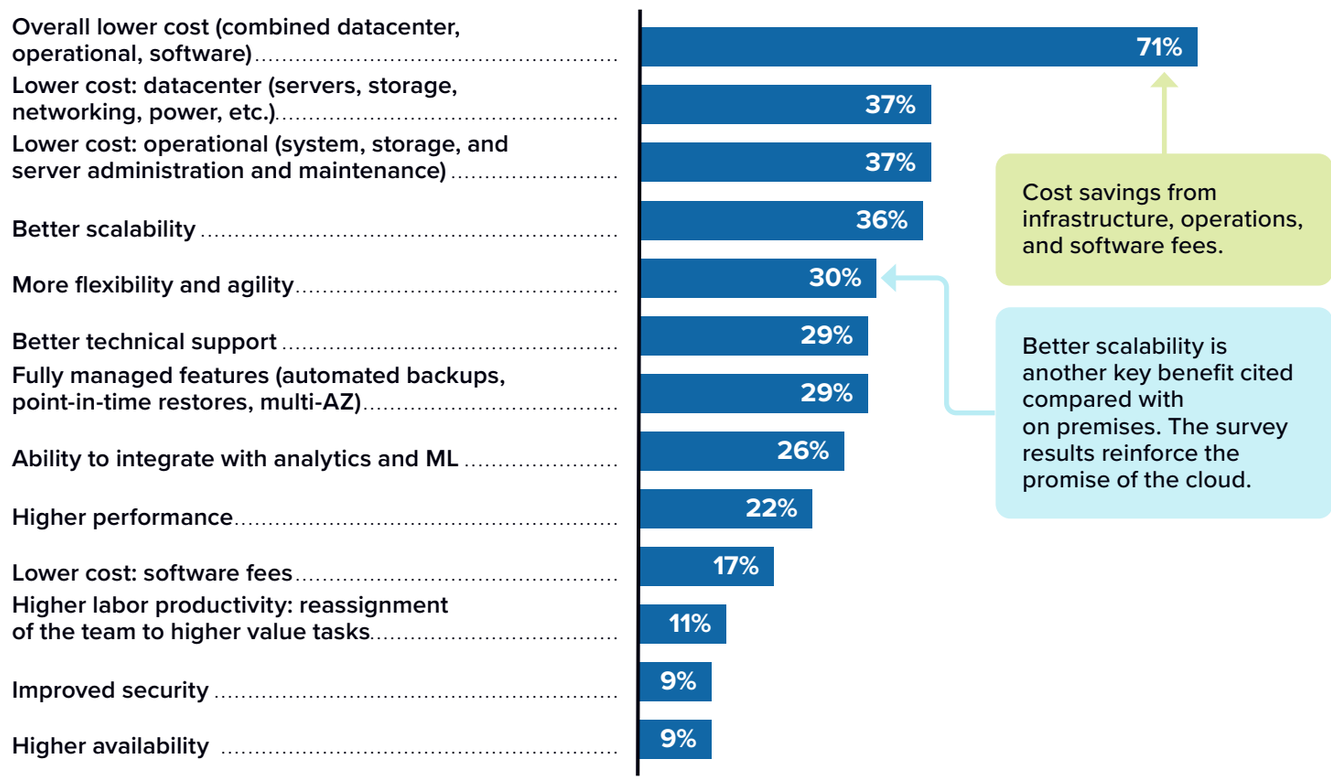
Major Benefit Upon Migrating: Lower Costs

When migrating to Amazon RDS from on premises, 71% reported overall lower cost benefits.

While organizations originally cited the decision to move to the cloud was to achieve **better performance, high availability, and scalability** to ensure business continuity and agility, they discovered **lower cost** to be another major benefit.

Top Benefits on Amazon RDS

(Percentage of respondents)



Q: What are the top three benefits you have found on Amazon RDS versus your previous SQL Server deployment on premises? [Select up to three.] | n = 783; Source: IDC's *North America Relational Database Service Study,* August 2023

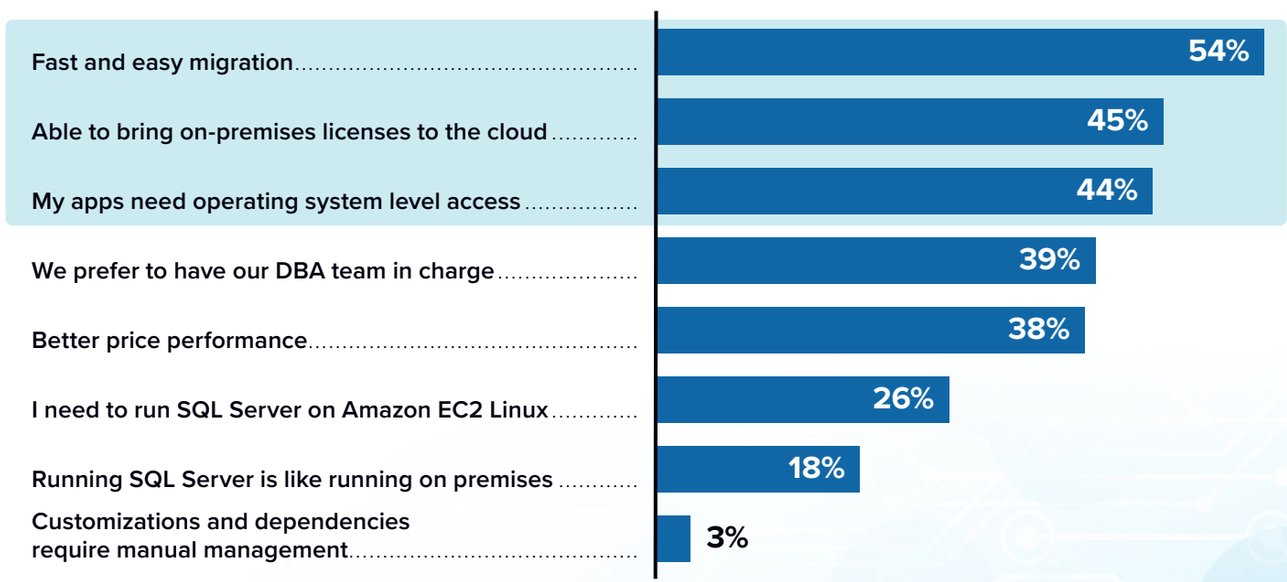
AWS Option 1:
Manage It Yourself with Amazon EC2

Manage it yourself: Organizations cited **85% satisfaction** with Amazon EC2. The top 3 reasons for choosing Amazon EC2 are:

- the fact that **migration is fast and easy**
- the ability to **bring their own licenses**
- the ability to **self-manage with OS access**

Reasons for Choosing to Run SQL Server on Amazon EC2

(Percentage of respondents)



Q: Why did you choose to run SQL Server on Amazon EC2? [Select up to three.] | n = 380; Source: IDC's *North America Relational Database Service Study,* August 2023

AWS Option 2:
Managed for You with Amazon RDS

Top Reasons for Choosing Amazon RDS

(Percentage of respondents)

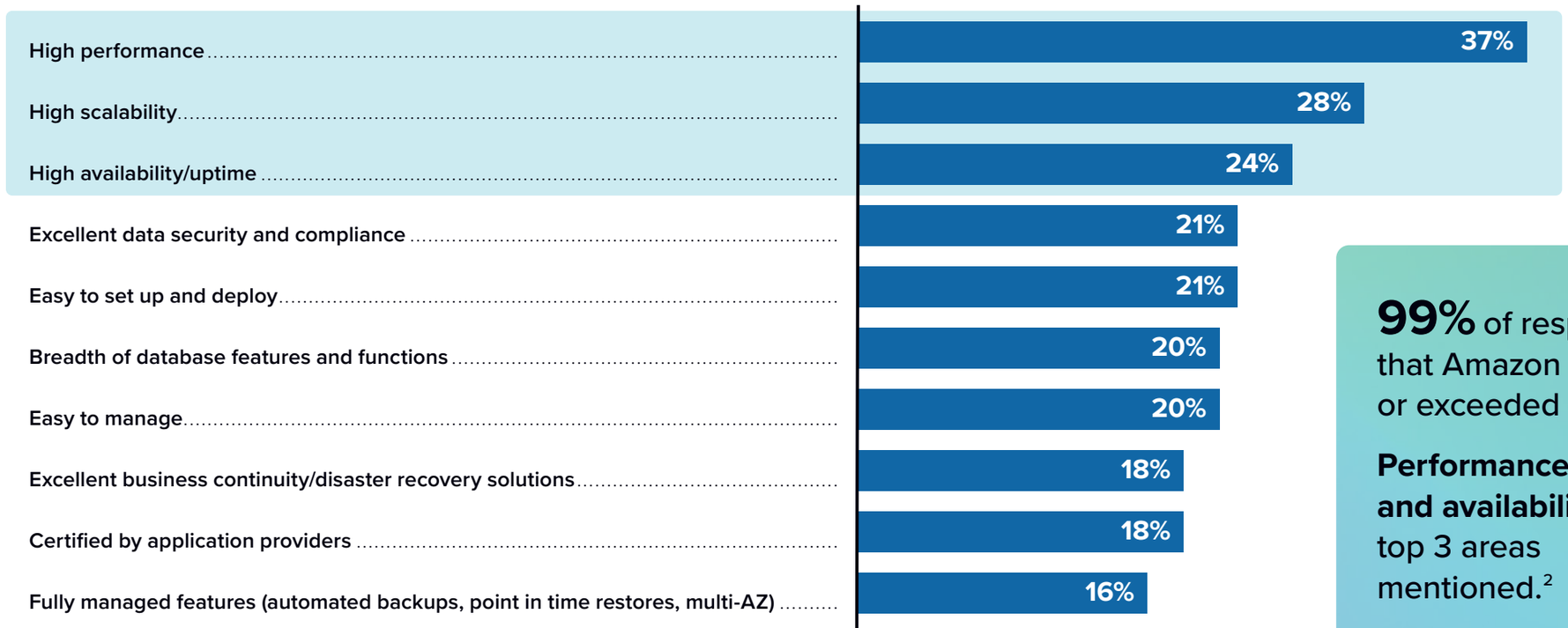
Q: Why did you choose Amazon RDS? [Select up to three.] | n = 454; Source: IDC's *North America Relational Database Service Study,* August 2023

Managed for you: Organizations choose Amazon RDS for high performance, ease of management, high scalability, high availability, and disaster recovery capabilities.

Expectations Met or Exceeded with Amazon RDS

Top 10 Areas that Met or Exceeded Expectations After Migrating from On Premises to Amazon RDS

(Percentage of respondents)



99% of respondents say that Amazon RDS met or exceeded expectations.[1]

Performance, scalability, and availability are the top 3 areas mentioned.[2]

1. Overall, did the benefits achieved after migrating your database(s) to Amazon RDS from on-premises meet your expectations? (Select one); n = 783
2. In what primary areas did migrating your database(s) to Amazon RDS from on-premises meet or exceed expectations? (Select up to three); n = 780

Source: IDC's *North America Relational Database Service Study,* August 2023

Essential Guidance

Selecting a Cloud Provider's Database Service for SQL Server Workloads

1 Assess your SQL Server application estate and cloud needs.

- Peer data shows that all types of applications are being migrated successfully, including the most demanding.
- Ensure your application is co-located with its associated database.
- Review your application requirements to ensure compatibility.
- Examine your SQL Server license, and optimize its cost by leveraging free programs, such as AWS Optimization and Licensing Assessment.

2 Determine the right database deployment model to support your business needs and operational characteristics.

- High performance, high availability, ease of management, and security are must-have criteria, but also consider how much time and effort you want to spend on database management, including software updates, patching, provisioning, and deploying databases.
- Examine if you have the available database tools and in-house expertise for database management to manage it yourself or have it managed for you.

3 Calculate the ROI.

- While lack of time and resources is a critical reality, the survey shows that those who migrate to the cloud achieve lower costs.
- Quantify the impact of not only software and infrastructure savings, but also the time and cost savings of your DBAs spent to ensure your databases remain secure, compliant, durable, and performant.

4 Plan for the whole application environment — now and in the future.

- The chosen cloud provider should provide support for the full range of applications and tools that you may wish to use in conjunction with SQL Server. Set up a discovery session to determine your specific needs.
- Try it out: Set up a test environment with a trial database. Ensure that your staff is comfortable with the configuration you have chosen.

Essential Guidance (continued)

Key Questions to Consider

- What do your database applications require?
- Which cloud provider(s) can support your application needs?
- What database performance characteristics do you require?
- What are your availability and disaster recovery requirements?
- How many regions do you operate in?
- Do you have the in-house expertise to scale operationally?
- What are your long-term data needs and strategy?
- Consider the whole data landscape: How easily can your databases integrate?
- What is the total cost of operation for each cloud provider under consideration?
- How does the database perform in a test environment?

About the IDC Analysts

Lara Greden
Research Director,
Platform as a Service (PaaS), IDC

Lara's research focuses on platforms for application development on private, public, and hybrid clouds and on edge deployments. She directs research into the competitive markets of cloud platforms and application development and deployment services that are enabling digital transformation, including integration, containers, serverless computing, Big Data, AI, ML, predictive analytics, IoT, and other emerging technologies. Lara advises customers and vendors on the trends that are shaping the modern application deployment environment. She closely follows the emerging platform services and focuses on tying platform research on emerging technologies to customer needs.

More about Lara Greden

Carl Olofson
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Carl Olofson has performed research and analysis for IDC since 1997, and manages IDC's Database Management Software service, as well as supporting the Data Integration Software service. Carl's research involves following sales and technical developments in the structured data management (SDM) markets, including database management systems (DBMS), dynamic data management systems, database development and management software, and dynamic data grid managers, including the vendors of related tools and software systems. Carl also contributes to Big Data research and provides specialized coverage of Hadoop and other Big Data technologies. Carl advises clients on market and technology directions as well as performing supply- and demand-side primary research to size, forecast, and segment the database and related software markets.

More about Carl Olofson

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AWS has helped hundreds of thousands of customers transition their SQL Server workloads to the cloud since 2008. Customers continue to choose AWS for migrating and modernizing SQL Server for optimized price performance, license flexibility, ease of use, and innovation to manage, access, and scale their data.

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Rehost

SQL Server on Amazon EC2

Lift and shift with flexible licensing options, such as License-Included and Bring Your Own Licenses (BYOL).

Replatform

Amazon RDS for SQL Server

Automate administrative tasks as a fully managed service, with option to BYOL and gain privileged DB/OS access with Amazon RDS Custom.

Refactor

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Modernize your data infrastructure and achieve unparalleled performance at one-tenth of the cost of commercial databases.

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