

2015 Cloud Security Survey



Security and privacy of sensitive data
remains the most disturbing concern for **63%** of organizations

Introduction

Cloud technology is gaining increasing attention from businesses looking for technological innovations to optimize expenses and operations. The cloud offers modern businesses different advantages, such as scalability, global availability, streamlined operations, and reduced costs. However, like any other immature technology, the cloud has flaws. The most common concern associated with the cloud is its security.

Data integrity has always been a pain point for IT professionals, so any technology that suggests storing data on third-party servers only raises suspicion. We have decided to explore the problem of cloud security to find out what IT professionals think of cloud adoption, how critical the security issue is for these professionals and how this issue impacts the entire decision-making process.

This report summarizes the results of the worldwide survey that Netwrix conducted in Q3 2015. IT professionals from 611 companies, representing 24 industries, shared their experiences and concerns in an online questionnaire. The respondents were asked to answer a number of multiple-choice questions; for some questions, up to 3 answers could be chosen.

The report is divided into 4 parts, which explore users' initial acquaintance with cloud technology and dig into their fears regarding cloud adoption and other factors that could influence the final decision of data migration. The results are shown separately for small, medium, and large businesses to enable a more detailed comparison and analysis of these different-sized businesses' goals, needs, and concerns in relation to the technology.

Highlights

1. Security and loss of physical control over data

are the leading concerns associated with the cloud technology by 65% and 40% of companies, respectively. These fears are followed by dependency on internet connection, compliance and disaster recovery issues.

2. A hybrid cloud deployment model

is considered to be the best way to exploit cloud technology without significant security risk, as 44% of respondents would prefer it when first utilizing cloud technology. Private clouds follow with 37% of organizations ready to invest in private cloud infrastructures for additional security.

3. The majority of companies feel that the cloud is insecure because it lacks visibility

into user activities; thus, they would never know what is going on. Companies are afraid that migration to the cloud would increase risks of unauthorized access (69% of companies) and account hijacking (43%).

4. Cloud adoption also entails changes in internal security policies that should respond to the existing fears.

Around 56% of companies plan to enforce identity and authentication management, 51% of organizations would employ encryption technologies, around 45% of medium and large enterprises plan to establish auditing of changes and user activity as a part of their renewed internal regulations.

5. The most popular IT service to be migrated to the cloud

first is email, which was chosen by around 50% of companies; file sharing follows with an average score of 40%.

6. The imperfection of the cloud in terms of security prevents 13% of organizations from cloud adoption.

However, 30% of them are ready to reconsider their decision as soon as cloud security mechanisms are improved.

7. The majority of companies are ready to allocate budget for additional security guarantees.

Overall, 35% of the enterprises and 20% of SMBs already take advantage of improved cloud security, while more than 40% of organizations regardless of size are potentially ready to invest in additional security guarantees. However, to date, such guarantees have not yet been offered as these respondents claimed.

8. Overall, 65% of SMBs and 71% of enterprises perceive continuous auditing

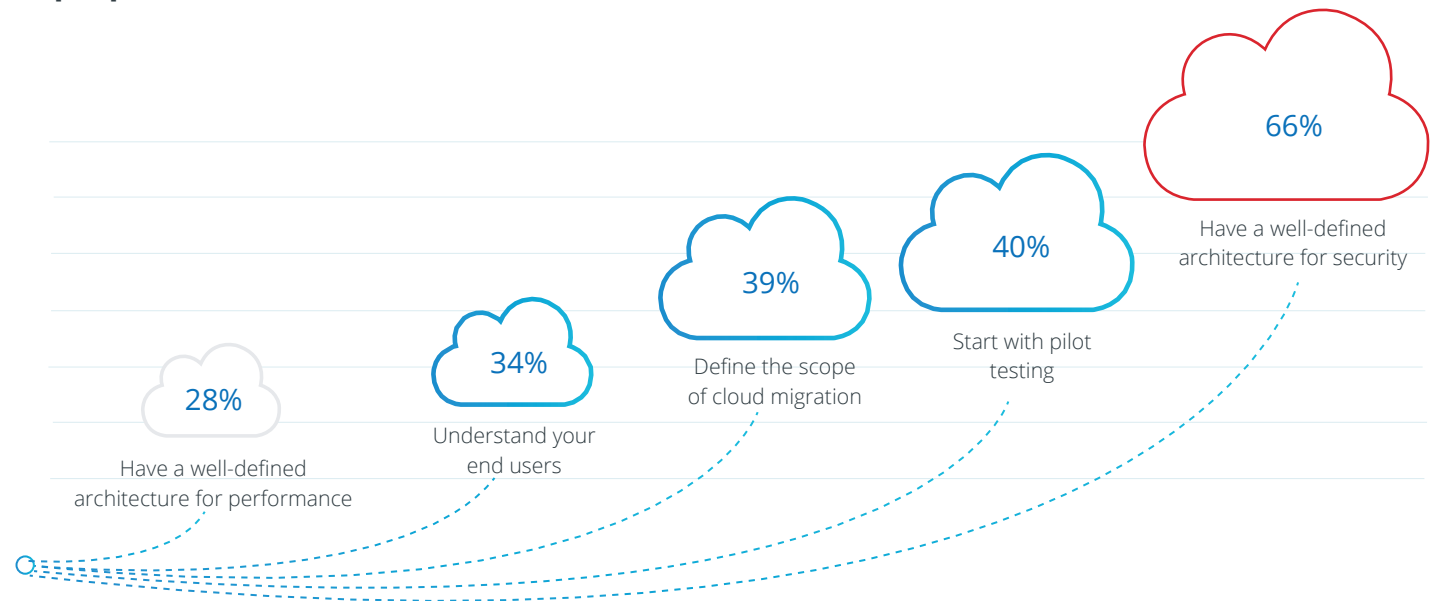
of cloud infrastructure as a very important part of security guarantees that could ensure data integrity in the cloud. An average of 28% of organizations think that cloud infrastructure auditing is a somewhat important part of security guarantees.

Part 1: Technology Perception

1.1 Best practices to consider before cloud adoption

What are the best practices to consider before cloud adoption?

Top 5 practices



The results did not reflect any differences in answers between various types of organizations. The absolute majority of companies (around 66%) consider a well-defined architecture for security as the key practice that must be implemented before cloud adoption. It is worth mentioning that there is quite a large gap between the most popular answer and all other responses.

Other practices most frequently mentioned by the respondents include pilot testing (40%), defining the real scope of cloud migration (39%), having a better understanding of who end users are and having a well-defined architecture to boost performance (28%).

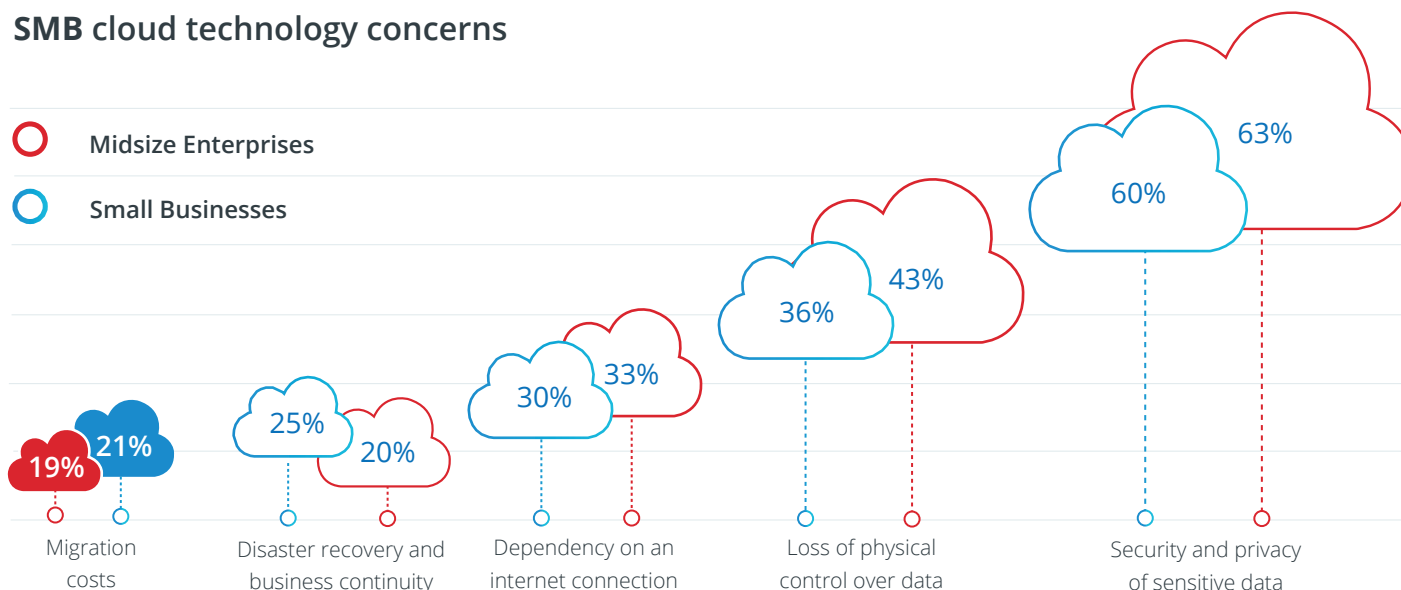
Part 1: Technology Perception

1.2 Cloud technology concerns

Do you have any concerns about cloud technology?

The survey identified that all companies regardless of size are worried about the same things. The list of the most disturbing problems related to cloud technology is nearly alike for small and large companies. Findings show that, depending on the company size, the importance of the issues slightly differs, which identifies major groups—SMBs and enterprises.

SMB cloud technology concerns



The major concern that is common for both small and midsize businesses is the security and privacy of sensitive data, which was mentioned by more than 60% of respondents. Fears of losing both physical control and internet connection were also common. SMBs value business continuity almost as highly as enterprises and do not trust cloud technologies.

Losing an opportunity for quick disaster recovery in case of any incidents is SMBs next concern related to the cloud. Also being extremely price-sensitive, small and midsize companies expect high costs on cloud migration that will exceed their budgetary expectations.

Part 1:

Technology Perception

Enterprise cloud technology concerns

Similarly to SMBs, enterprises draw up the same list of the top three most disturbing issues. But the priorities start to change as we dig further. Unlike SMBs, large companies mentioned compliance with industry regulations as one of their leading concerns (20%), indicating that companies are still in doubt whether cloud technology is able to ensure data integrity and provide necessary evidence for compliance auditors.

Also, being better off after making a budget when compared with smaller companies, the majority of enterprises do not perceive migration costs as a relevant issue. And the same is true with disaster recovery, which may mean that most enterprises have already solved this issue or expect cloud providers to take care of business continuity.

66%

Security and privacy of sensitive data

36%

Loss of physical control over data

20%

Dependency on an internet connection

20%

Compliance issues

15%

Migration costs

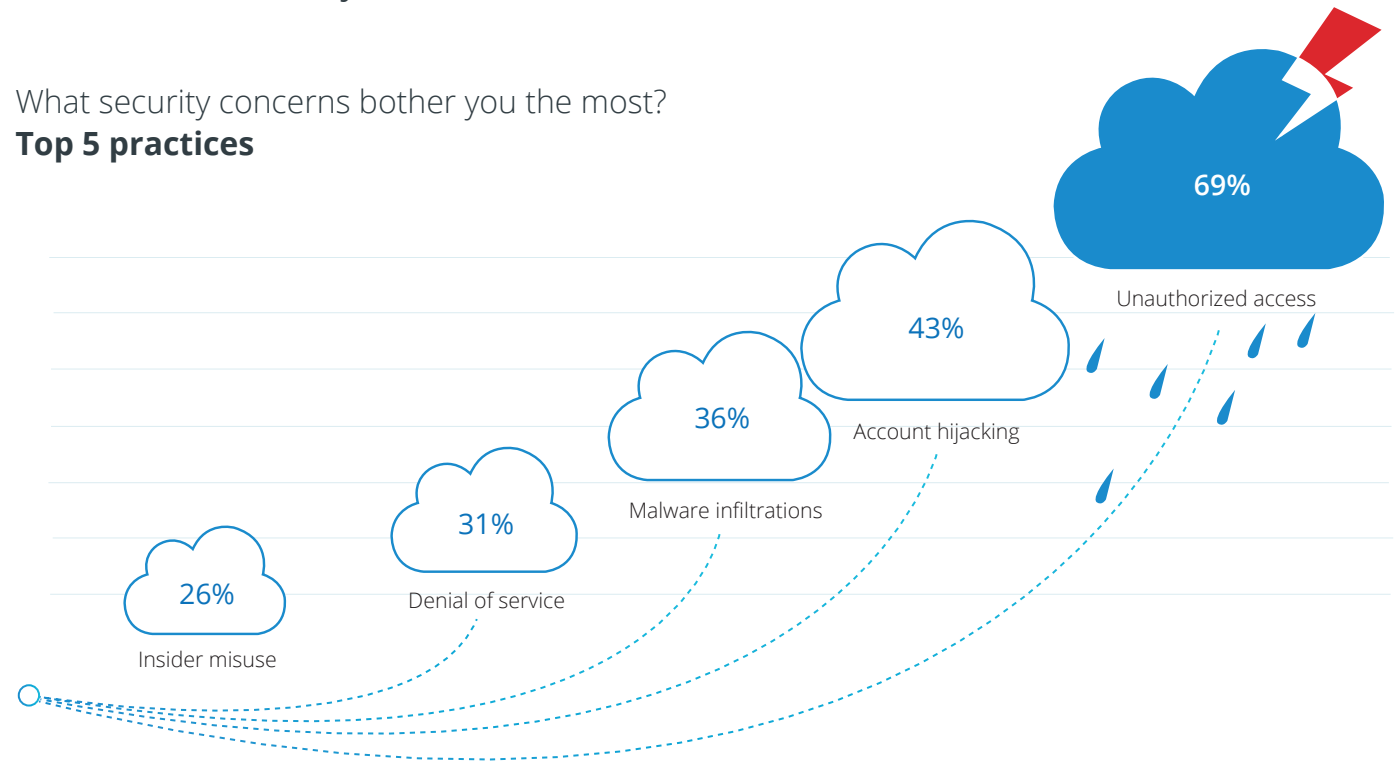
Some companies are still in doubt whether cloud technology is able to ensure data integrity and provide necessary evidence for compliance auditors.

Part 1: Technology Perception

1.3 Cloud security concerns

What security concerns bother you the most?

Top 5 practices



Regarding security and data protection in the cloud, the research showed that both SMBs and large enterprises are bothered by the same issues. The vast majority of respondents (69%) are worried about inadvertent or unauthorized access to companies' assets.

Also, 43% of companies consider account hijacking—a special case of unauthorized access—as the second-biggest threat for cloud computing. Other related areas of concern include malware infiltrations (36%), denial of service (31%), insider misuse (26%), and insecure API (24%).

Part 1:

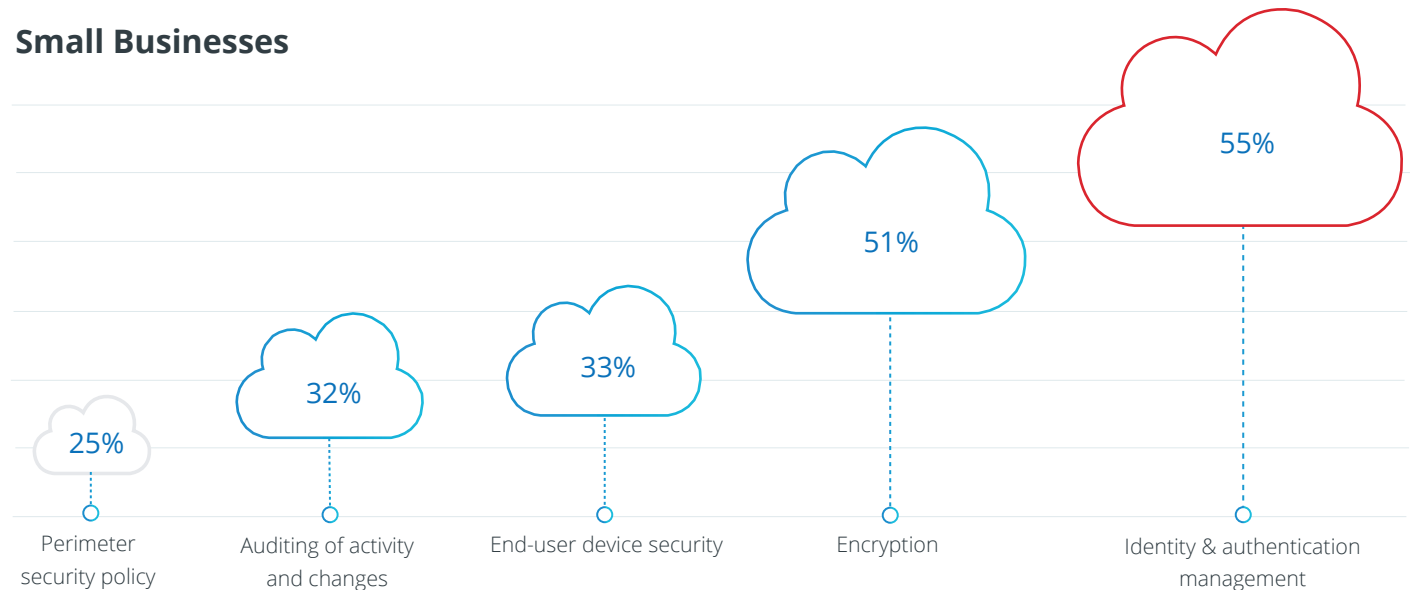
Technology Perception

1.4 Security policy adjustments

What changes would you make to improve your security policy because of cloud adoption?

Top 5 measures

Small Businesses



Obviously, cloud adoption is impossible without modifying internal security policies according to new IT infrastructure. Despite shifting to the enterprise mindset, small businesses in most cases stand apart from larger companies. While both groups show equal interest in identity management and encryption, perceiving it as the most important measure (more than a half of the respondents said this), the rest of the priorities varied.

Small businesses are more focused on securing end-user devices (33%) mainly because they are more likely to employ freelancers or remote workers who use their personal devices to perform certain tasks. The same amount of small companies would incorporate auditing changes made across their IT infrastructure and within their security policies.

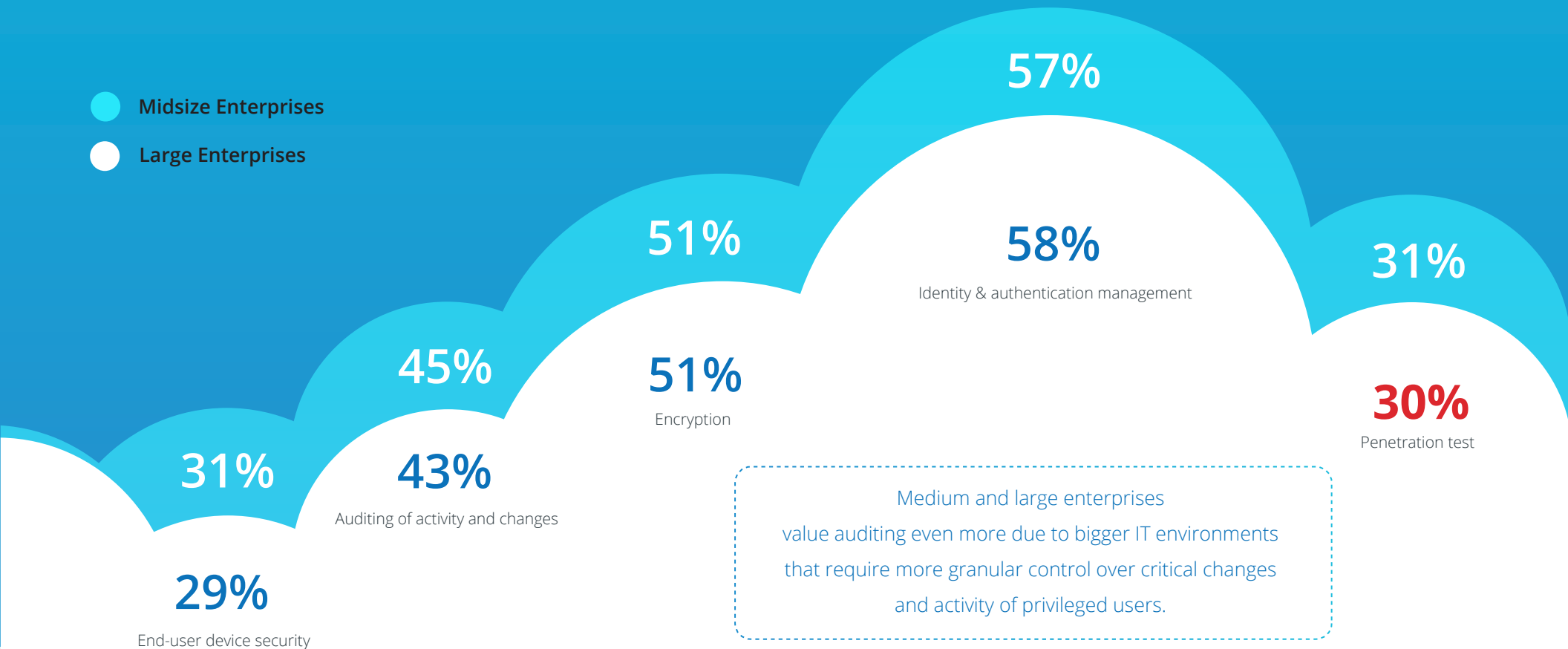
Part 1:

Technology Perception

Midsize and Large Enterprises

Medium and large enterprises value auditing even more due to bigger IT environments that require more granular control over critical changes and activity of privileged users. Around 45% of larger companies admit they would include auditing of activity and changes as a part of their security policy. Penetration testing is another area of interest for larger companies, which was mentioned by 30% of respondents. Identifying vulnerabilities before any data breach happens may sound very attractive, but pen testing is still quite expensive to become a top priority for all kinds of businesses.

- Midsize Enterprises
- Large Enterprises



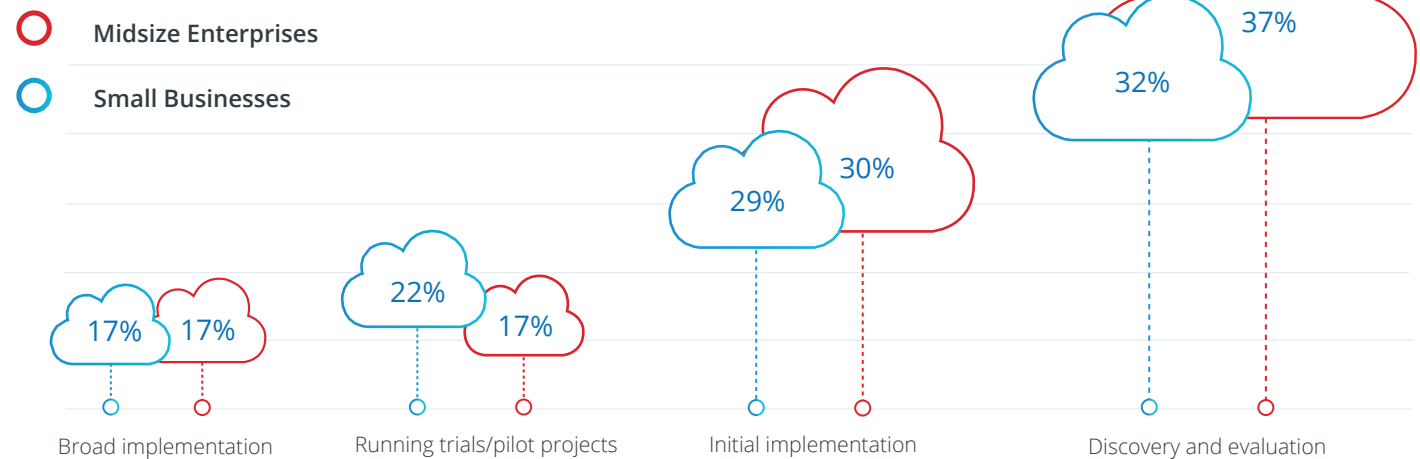
Part 2:

Cloud Technology Penetration

2.1 Current level of cloud adoption

Which of the following describes the level of cloud computing adoption in your organization?

SMB cloud adoption



In general, most of the companies are at an early stage of cloud technology adoption. However, large enterprises usually are more open to new technologies compared with smaller companies. Less than 40% of SMBs are just starting to discover and evaluate various cloud options. This can be explained by the need to cut costs and simplify management of the IT infrastructure. Although results do not show significant differences between these two, and the level of cloud adoption is generally low in both cases, small businesses are more likely to run trials and pilot projects (22%) rather than midsize businesses (17%).

At the same time, the percentage of midsize businesses that start to familiarize themselves with cloud computing and, as a consequence, have a greater perspective in terms of cloud adoption, is higher than the percentage of small businesses (37% compared to 32%).

Part 2:

Cloud Technology Penetration

Enterprise cloud adoption

Large enterprises have a completely different experience with cloud solutions compared with SMBs. The percentage of large companies that are already familiar with the cloud is higher. The majority of big organizations are at the stage of initial implementation (44%), while for small and midsize companies this is the least popular option (17%). Overall, 22% of enterprises are already taking advantage of the technology; the same number of companies is at the testing stage and running pilot projects (21%).

The benefits of cloud computing seem to be more obvious for large enterprises. Having staff scattered around the world, big companies need a solution that can empower collaboration and ensure flexibility. However, for 80% of enterprises, the cloud remains an unexplored area, which means that enterprises still have the potential to evaluate different features and advantages of cloud computing for their businesses.

14%
Discovery and evaluation

22%
Broad implementation

44%
Initial implementation

21%
Running trials/pilot projects

Part 2:

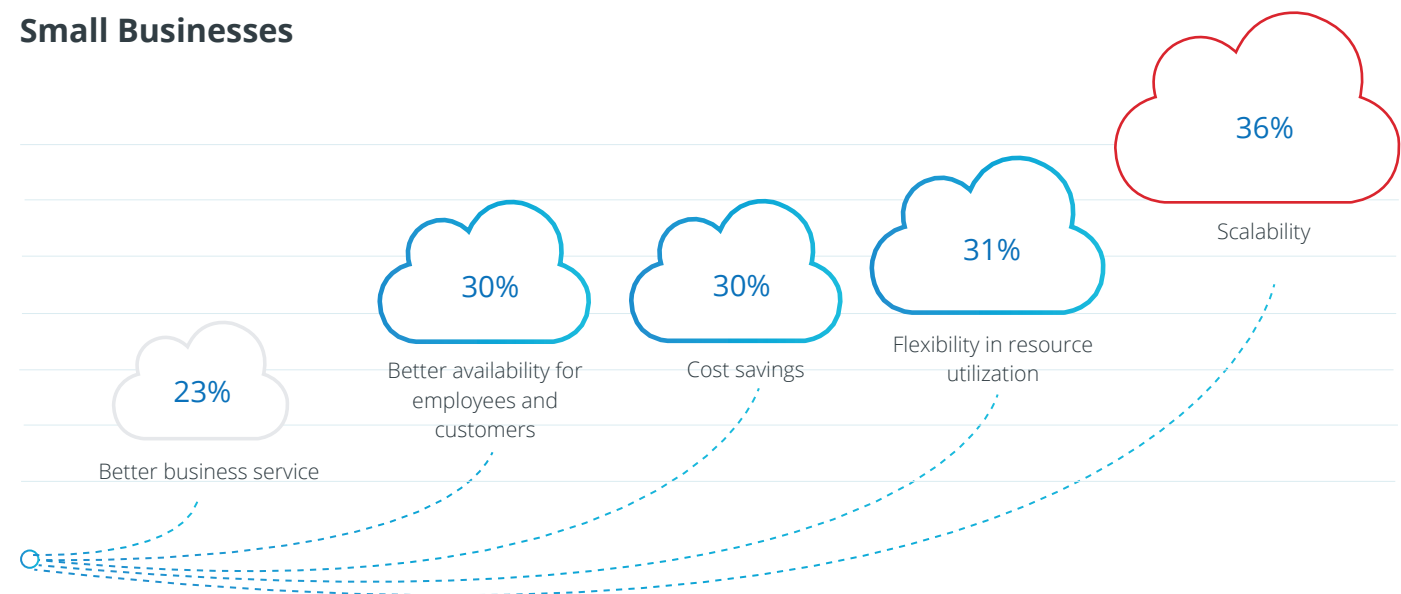
Cloud Technology Penetration

2.2 Cloud technology drivers

What were the main reasons for your organization to adopt cloud technology?

Top 5 reasons

Small Businesses



Each company has its own reasons to step into a cloud technology space. However, companies of different sizes tend to identify different top technology drivers. For small businesses, the key reason for adopting the cloud is scalability (36%), which allows small companies to reserve a place for future growth.

In addition, smaller companies seek flexibility in resource utilization, cost savings and better availability of services for employees and customers. The less popular options among small companies are better business service (23%) and faster service implementation (14%).

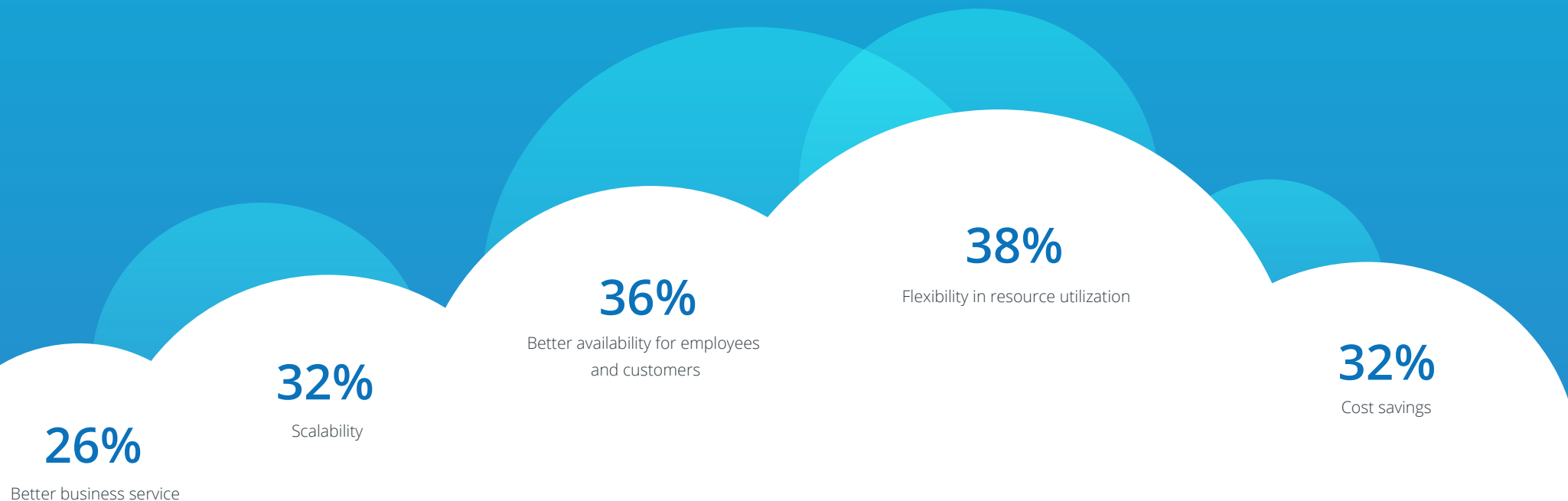
Part 2:

Cloud Technology Penetration

Midsized Enterprises

Unlike small companies, the middle market wants to take advantage of all implemented systems and services and aims to improve flexibility of the available resources (38%). In addition, more than a third of midsized companies are more sensitive to business continuity and want to ensure availability of services for both employees and customers.

Cost reduction and scalability are other factors that could potentially make the cloud more attractive for the middle market (32%). Similarly to small businesses, better business services (26%) and faster service implementation (16%) do not seem critically important to midsize enterprises, but they still are among the top list of technology drivers for such businesses.

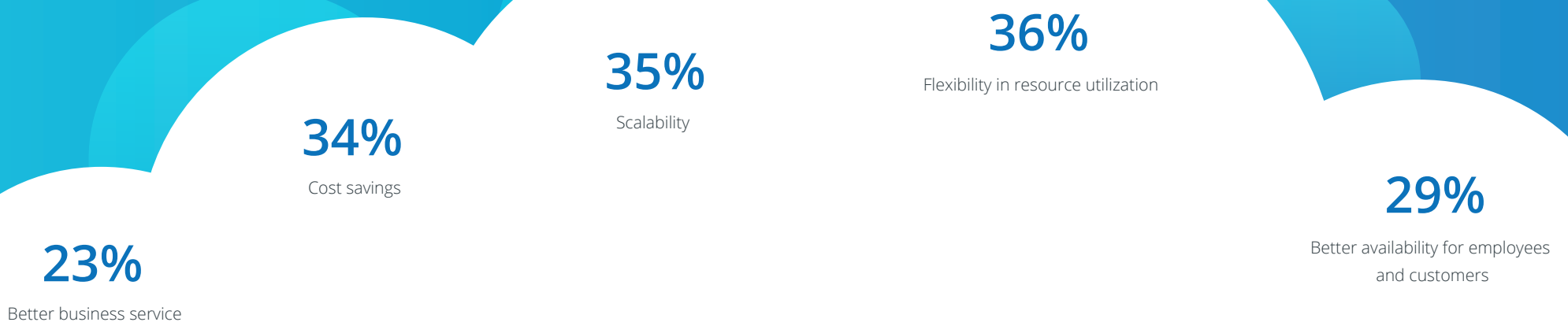


Part 2: Cloud Technology Penetration

Large Enterprises

From the enterprise point of view, the cloud is expected to bring more versatility in resource utilization (36%), scalability (35%) and cost-effectiveness (34%). Since enterprises are more likely to benefit from increased storage capacity, automation and flexibility to expand and add more resources as necessary,

it is obvious that cloud advantages will be more than helpful in case of merges and acquisitions. Similar to small businesses, enterprises mention availability of services (29%), better business service (23%) and faster service implementation (21%) among the least popular cloud technology drivers.

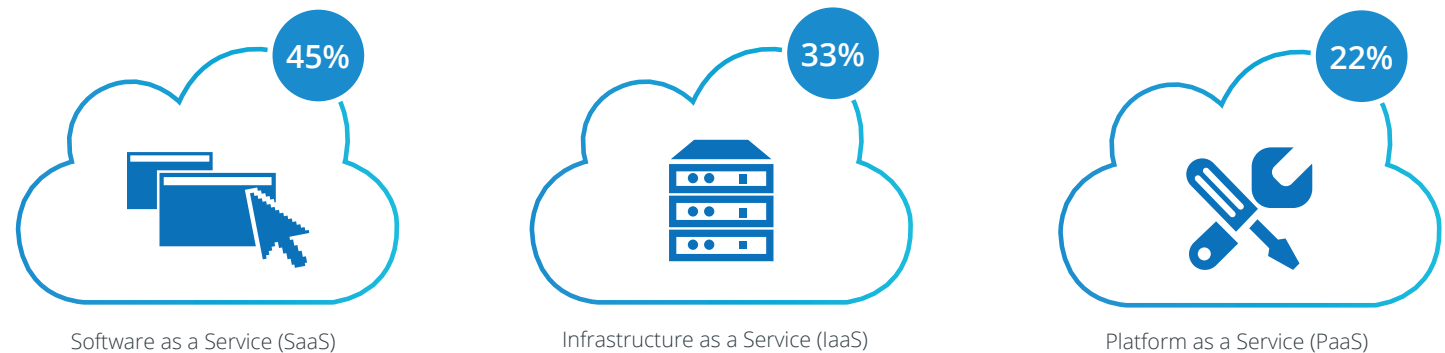


Part 2:

Cloud Technology Penetration

2.3 Cloud service models

Which service models are you using?



Regardless of the organization size, the majority of the respondents (45%) are not ready to move all the data and services to the cloud and prefer the Software as a Service model to all other options. SaaS is the most familiar form of cloud services, which includes widely used CRM applications, productivity software suites, email, financial, expense and task management, and storage solutions. Lower initial costs, no need to think about support and upgrades, and scalable architecture are among the major benefits of SaaS, which makes this service model the easiest way to utilize cloud technologies.

The second cloud service model (33%) is Infrastructure as a Service (IaaS), which is primarily chosen due to flexibility, scalability and cost-effectiveness. IaaS can help companies remove the burden of software and hardware maintenance, as well as upgrades. It provides an opportunity to meet temporary business needs and highly volatile demand for IT infrastructure services without heavy investments. However, as an SaaS model, Infrastructure as a Service is unwelcome among regulated industries that are prohibited from storing sensitive data externally.

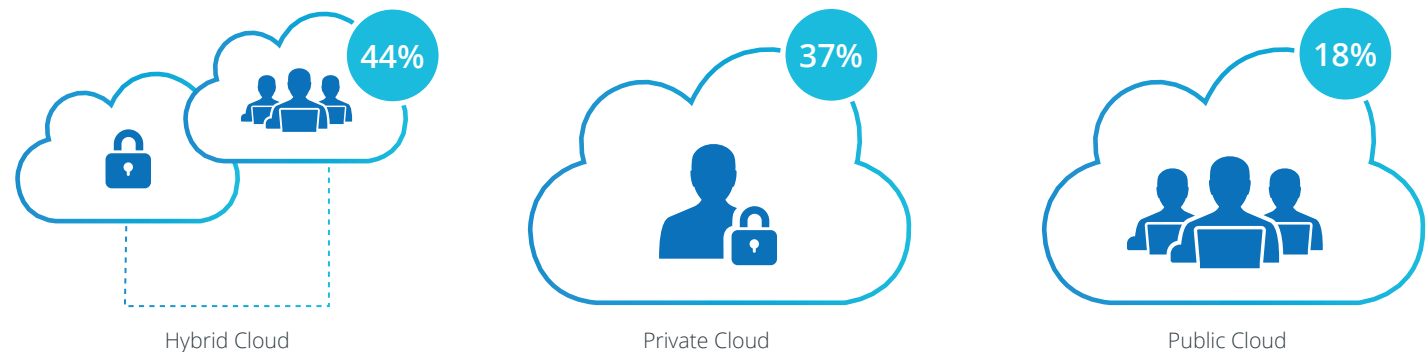
Finally, the least popular option (22%) is Platform as a Service (PaaS). Being an online platform mainly for software development, PaaS has a more narrow application. Most industries that are not related to software development are more likely to bypass this cloud service model.

Part 2:

Cloud Technology Penetration

2.4 Cloud deployment models

Which deployment model are you using?



The hybrid cloud deployment model appears to be an optimal way to reap the benefits of cloud computing and meet security requirements.

While the debate over private versus public cloud continues, the survey revealed that all companies regardless of size are more likely to choose the middle ground. The hybrid cloud (44%) deployment model appears to be an optimal way to reap the benefits of cloud computing and meet security requirements. Private cloud is used by more than one-third of companies, both enterprises and SMBs.

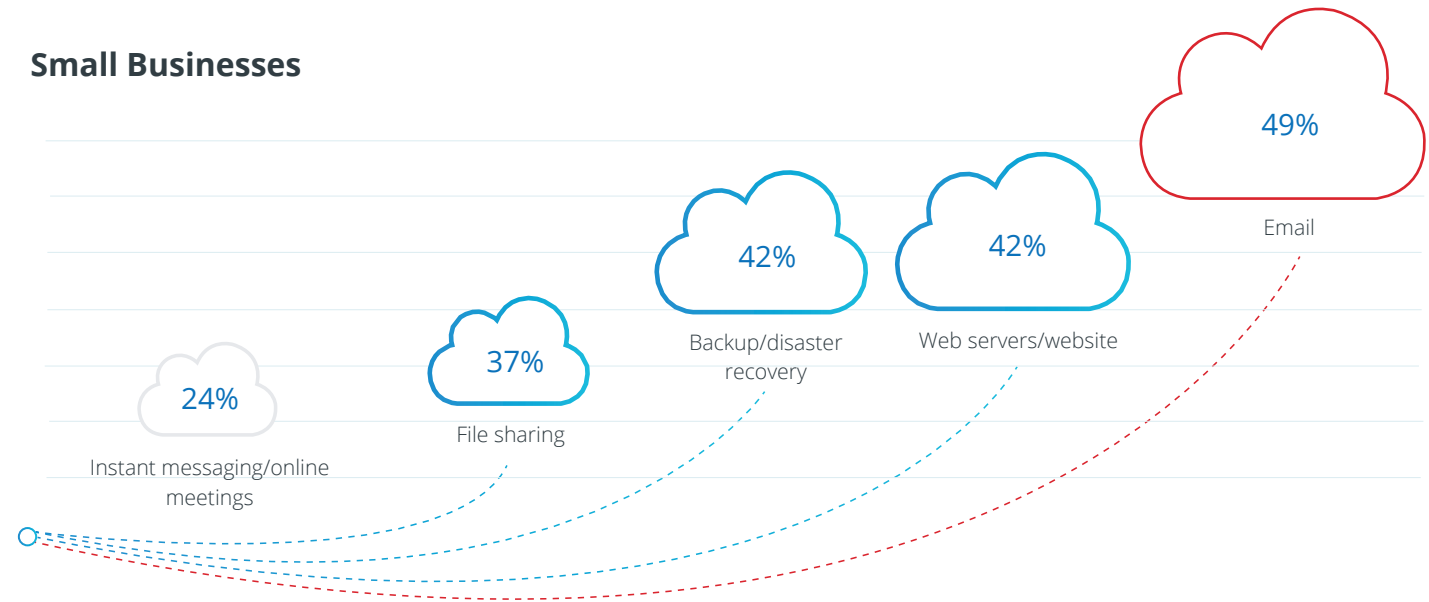
Although this model requires considerable investments, 37% of companies are ready to pay for convenience and security. Despite the ease of use and cost-efficiency, the public cloud remains one of the least popular options among all organizations. This means that security is still a widespread concern that inhibits cloud technology perception across all companies.

Part 2: Cloud Technology Penetration

2.5 IT services used in the cloud

Which services do you use/plan to use in the cloud?

Small Businesses



The number-one IT service that is primarily moved to the cloud is email. Around 50% of all the respondents distinguish it as a business-critical application that should be available for a large number of people using various devices. The business processes of small companies do not depend on the information sharing between employees as much as medium and large enterprises do.

While around 40% of bigger companies would migrate their unstructured data to the cloud to simplify collaboration between individual employees and whole departments (often located in different offices and even countries), small companies tend to value availability of their Web servers and websites more.

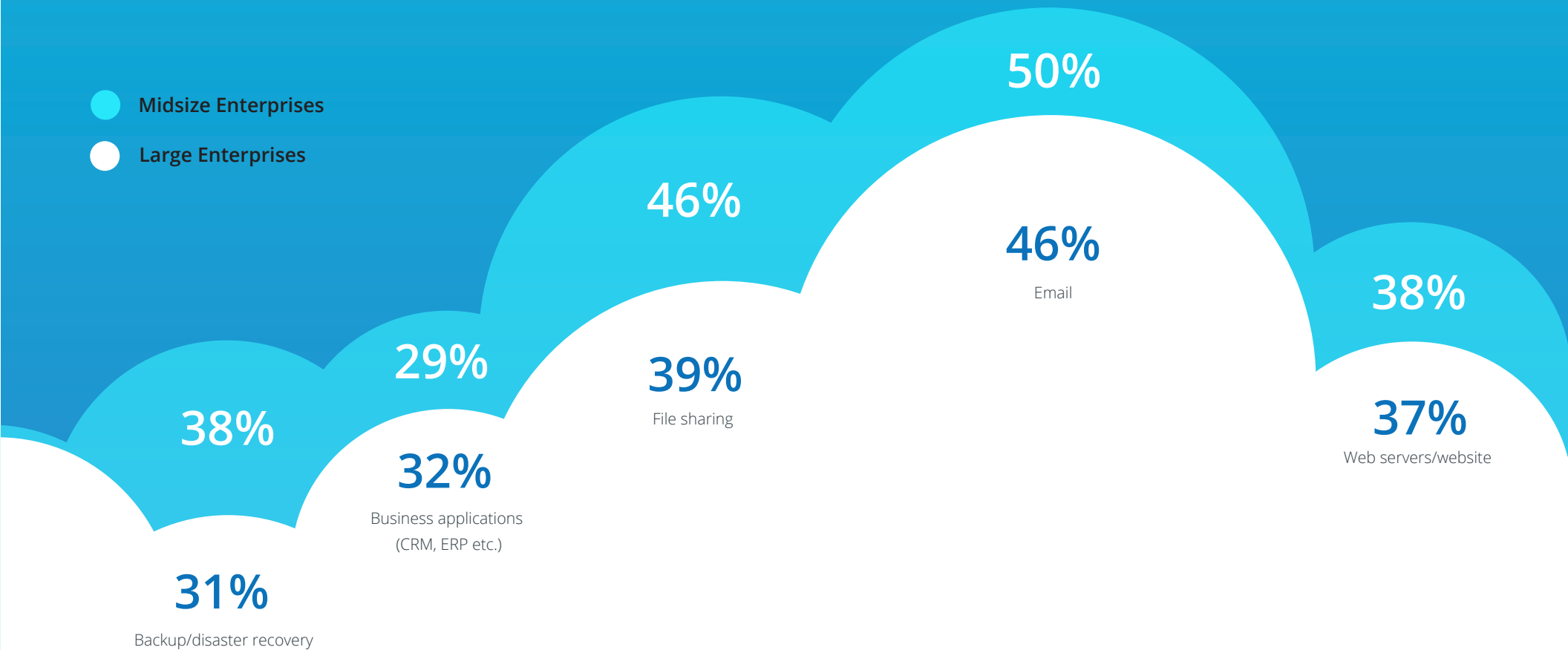
Backup and disaster recovery complete the top three most-claimed services. All companies, no matter their size, prefer to have a "Plan B" not only on premises, but also on third-party servers in case the system needs to be restored.

Part 2:

Cloud Technology Penetration

Midsize and Large Enterprises

- Midsize Enterprises
- Large Enterprises



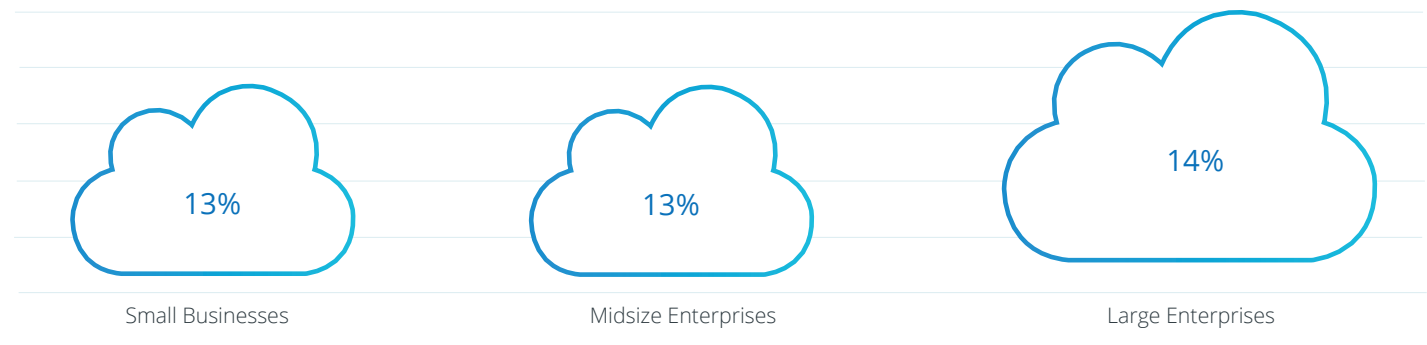
Part 3:

Cloud Technology Laggards

There are still some organizations that, due to various reasons, do not even consider the possibility of moving to the cloud. Neither cost reduction, nor better system availability are able to convince about 13% of organizations.

3.1 Cloud technology sceptics

Some companies do not even consider the possibility of moving to the cloud



The research showed that, despite that cloud technology arouses interest among different companies, there are still some organizations that, due to various reasons, do not even consider the possibility of moving to the cloud. Neither cost reduction, nor better system availability are able to convince about 13% of organizations.

While we would expect mid-market companies to be more conservative, enterprises to be more security conscious and small companies to be more price sensitive, the survey showed that the number of "sceptics" is almost the same in each group.

Part 3:

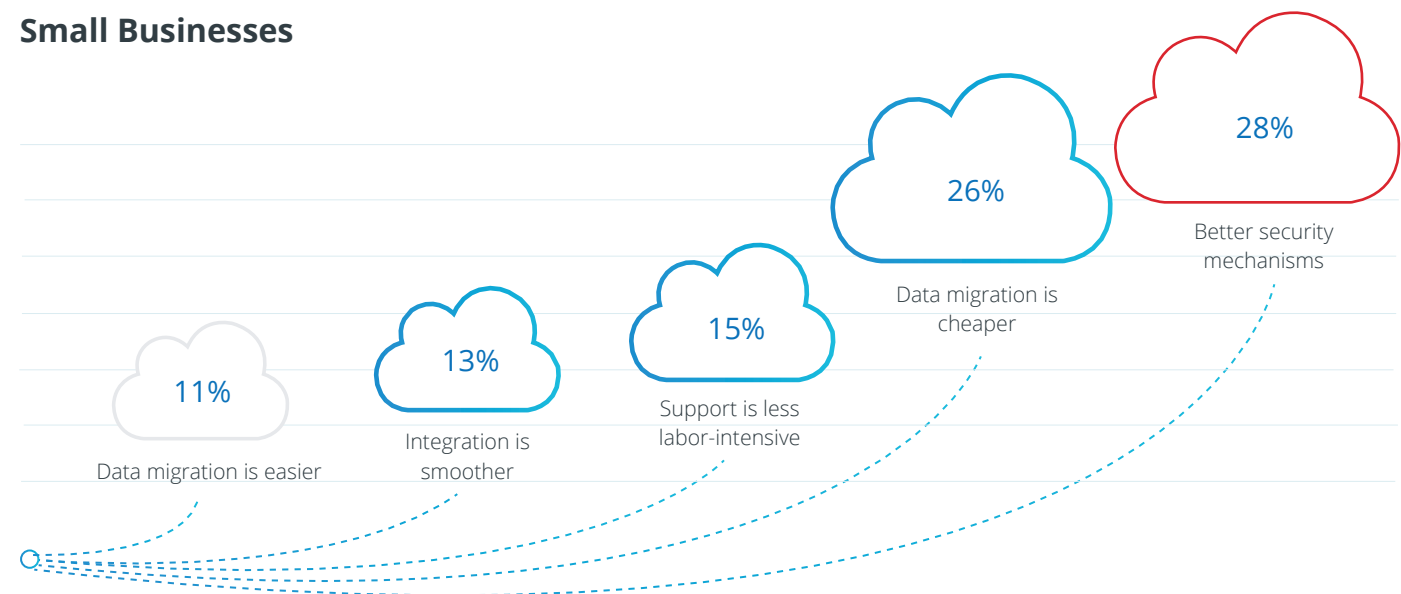
Cloud Technology Laggards

3.2 Cloud Technology Break Point

Which factors would change your opinion about cloud computing?

Top 5 factors

Small Businesses



The cloud technology evolves each year and is able to provide more and more functionality. So, we decided to ask the sceptics what factors would make them change their opinion about cloud computing and consider adopting the technology.

The results show that security is the most important problem for all companies regardless their size, which when resolved would push the cloud adoption even by the most conservative IT professionals. Facing the same security risks as midsized companies and large enterprises, small companies care about data integrity no less than their larger counterparts. If cloud providers included advanced facilities for security and data privacy into their offerings, they would be able to attract about 30% of customers that have not considered cloud solutions until then.

Part 3:

Cloud Technology Laggards

The results show that security is the most important problem for all companies regardless their size, which when resolved would push the cloud adoption even by the most conservative IT professionals.

Small companies are obviously the most price-sensitive when it comes to additional investments required to fully employ the technology. Overall, 26% of smaller companies are ready to move their data to the cloud only when there are cost-effective data migration tools available on the market.

Apart from cost savings, small businesses do not have enough funds to employ additional staff or invest in personnel education to develop the skills necessary to support cloud infrastructure. About 15% of smaller companies would think about cloud adoption only when the support does not require a lot of effort from the staff.

Part 3:

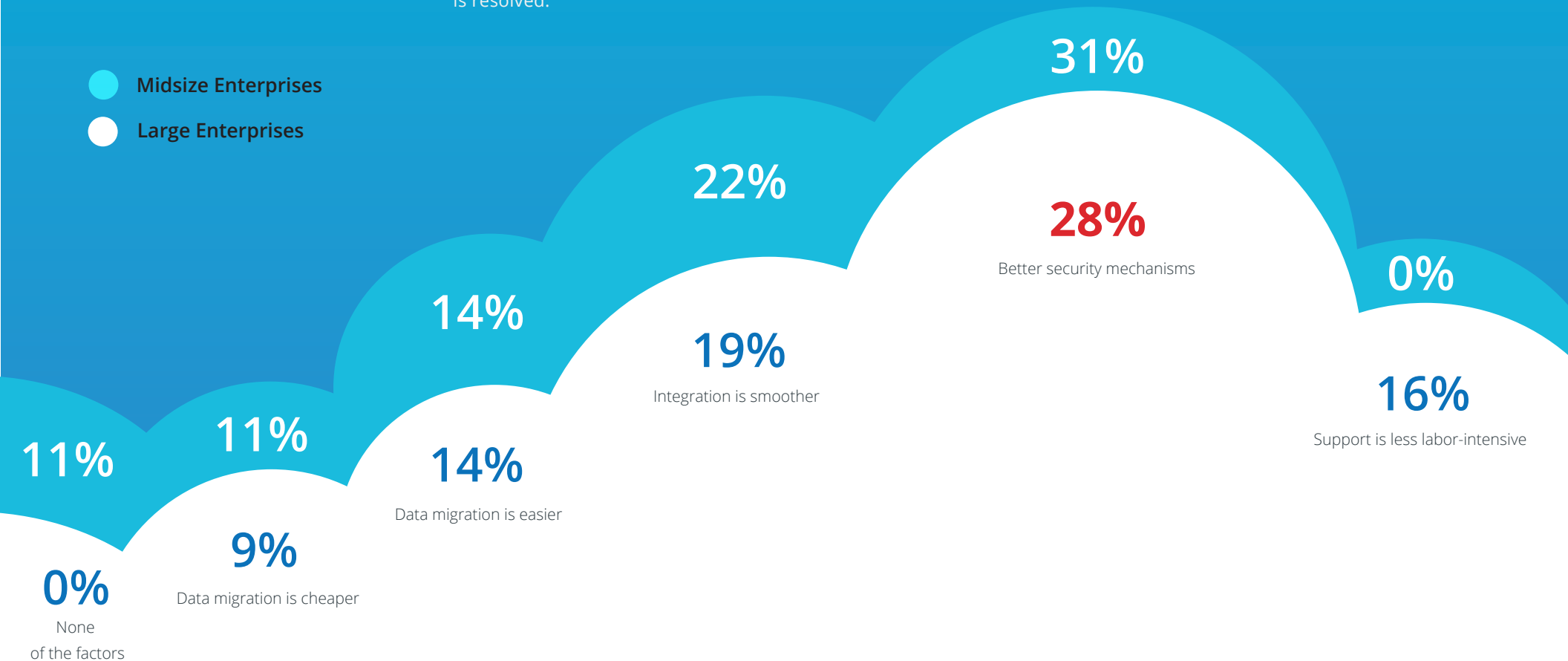
Cloud Technology Laggards

Midsize and Large Enterprises

When it comes to technology adoption, midsize and large enterprises are less price conscious. Medium-sized companies expect cloud technology to be much easier to adopt. Around 20% of mid-market companies would bother with the cloud only if these solutions are much easier to integrate with the exciting IT systems and services. Another 14% of respondents take the ease of data migration as an important factor that stops them from cloud technology perception.

Enterprises are obviously not ready to make their IT infrastructures and maintenance even more complicated because of the new technology. Advocating for seamless operation of all systems, about 20% of large companies are still slow to adopt the cloud because integration of the services is not smooth enough. In addition, 16% of enterprise companies are not ready to cope with cloud solutions that are hard to support; however, they could change their mind when this issue is resolved.

- Midsize Enterprises
- Large Enterprises



Part 4:

Other Decision Making Factors

Apart from positive and negative opinions about cloud technology that influence the decision-making process, organizations usually consider the specifics of their businesses in general and the company in particular.

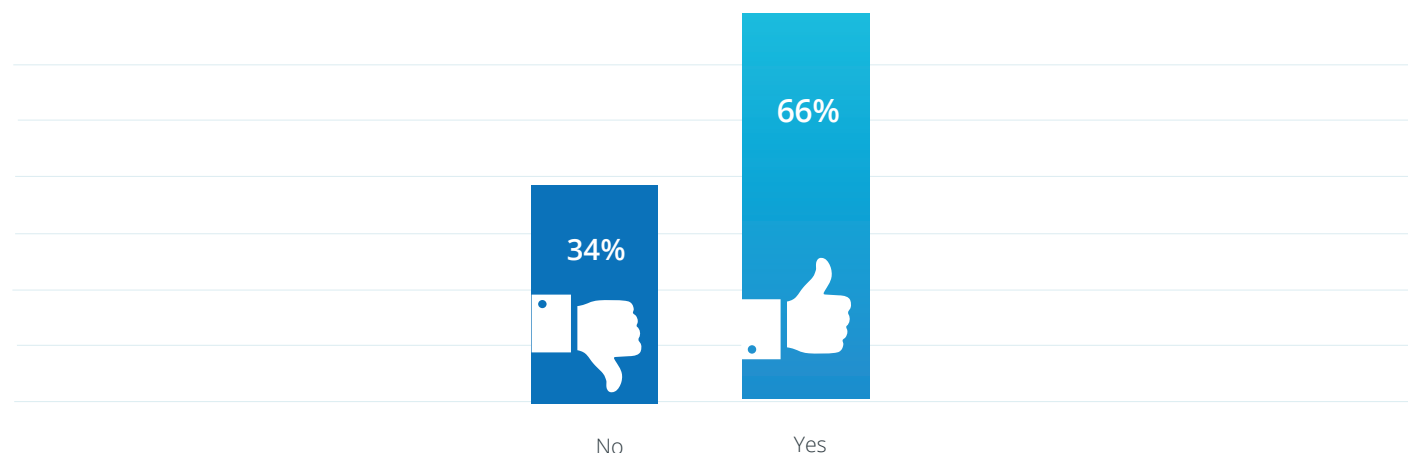
While a company could feel rather positive about the cloud, it could be subject to compliance or have strong internal security policies, which obviously would impede the technology adoption. In addition, having allocated a budget to run the service companies may sometimes lack extra financing necessary to implement additional security mechanisms.

4.1 Meeting compliance requirements

Does your organization fall under any compliance regulation?

Compliance may once become a stumbling block between cloud providers and the authorities. While storing sensitive data externally is prohibited by some industry standards, compliant companies would always have limited opportunities when choosing cloud deployment models. The majority of the surveyed respondents indicated that their organization falls under certain industry regulations (66%). These organizations are more likely to deploy a hybrid cloud model and tend to value providers that are able to offer secure services and controls to help their clients meet compliance requirements and pass compliance audits.

While storing sensitive data externally is prohibited by some industry standards, compliant companies would always have limited opportunities when choosing cloud deployment models.



Part 4: Other Decision Making Factors

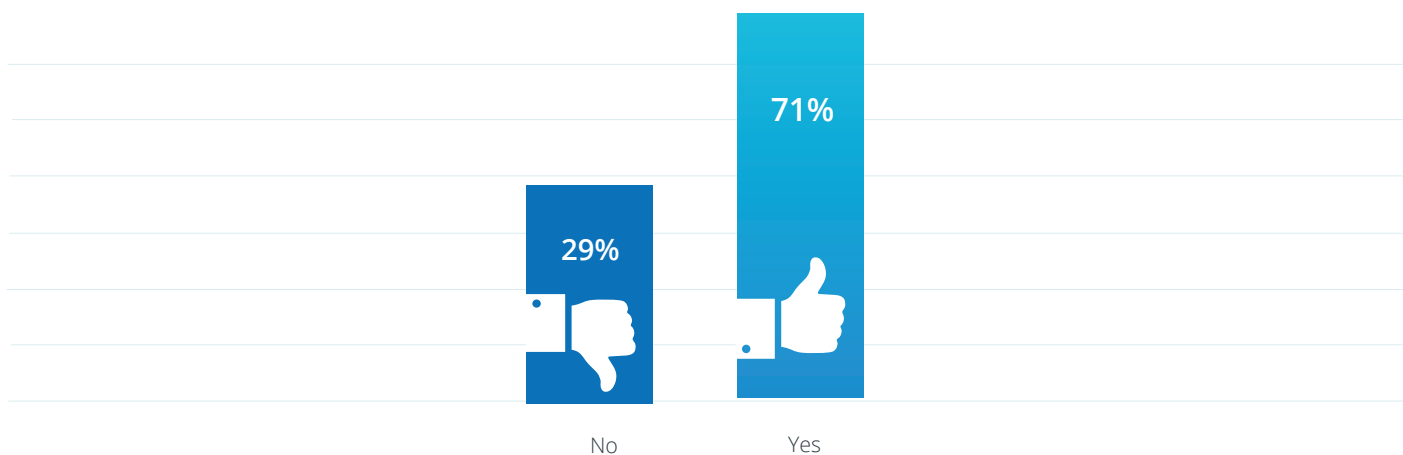
The prevalence of this internal practice among companies of different sizes indicates that the ability to monitor changes made to data stored in the cloud will be an important factor to be considered before the final decision-making.

4.2 Meeting internal policies

Does your organization have internal IT audit procedures?

The need to meet strict internal security policies is also a factor that could influence cloud adoption. The survey showed that more than 70% of organizations employ IT auditing as a part of their internal security policies to mitigate risks and identify possible shortcomings in a company's security program.

The prevalence of this internal practice among companies of different sizes indicates that the ability to monitor changes made to data stored in the cloud will be an important factor to be considered before the final decision-making.



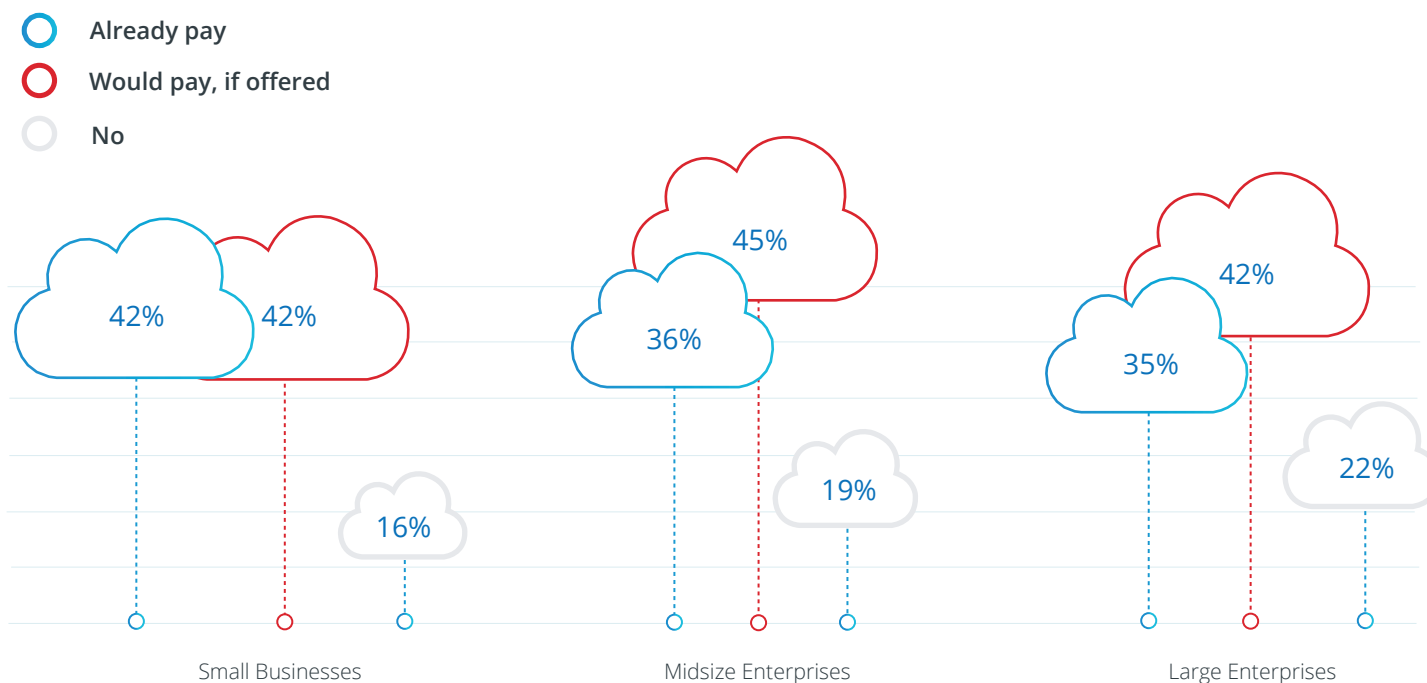
Part 4: Other Decision Making Factors

4.3 Additional investments

Are you ready to pay additional costs for security guarantees?

Having mentioned cloud security as the main concern that bothers all companies, we decided to find out whether organizations are ready to cover additional costs for any kind of security guarantees and gain an opportunity to embrace the cloud technology. The survey showed that more than 40% of companies regardless of size are ready to invest in security solutions if they were offered the chance to do so by their cloud providers.

However, some of them are already taking advantage of such offerings. Meanwhile, 35% of large enterprises already get security services and guarantees from their cloud provider; SMBs due to more tight IT budgets are less lavish regarding additional expenses, as less than 20% of them splurge on cloud security solutions. Moreover, 42% of small and 36% of mid-market companies state that they are not ready to pay for security guarantees by any means.



Part 4: Other Decision Making Factors

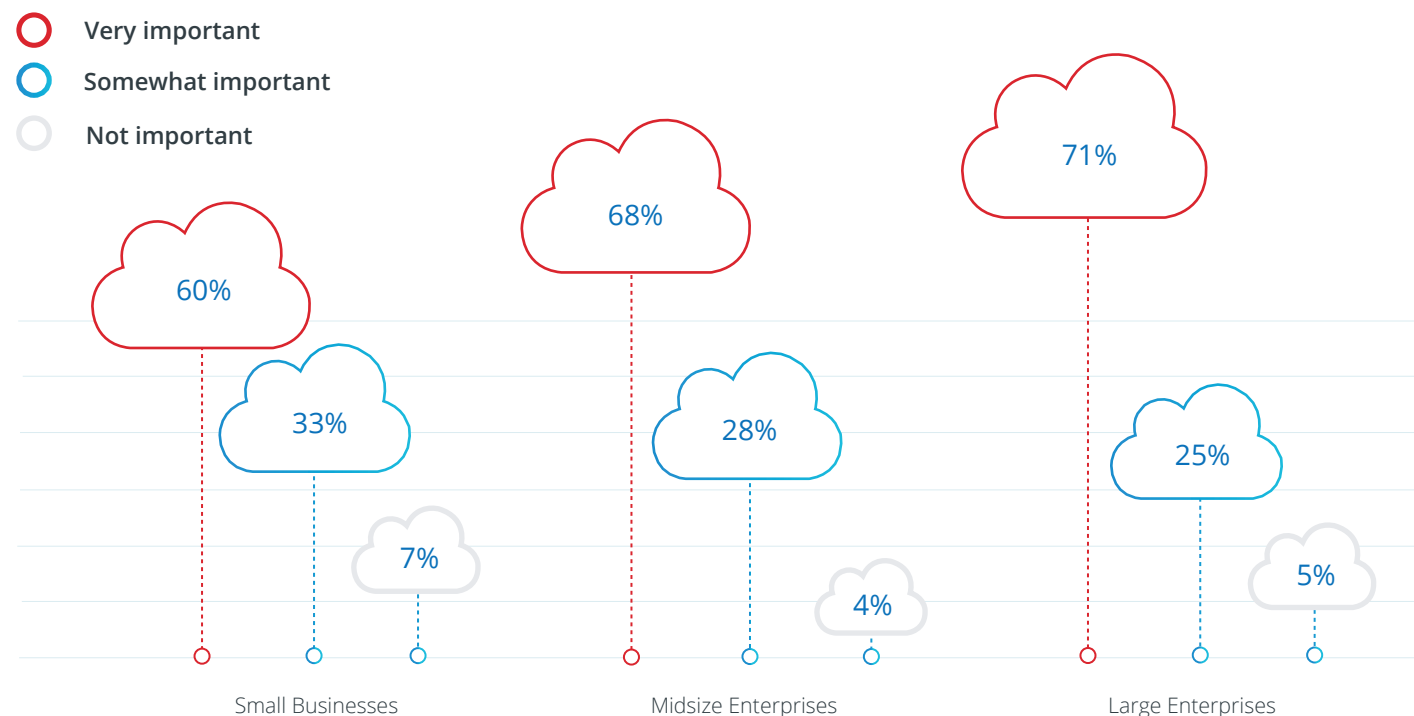
The vast majority of companies regardless of size agreed that auditing of who does what, when and where in the cloud is very important for them, and as the size of the organization grows, companies become more interested in IT auditing.

4.4 Auditing of cloud infrastructure

Companies perceive auditing as an important part of their security guarantees

Do you perceive auditing of your cloud infrastructure is an important part of security guarantees?

Having raised a topic of security guarantees of the cloud infrastructure, we have asked respondents whether continuous monitoring of data stored externally is an important part of security guarantees. The vast majority of companies regardless of size agreed that auditing of who does what, when and where in the cloud is very important for them, and as the size of the organization grows, companies become more interested in IT auditing, as less than 20% of them splurge on cloud security solutions. Moreover, 42% of small and 36% of mid-market companies state that they are not ready to pay for security guarantees by any means.



Conclusions & Recommendations

1. Companies show extremely high interest in using cloud technologies, but the majority of them are still in doubt about whether current security mechanisms are able to ensure data integrity. Since more than 85% of companies in one way or another explore cloud computing (evaluate, run trials, consider initial implementation, etc.), the market of cloud security solutions is expected to expand in the near future, which in turn will foster cloud adoption, even among the technology sceptics.

2. Security concerns prevent companies from fully adopting cloud technologies. Companies migrate data to public cloud providers apprehensively, preferring to store part of the data on premises. The hybrid deployment model prevails above all (44%) and is likely to be the go-to model in the near future. However, the so-called transition period of hybrid cloud use could protract for decades. This sets another challenge for organizations to ensure smooth integration of security services into one system. Organizations would seek solutions that, apart from other functionality, are able to support both cloud and on-premises infrastructures.

3. Data migration to the cloud will entail several adjustments to be made to internal security policies. Companies plan to improve (or have already improved) identity and authentication management, data encryption and establishment of auditing of user activity and changes made to sensitive data stored externally. This means that the interest in these solutions will grow as companies utilize the cloud and take measures to improve security of their assets.

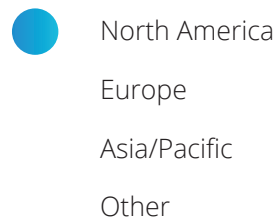
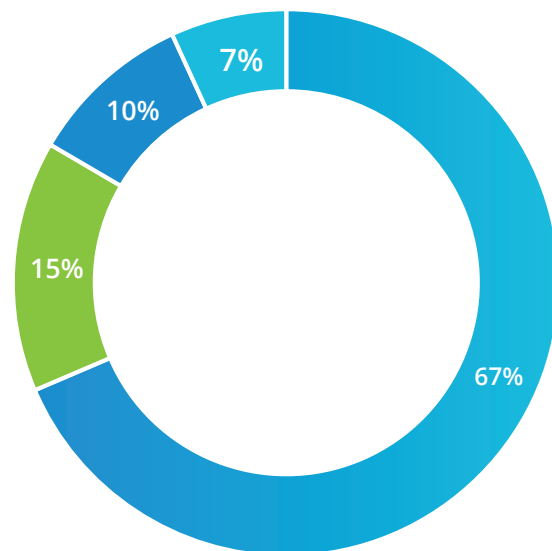
4. About 13% of organizations do not even consider cloud migration until security issues are resolved. However, 30% of them are ready to change their mind and start researching the technology when they are more confident in security mechanisms. This finding shows that cloud providers and software vendors that offer cloud security solutions are likely to meet the current market demand and increase their customer base, including those who previously would never have become their clients.

5. The majority of companies have internal IT auditing procedures in place, so this workflow should be maintained if sensitive data is stored externally. Companies willing to continue auditing their IT infrastructures should either consider placing a burden of auditing services on their cloud providers, implement a separate auditing solution that is able to monitor changes made to data stored both on premises and in the cloud (in case of hybrid model), or defer the decision about cloud adoption until all the security requirements are met.

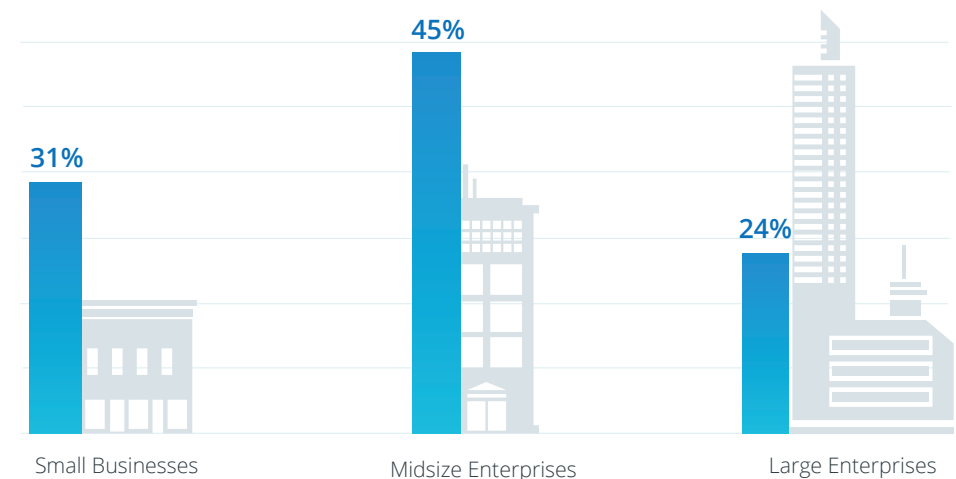
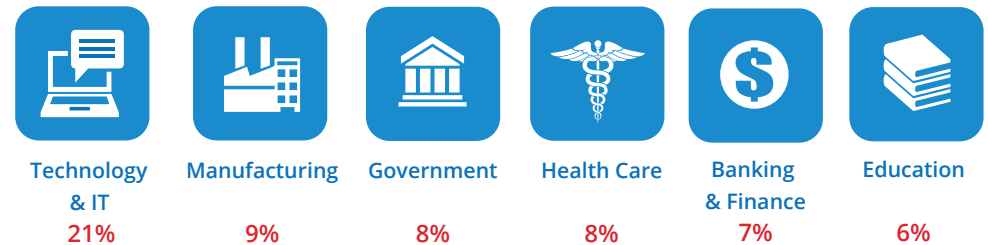
6. The vast majority of companies allow the possibility of investments in additional security guarantees to ensure data integrity in the cloud. About 35% of the enterprises already take advantage of additional security protection, and more than 40% would follow, if there was an option. Companies would benefit more if cloud providers could strengthen their offerings and add auditing of cloud infrastructure—which is considered to be the most important part of security guarantees by more than 60% of companies—to the existing security services.

Respondent Demographics

Geography



Industry vertical



All surveyed organizations were grouped by size, according to Gartner's definition of small businesses (1-99 employees), midsize enterprises (100-999 employees) and large enterprises (more than 1,000 employees).

A large, stylized white cloud graphic with a soft shadow, positioned on the left side of the page.

About the Report

The report is brought to you by Netwrix Research Lab, which conducts industry surveys among IT pros worldwide to discover up-to-date interests and granular trends' analysis of the industry. For more reports, please visit: www.netwrix.com/go/research

About Netwrix

Netwrix Corporation provides IT auditing software that delivers complete visibility into IT infrastructure changes and data access, including who changed what, when and where each change was made, and who has access to what. Over 150,000 IT departments worldwide rely on Netwrix to audit IT infrastructure changes and data access, prepare reports required for passing compliance audits, and increase the efficiency of IT operations. Founded in 2006, Netwrix has earned more than 70 industry awards and was named to both the Inc. 5000 and Deloitte Technology Fast 500 lists of the fastest growing companies in the U.S. For more information, visit www.netwrix.com



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