SQL SERVER EVERYWHERE: PLATFORM CHOICES ENRICH DATA-DRIVEN BUSINESSES

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EXECUTIVE SUMMARY

The data world is ablaze with applications that are both stunning in their capabilities as well as profound in their known applications and as-yet untapped potential for business. Exploring this emerging world—consisting of artificial intelligence, machine learning, and deep learning—is now on the agendas of many forward-looking businesses. Bear in mind these technologies are all built on a data foundation that needs to be solid and reliable. These initiatives—vital to understanding and predicting customer preferences, markets, and operations—require sophisticated capabilities incorporating robust, scalable, and adaptable databases. That power is inherent in today's Microsoft SQL Server databases.

With Microsoft announcing Linux platform support for SQL Server available in 2017, followed by moving to the cloud in 2018, a new world of possibilities has opened up to companies running these databases. While there has been ongoing movement to these platforms in recent years, lately, the trickle has become a torrent. Linux, the open-source operating system, has taken its place alongside Windows Server as a key platform choice among SQL Server users. In addition, across all operating system instances, many of these implementations are being deployed in cloud-based environments, providing robust scalability and storage capabilities.

In October 2022, Unisphere Research, a division of Information Today, Inc., partnered with Red Hat to conduct a survey of 249 IT leaders and data professionals to explore the platform choices now available to SQL Server database sites. This survey serves as a follow-up to a similar survey conducted in early 2021.

The survey revealed the following trends in SQL Server platforming:

- More SQL Server data and infrastructure is moving to cloud.
- Container adoption is on the rise, and virtualization remains a strong option.
- More SQL Server sites are adopting Linux.
- Data managers are growing more comfortable with Linux as an underlying SQL Server platform.
- Linux skills are on the rise, but skills continue to dominate as the leading roadblock to Linux deployments.
- Data managers see more support, and are getting a better handle on tooling, for Linux-based implementations. Their concerns about available tools for managing SQL Server on Linux have diminished since the last survey.

On the following pages are insights drawn from the data associated with this survey.

Charts may not add up to 100% due to rounding.

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TODAY'S DATA ENVIRONMENTS: GREATER FLEXIBILITY AND AGILITY

More SQL Server data and infrastructure is moving to cloud. Container adoption is on the rise, and virtualization remains a strong option.

Soon, most SQL Server data will be in the cloud. On average, a majority of SQL Server data, 56%, is projected to have been moved to the cloud within the next two years—up from 38% at the present time (See Figure 1).

In the meantime, containers and virtualization are seeing upswings among SQL Server users. Along with cloud, container technology is making its mark on segments of the SQL Server world. In total, 16% report that a significant share of their data (25% or more of their data stores) is now deployed. This number is expected to grow to 31% over the next two years. Similarly, the percentage with significant portions of virtualized SQL Server data (again, 25% or more) is also expected to rise, from 56% of organizations at the current time to 77% within two years (See Figure 2).

Container adoption among a significant share of companies almost tripled over the past year, from 6% to 16%. Twice as many respondents, 31%, anticipate they will be working with data containers over the coming year (See Figure 3).

Figure 1: How much of your SQL Server data resides in the cloud?
(Please provide a percentage)

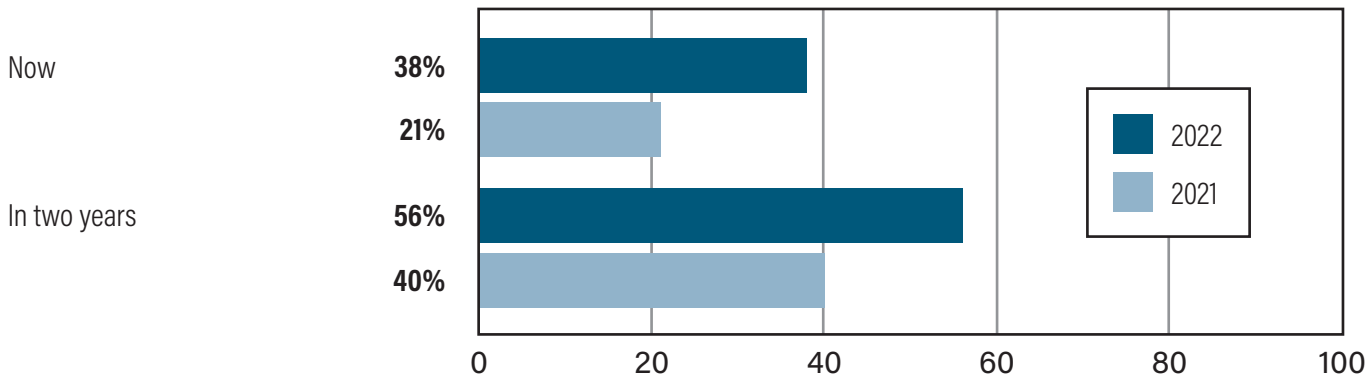

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Figure 2: How much of your SQL Server data is supported through containers, and how much is virtualized, and how much is likely to be containerized or virtualized within the next two years?

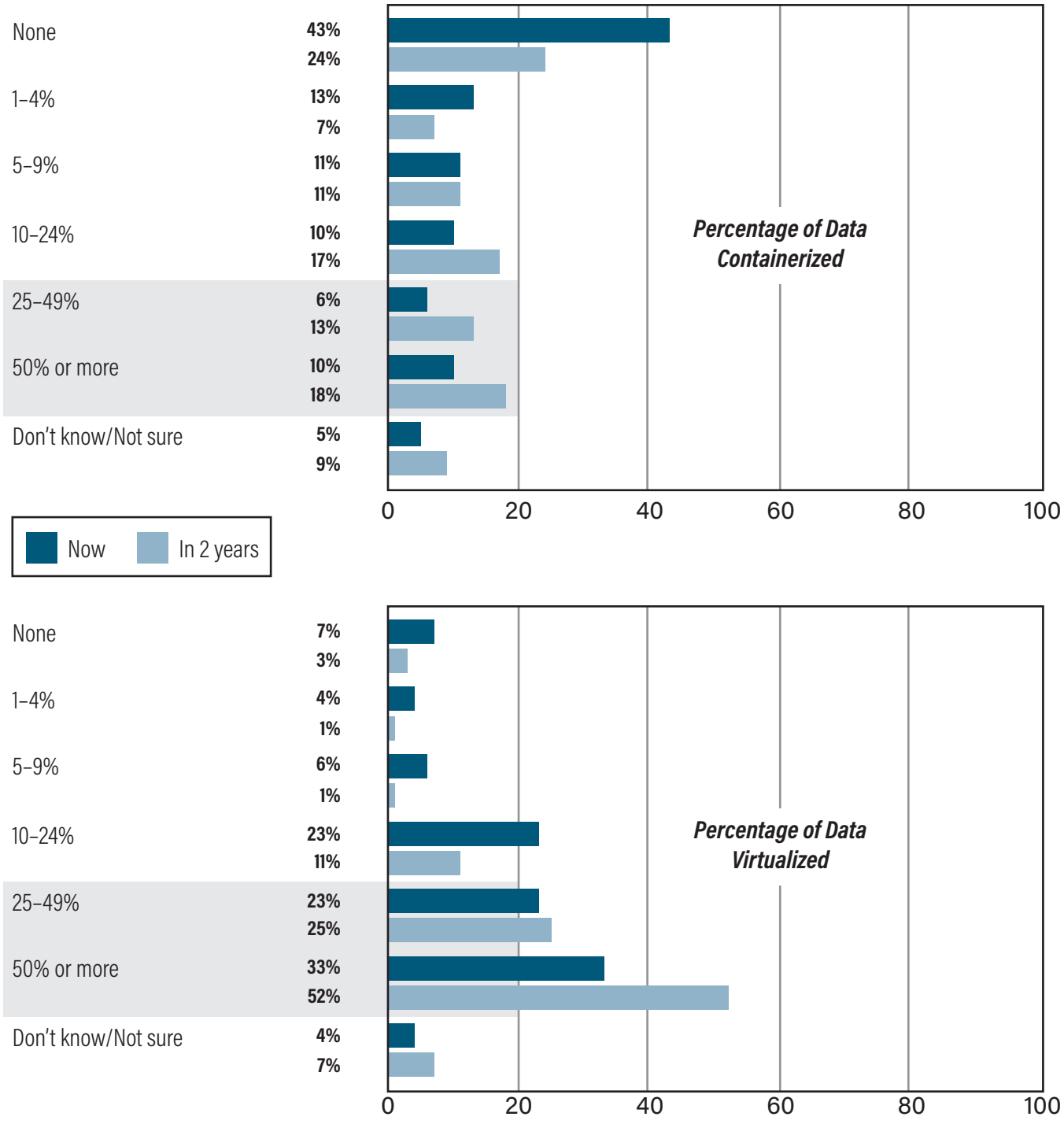

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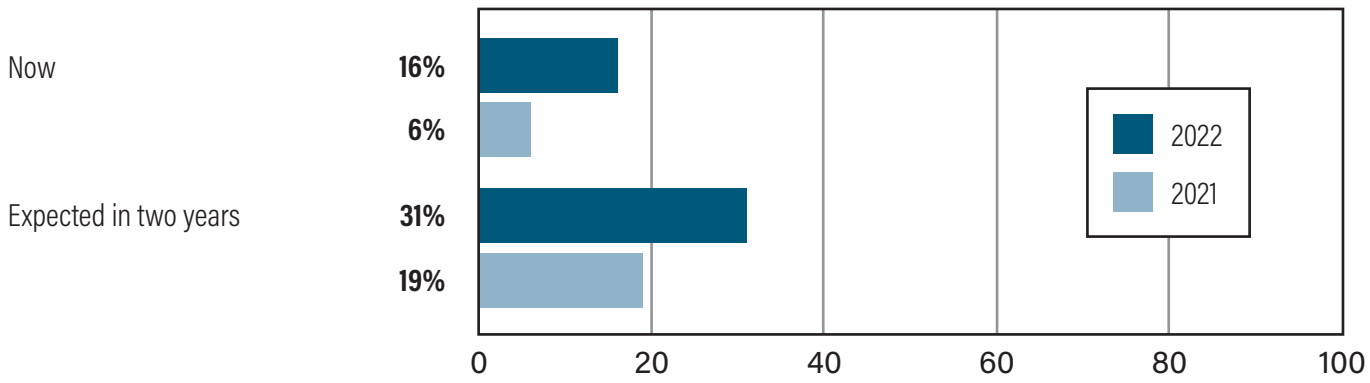
Figure 3: Container Adoption (Percent reporting or planning a significant portion of instances, which is defined, for purposes of this survey, as 25% or more)



SQL SERVER PLATFORM CHOICES

Linux as a SQL Server platform is on the upswing. Platform decisions are made based on costs, but performance and cloud migrations are also becoming important.

There has been wider adoption of Linux-based platforms for SQL Server deployments. Twenty percent now run their data environments on Red Hat Enterprise Linux, up eight percentage points from the previous survey. Amazon Linux and SUSE also showed increased usage (See Figure 4).

While cost-effectiveness is the leading driver of platform choices, it's notable that a sizable segment of respondents is also making platform choices based on overall cloud migration and digital transformation initiatives (See Figure 5).

Of course, SQL Server isn't the only database being supported within respondents' shops. Oracle databases are frequently seen in SQL Server shops, followed by the leading open-source relational databases—MySQL and MariaDB. (MariaDB is a fork of MySQL.) Microsoft Azure SQL is now frequently being seen in today's sites (See Figure 6).

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Figure 4: On which platforms are you running SQL Server instances? *

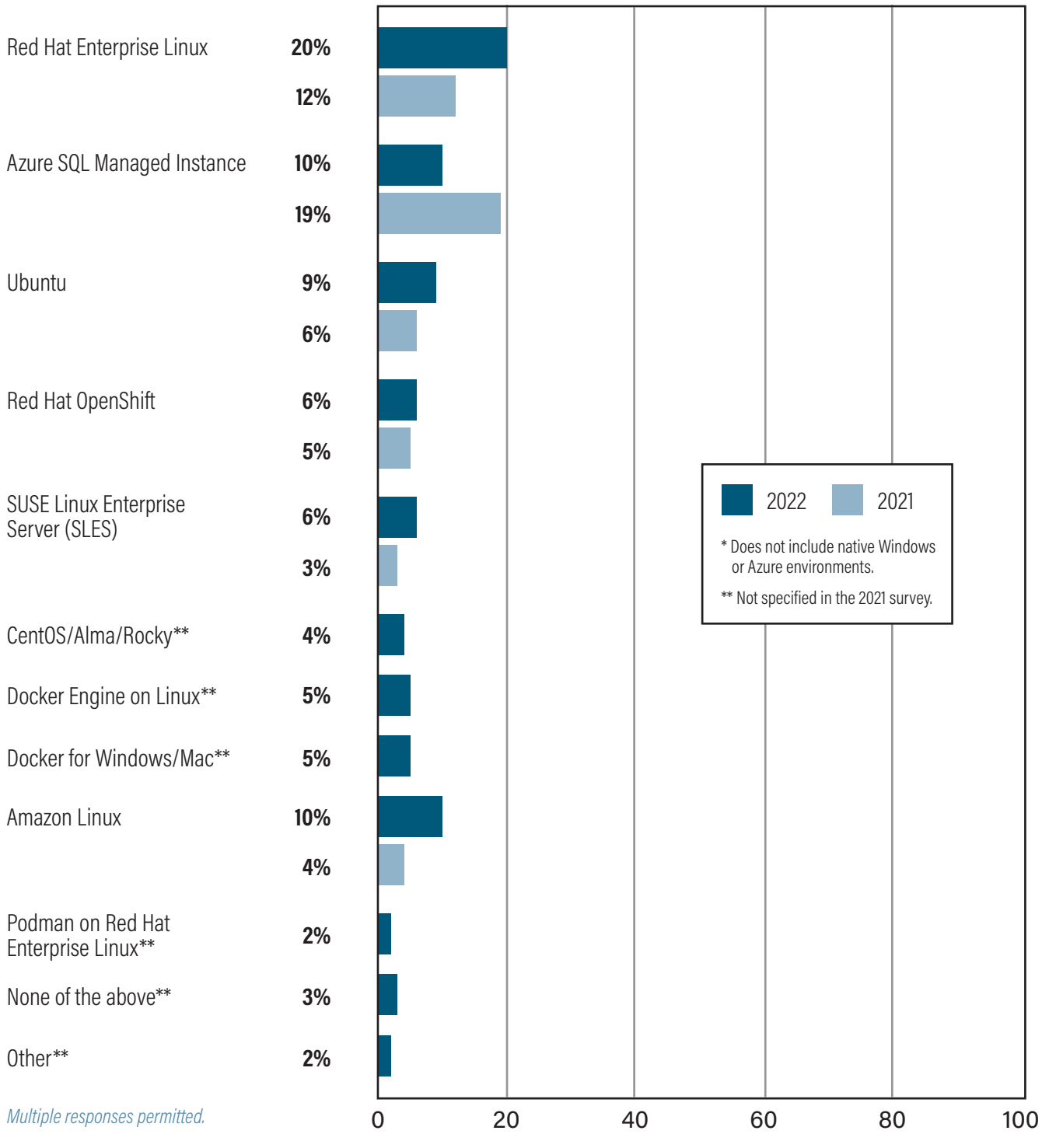

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Figure 5: What are the main reasons you selected this as your primary platform?

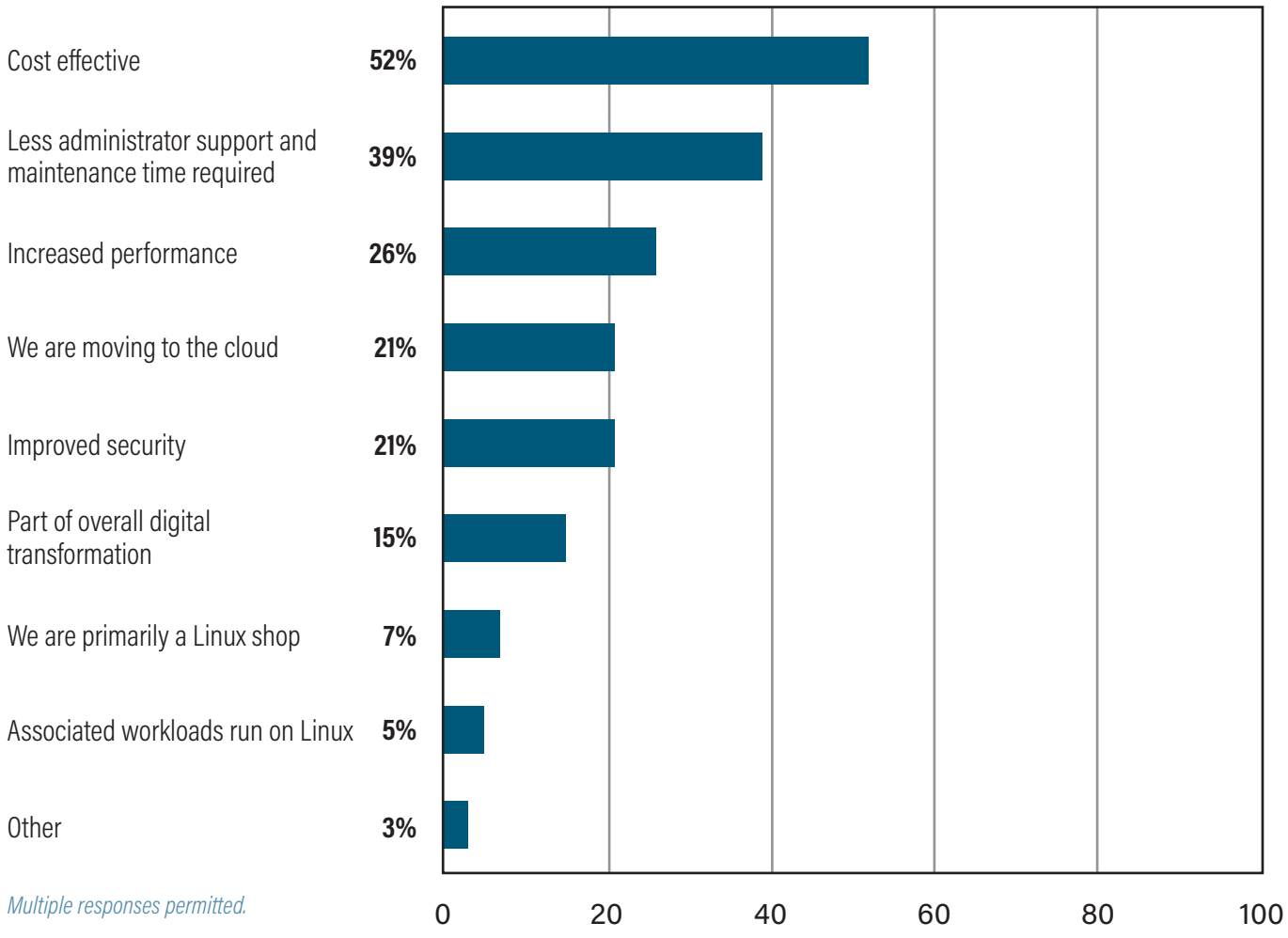

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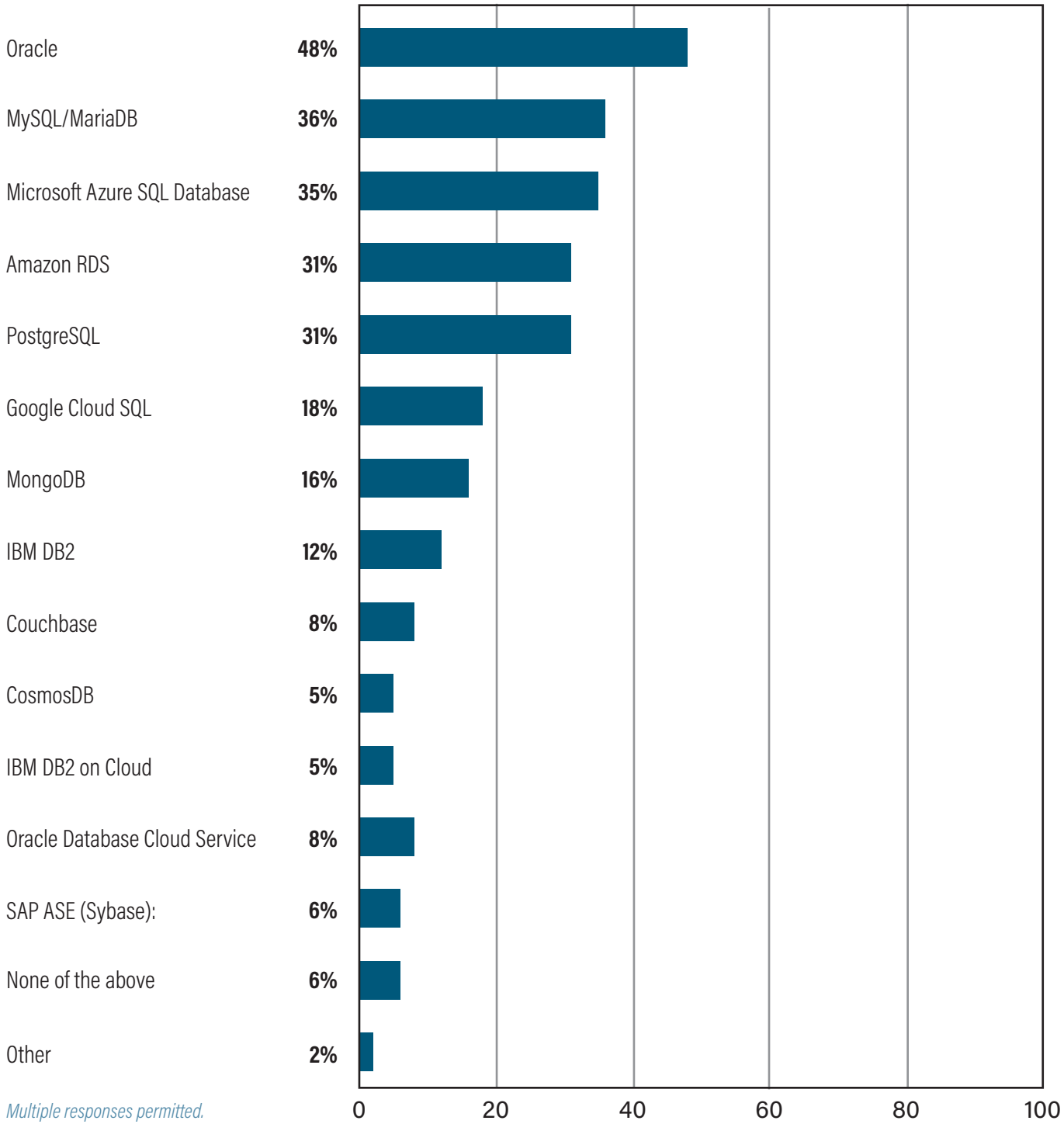
Figure 6: What other database brands are you running within your enterprise?



Multiple responses permitted.

ZEROING IN ON LINUX

Three out of four data managers are considering Linux for their SQL Server instances. Lower cost and avoiding lock-in are seen as advantages of SQL Server on Linux. Still, standardization, fear, and concern about skills continue to inhibit migrations of SQL Server to Linux.

The survey finds wide awareness that SQL Server is now deployable on Linux (Figure 7). Even more telling, 75% would at least consider running their databases on Linux, up from 68% a year ago. For close to three in ten, this migration is a certainty (See Figure 8).

Standardization and fear hold back migrations of SQL Server to Linux. Six in ten respondents who would not consider Linux say it's because of their company-wide standardization on Windows. Otherwise, reasons cited include lack of familiarity with Linux, as well as concerns about disruption (See Figure 9).

Data processing and storage are the most common SQL Server-on-Linux workloads. Basic online transaction processing (OLTP) is the most prevalent workload seen today on Linux-based platforms in SQL Server environments, as cited by 38% of respondents. Another 51% are open to the idea of running OLTP workloads on Linux (Figure 10). In terms of application types, production systems and ERP environments are the main applications deployed on SQL Server on Linux (See Figure 11).

Lower cost and avoiding lock-in are seen as advantages of SQL Server on Linux. Similar to the drivers for overall platform choices noted above, costs and performance are the leading benefits seen with running SQL Server on Linux. In addition, moving to Linux is seen as a way to avoid vendor lock-in, often seen as a deal-breaker for many migration discussions. Data managers also see Linux as a highly secure operating system (See Figure 12).

Skills continue to dominate as the leading roadblock to Linux deployments. Close to seven in ten respondents cite the need for Linux skills as the leading challenge to running SQL Server on Linux—in line with last year's assessment. Compatibility between applications being considered for migration also may hold up migrations. Interestingly, there is far less concern about the availability of appropriate tools between platforms, dropping from 37% a year ago to 18% in the current survey (See Figure 13). Data managers are getting a better handle on tooling for Linux-based implementations. In addition, Linux vendors have ramped up their efforts to support SQL Server databases.

While the need for Linux skills is still a challenge for many organizations, the overall level of Linux skills and maturity at organizations is increasing. Close to half of the survey respondents, 45%, reported having some degree of Linux skills, up from 38% a year ago. This is encouraging, as increases in skills availability will enable organizations to have more choices when it comes to deciding which operating systems will deliver the most value for running their databases (See Figures 14 and 15).

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Figure 7: Are you aware that SQL Server is deployable on Linux?

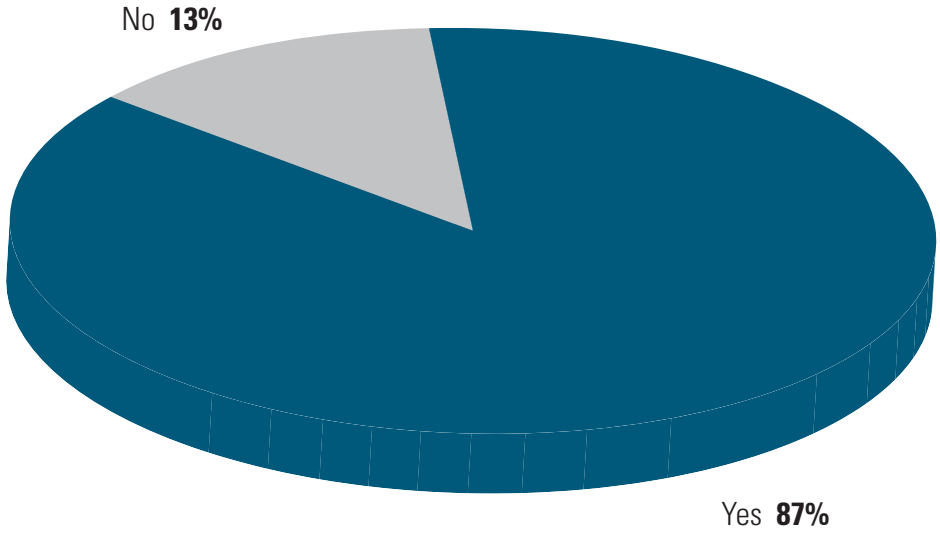

Figure 8: Would you consider running instances of SQL Server on Linux, given the appropriate circumstances?

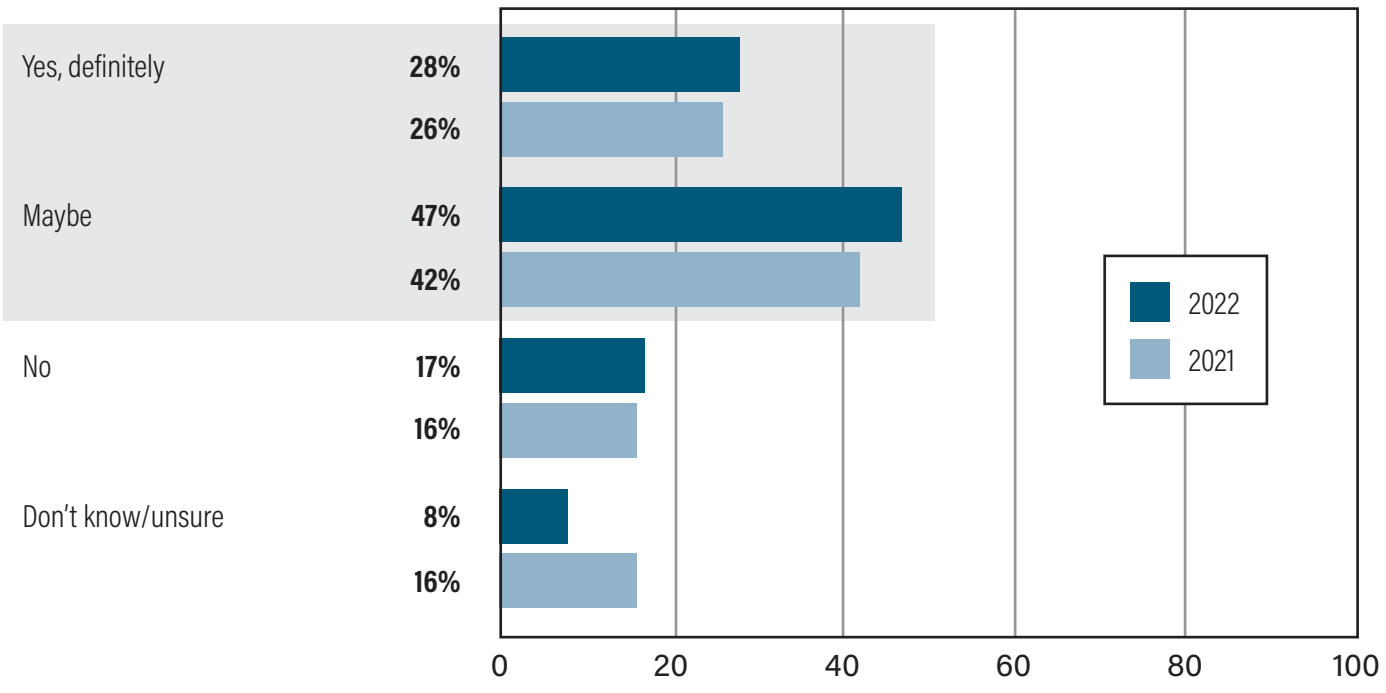

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Figure 9: If you would never consider deploying SQL Server on a Linux platform, what do you see as the major issues?

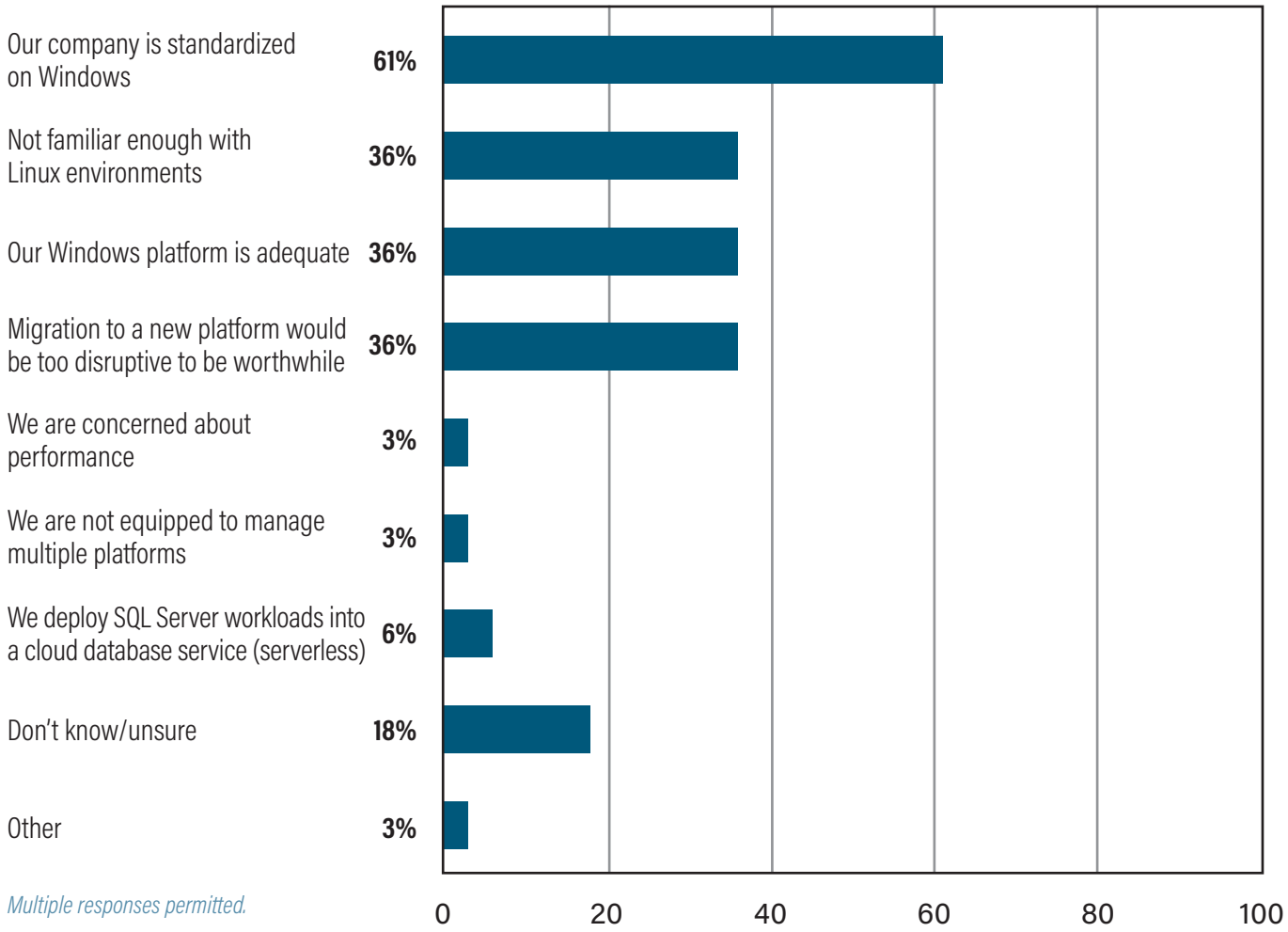

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Figure 10: What types of SQL Server workloads are you running on a Linux platform, or would you consider?

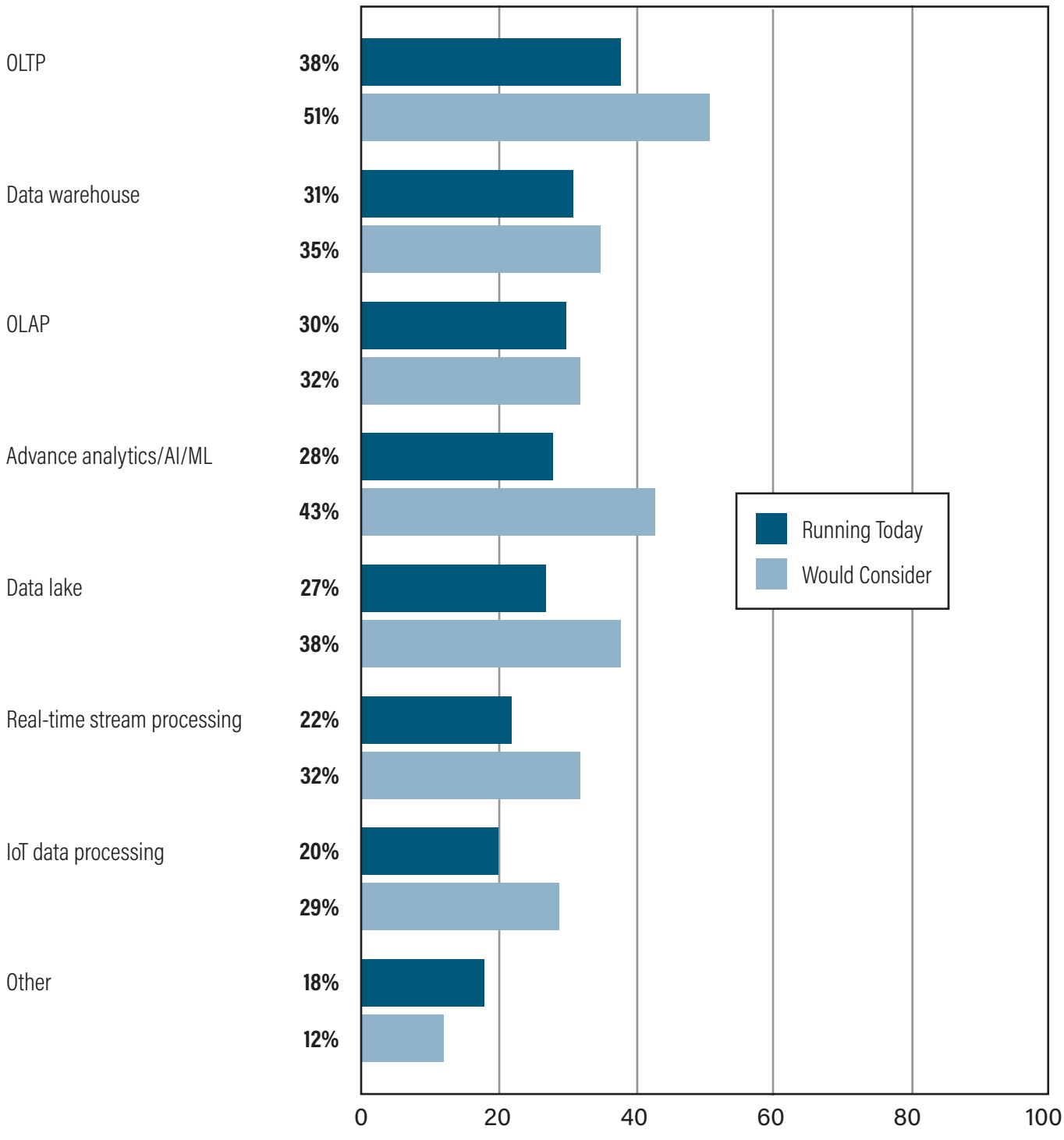

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Figure 11: What types of SQL Server applications are you running on a Linux platform, or would consider?

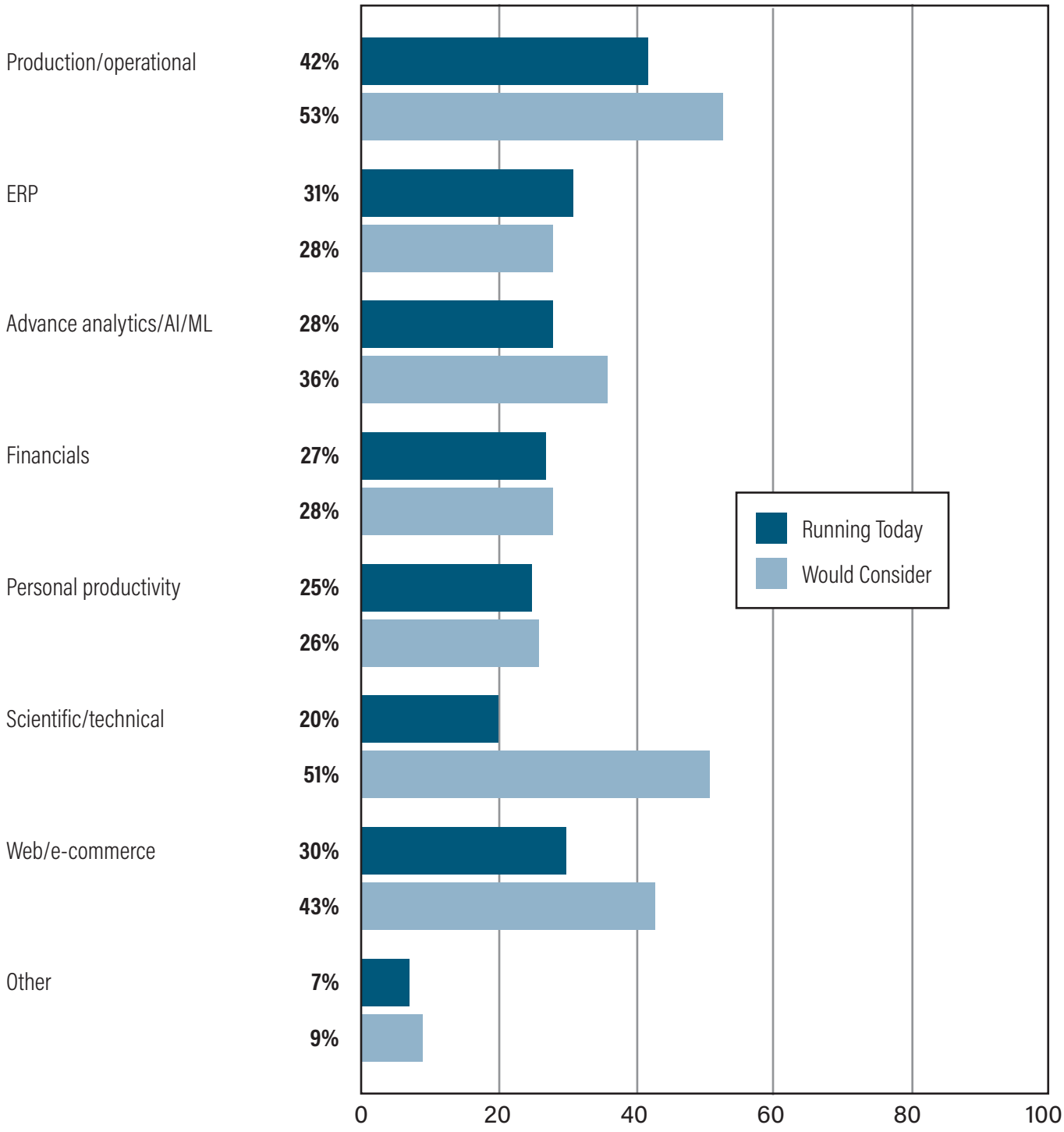

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Figure 12: What do you consider the benefits of running SQL Server on Linux?

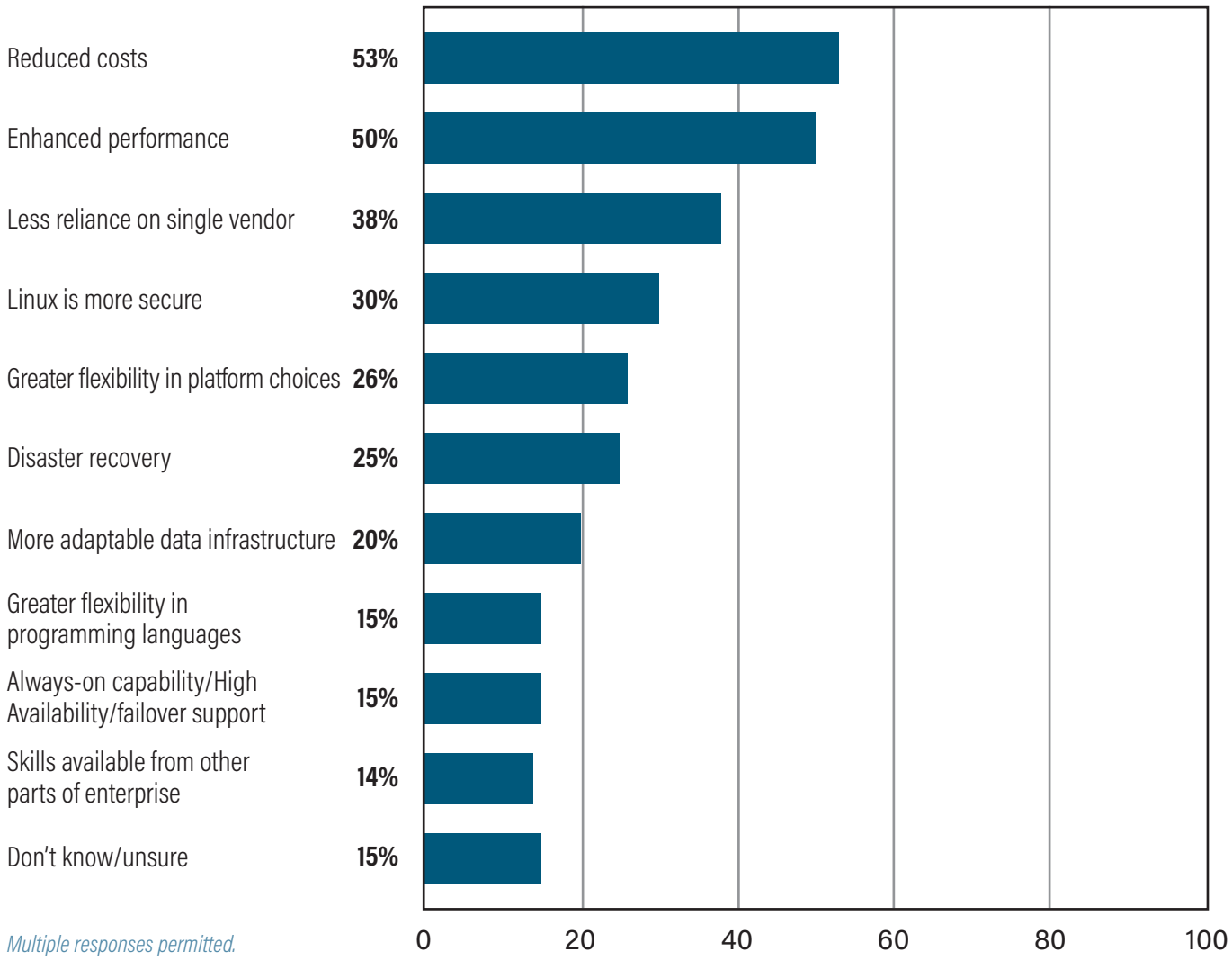

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Figure 13: What do you consider the challenges of running SQL Server on Linux?
(Select all that apply)

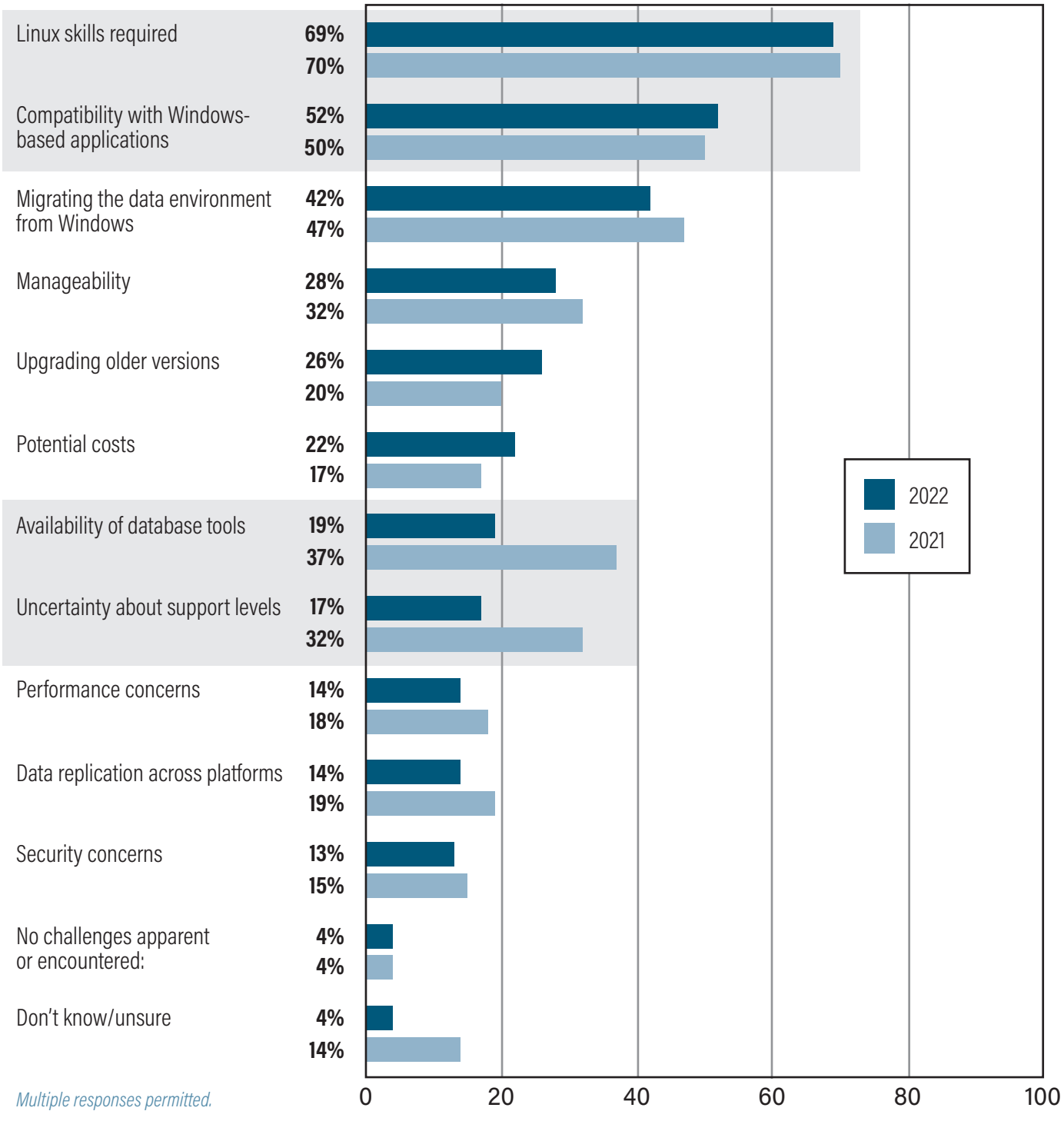

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Figure 14: What is your skill level with Linux?

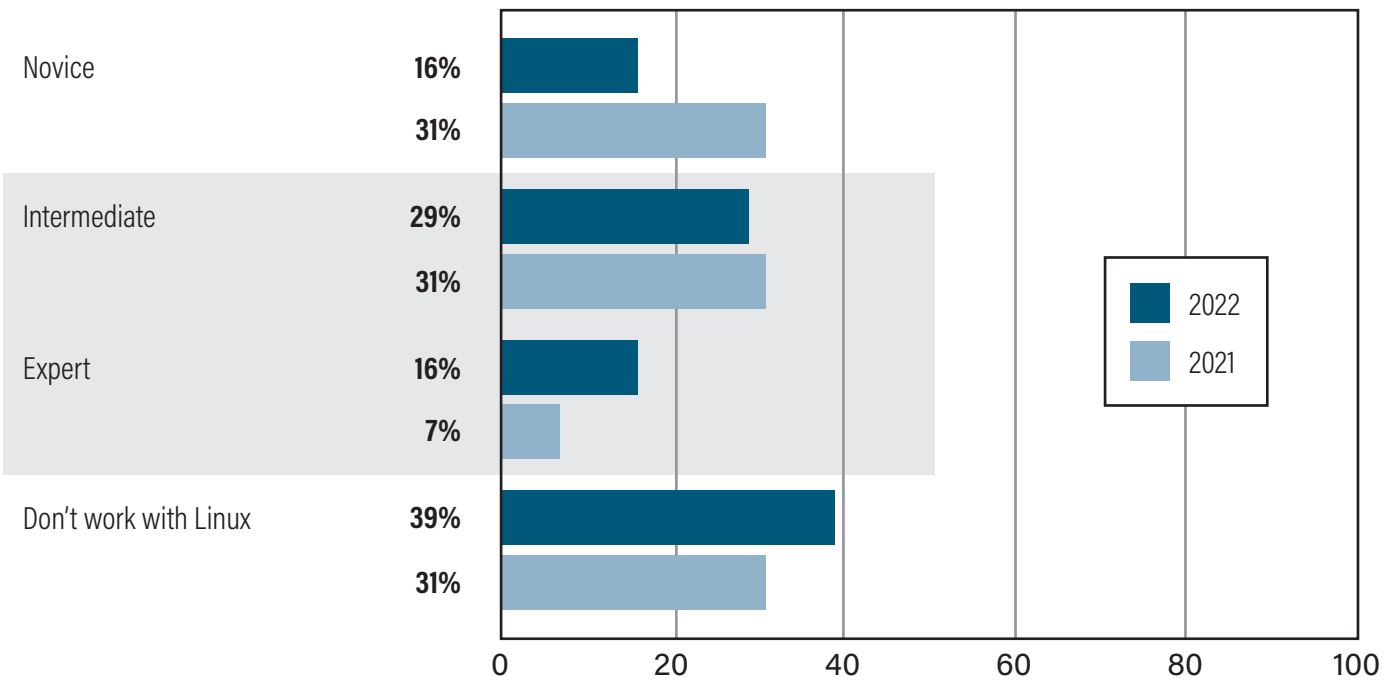

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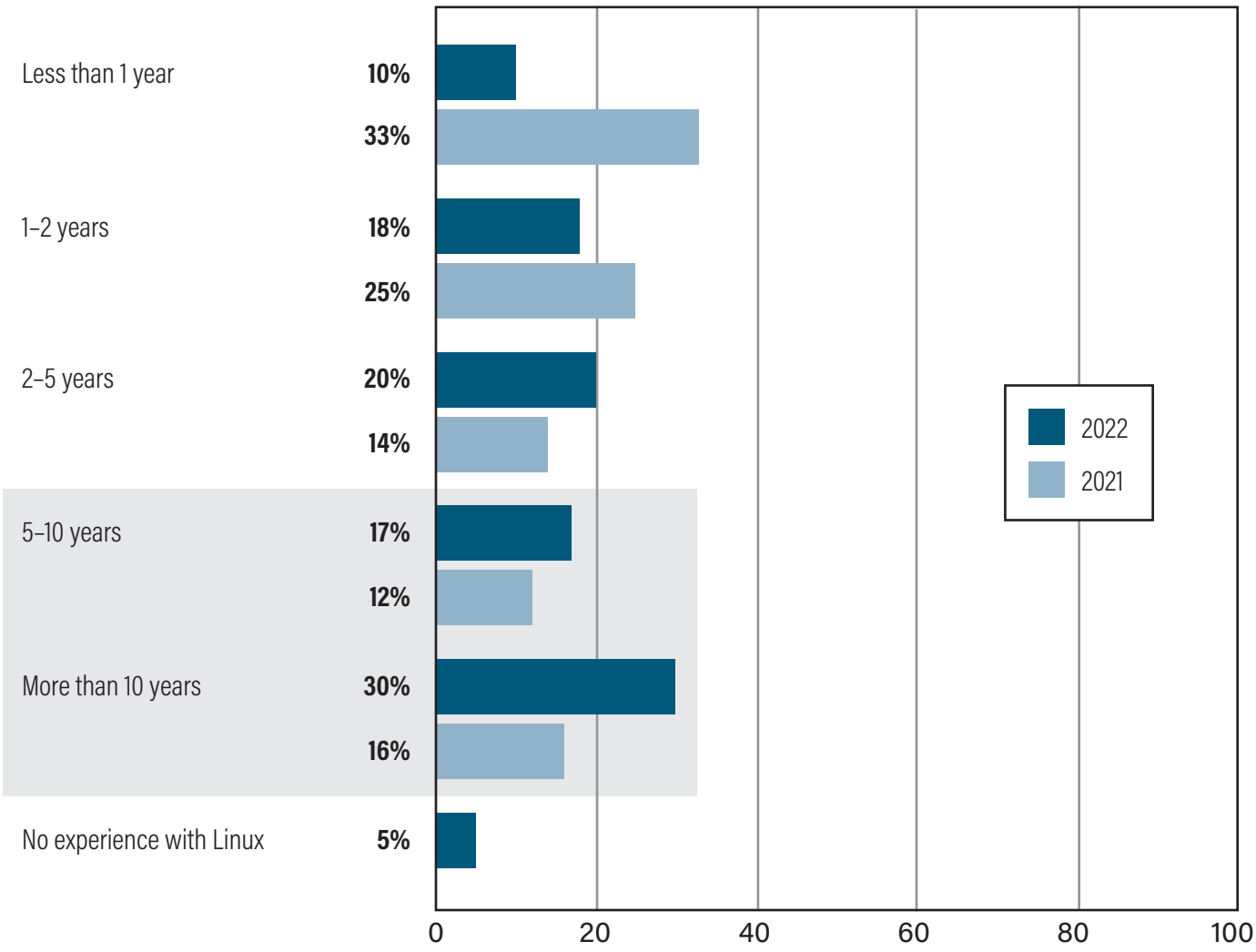
Figure 15: How many years have you been working with Linux?



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CONCLUSIONS AND RECOMMENDATIONS

Emerging game-changing technologies such as artificial intelligence and machine learning are shaping the future for forward-looking businesses. At the core of these initiatives are SQL Server databases bolstered by capabilities enabled through the world's two most powerful operating systems—Linux and Windows—leveraging the immense scalability of cloud. This latest survey of 249 IT leaders and data managers by Unisphere Research finds a majority, 56%, now run SQL Server in the cloud, and one in five now rely on enterprise-grade Linux to support their databases. Linux skills are on the rise, but skills continue to dominate as the leading roadblock to Linux deployments. Data managers are growing more comfortable with Linux as an underlying SQL Server platform. Of less concern today is tooling.

The following are ways to move forward with building Linux into a SQL Server foundation:

- First, prioritize the business use case for choice of operating system and platform. What initiatives are underway or planned to support the business's growth in the 2020s? What types of applications will be integrated into these environments?
- Look ahead—determine data capacity and storage requirements for the months and years ahead. What kind of capabilities are needed to support these initiatives?
- Promote both Linux and cloud skills training and development. What skills are currently on staff? Are administrators currently trained and certified on Windows Server properly prepared and supported to learn and become familiar with Linux? Red Hat offers hands-on training to stay ahead of technology trends and gain the knowledge and certifications needed to run SQL Server on Linux, including a no-cost Red Hat Enterprise Linux Technical Overview (RH024). You can learn more by visiting: https://www.redhat.com/en/services/training-and-certification.

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DEMOGRAPHICS

Figure 16: What is your primary job title?
(Please check the description that most closely matches your title.)

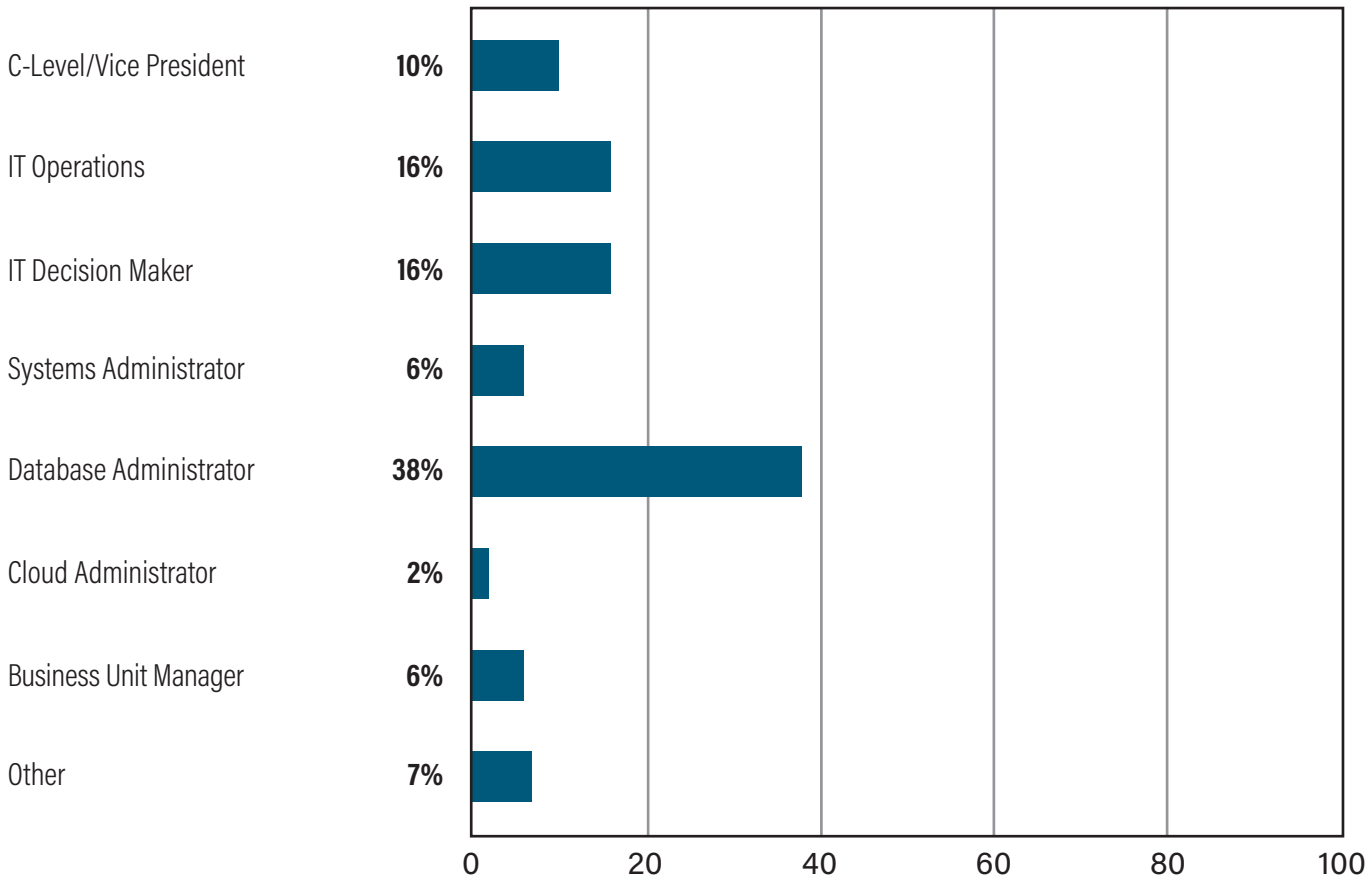

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Figure 17: How many employees are in your entire organization?
(Include all locations, branches, and subsidiaries)

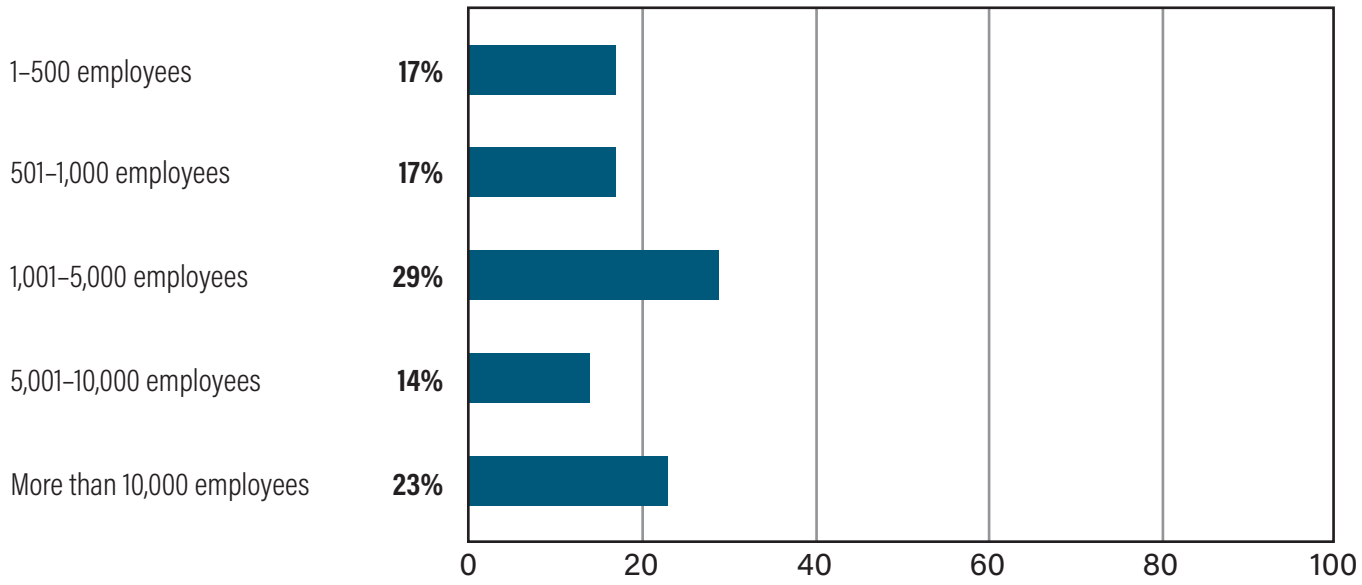

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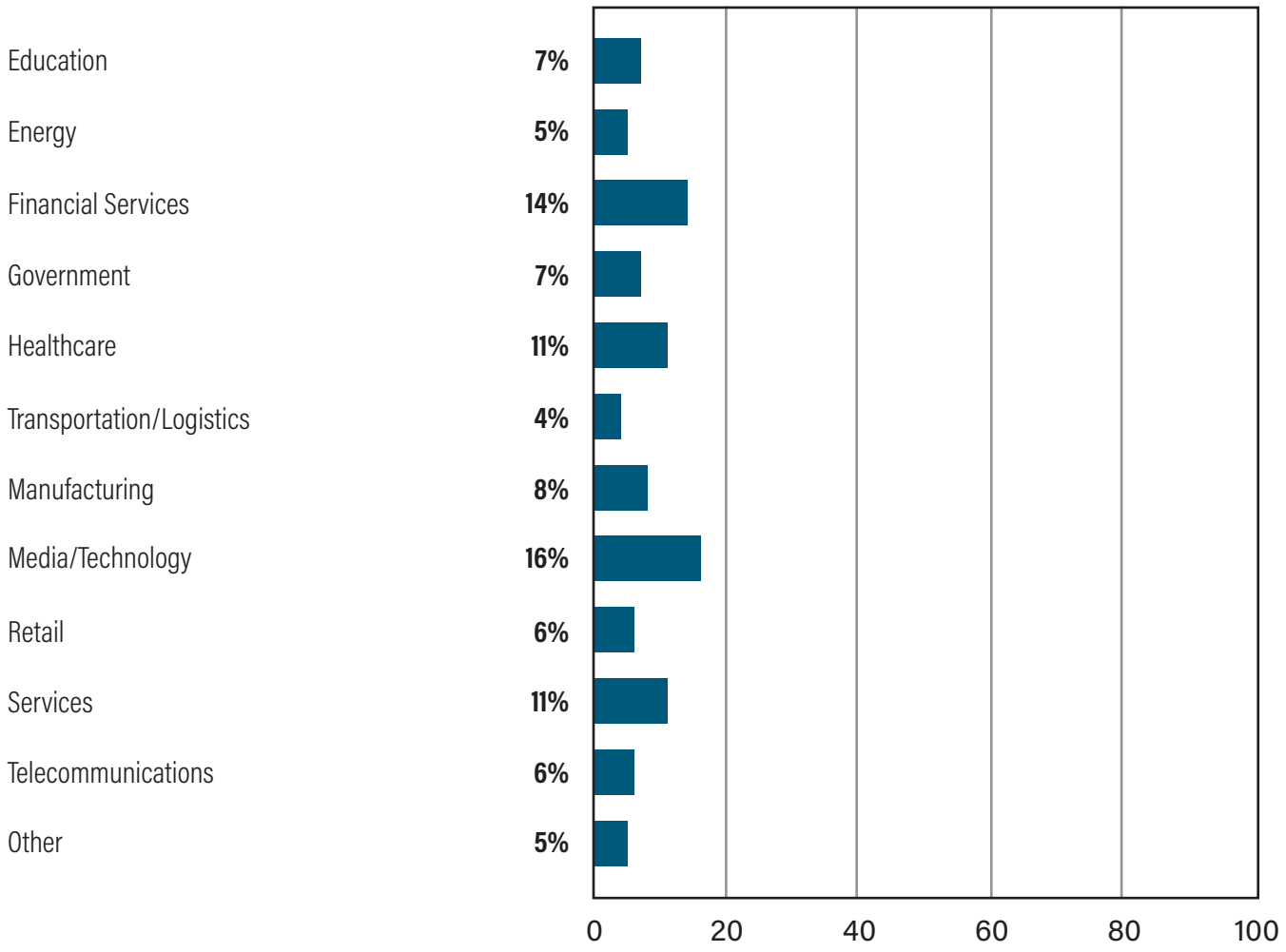
Figure 18: What is your organization's primary industry?



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