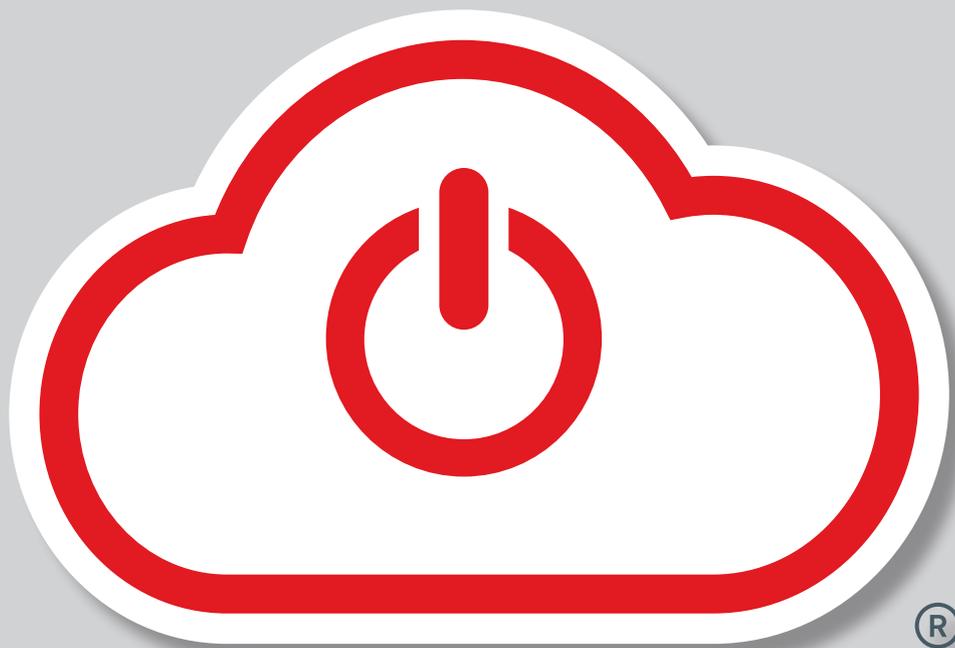


Claranet cloud market report 2011

Adoption trends in cloud computing



Executive summary

This intelligence paper reports on the findings from Claranet's research into cloud adoption in the UK. Conducted in October 2011, the research engaged senior IT decision-makers to understand their knowledge and attitudes towards cloud, the rate of adoption in their organisations, and the qualities they look for in a cloud provider.

The findings of this research show that while the use of cloud solutions is widespread amongst businesses in the UK, it has not been fully embraced. The majority of organisations surveyed (55 percent) use cloud in some form, but still have unresolved concerns about its use for functions that require high levels of security. As a result, there is a strong preference for private cloud offerings. Furthermore, a third of those surveyed reported they were delaying adopting cloud for, on average, 12 months or in extreme cases, for up to two years.

The reasons for this delay rest on the inability of cloud providers to allay fears over data sovereignty and security, as well as to communicate the benefits of cloud effectively to a widespread corporate audience. For instance, cloud is still seen as being riskier in terms of security and resilience than traditional approaches to hosting. A lack of industry standards seems to have contributed to this belief amongst respondents, as well as a rapidly evolving market where IT decision-makers are learning new skills but lack previous deployment experience.

However, the research also highlights clearly which issues need to be resolved in order to drive adoption. IT decision-makers show a clear preference for cloud providers demonstrating financial stability, good corporate reputation and established experience. As cloud adoption is bedding in, more providers are demonstrating these credentials.

Respondents to this research made a strong statement in favour of greater cross-border standardisation and EU-level regulation. Greater industry body activity could be needed to create common standards in sovereignty, security, contract liability and common codes of practice – backed at the international level.

The evolution of integrated network and cloud service providers is also meeting an important need in the market. Effective optimisation of networks with cloud solutions, and clear accountability between customer and supplier(s), are critical, and the findings in this report suggest IT decision-makers are looking for these traits in cloud providers.

The report uncovered a strong preference amongst respondents for data to be stored in their home country – in this case the UK. Providing such services, as well as easily reachable in-country support teams, are important ways for cloud providers to demonstrate data security and reliability of their services.

Cloud is still in its infancy, but it is growing up fast. The advantages of this approach to technology is recognised by IT decision-makers and there is appetite for further and deeper adoption in the years ahead – as long as the concerns outlined above can be addressed. Until then, most IT functions that really matter will remain on in-house systems or in dedicated environments.

The research also highlights clearly which issues need to be resolved in order to drive adoption

IT decision-makers show a clear preference for cloud providers demonstrating financial stability, good corporate reputation and established experience

Methodology and sampling

In October 2011, Vanson Bourne conducted research on behalf of Claranet to determine cloud adoption and understanding amongst end users in the UK.

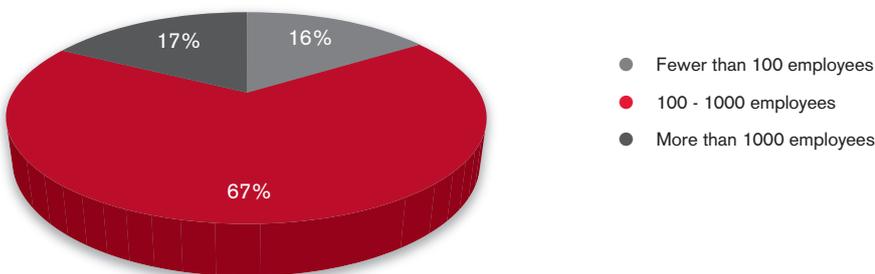
The research polled 300 senior IT and business decision-makers in small to medium businesses (SMBs) and enterprise organisations.

Of the 300 respondents, 18 percent came from the IT and technology sector; 15 percent from financial services, business and professional services and the manufacturing sectors respectively; and 12 percent from the retail sector. The remaining 25 percent comprises a mixture of professionals from the construction and property, wholesale distribution, entertainment, media and leisure, and utilities and telecoms sectors.

Two thirds of those surveyed work in a company that is identified as a medium-sized business, categorised by the number of people employed there (between 100 and 1,000 employees). At the lower-end of this scale are small businesses, employing less than 100 people, and at the larger end, enterprise-sized businesses employing over 1,000 people. Both small and enterprise businesses account for 17 percent of respondents respectively.

This white paper summarises the results of this research. It examines what the adoption of cloud services is amongst end users; the barriers and concerns to adoption; and levels of understanding that exist of cloud services. The paper also examines legislative and regulatory topics connected to cloud.

How many employees work in your organisation?



The research polled 300 senior IT and business decision-makers in small to medium businesses (SMBs) and enterprise organisations

1. UK cloud adoption

Key findings:

- The majority of respondents are using some form of cloud.
- However, there are wide variations in rates of adoption in different sectors.
- There is a clear preference for private cloud over other forms of cloud service provision.

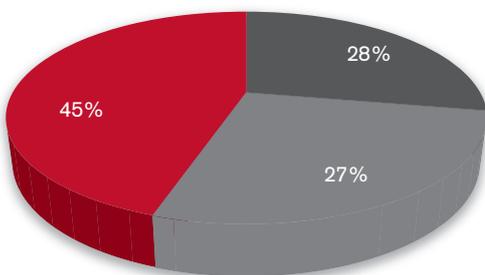
Our research confirms that the trend towards taking a cloud approach has been one of consistent growth over the previous 24 months. From November 2010 to November 2011, 28 percent of respondents adopted some form of cloud, while a further 27 percent stated that they had adopted a cloud solution the year before that. In total, 55 percent of respondents confirm that they use cloud to some degree today.

However, despite the strong preference for cloud indicated by these figures, there is greater variance in adoption between industries. For instance, only 9 percent of wholesale and distribution companies are using some form of cloud in their technology solutions, compared to 95 percent of utilities and telecoms companies. Such disparities are difficult to ignore, particularly as all organisations can realise significant benefits from the use of cloud technology.

There appears to be more use of cloud services amongst medium-sized businesses, where 60 percent of those organisations reported using cloud services. This compared to fewer small-sized (44 percent) and enterprise-sized (48 percent) organisations. The reasons for the lower uptake in large and small organisations could perhaps be explained in two ways. For smaller firms, a lack of in-house expertise in IT, combined with a focus on day-to-day business activities means there is a general lack of awareness of the potential of cloud and minimal time to devote to consider and adopt it. For large enterprise organisations, the reasons will sit around internal processes, risk assessments, compliance and procurement, making adoption a lengthier process. For many businesses, there is also an issue over internal culture, where technology is viewed in more traditional terms, to which cloud does not conform. In comparison, medium-sized organisations tend to have some in-house knowledge and skills; and they also tend to have less bureaucracy to slow them down than larger organisations. It is these factors that account for their faster rates of adoption.

Only 9 percent of wholesale and distribution companies are using some form of cloud in their technology solutions, compared to 95 percent of utilities and telecoms companies

Does your organisation use cloud computing?



- Yes, we have started using cloud computing within the last 12 months
- Yes, we started using cloud computing more than 12 months ago
- No, we do not use cloud computing

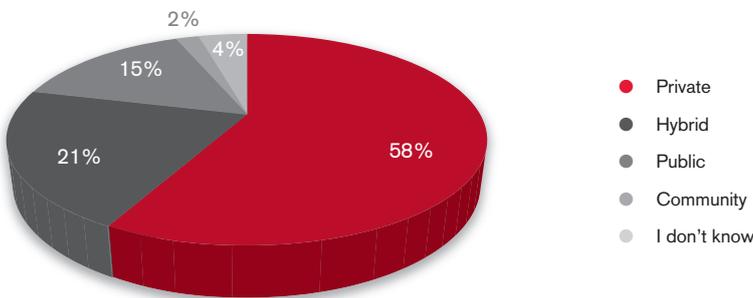
Throughout the research, respondents indicated concerns over their perceived risks of adopting cloud, with the result that there is a strong preference for private cloud solutions in the majority of infrastructure or application areas. This is primarily because IT decision-makers view this model as lower-risk than other forms of cloud and means that they can keep greater control over their IT function. In total, 58 percent who use cloud have 'gone private'.

Alternatives to the private cloud model – hybrid, public and community – have only seen a small amount of adoption. Of those who use cloud computing, 21 percent are doing so in a hybrid model, 15 percent use a public cloud and 2 percent use community cloud.

An important point to note is the possible confusion over terminology. Hybrid cloud models involve any mixture of cloud potentially integrated with a dedicated system. While most respondents said they had adopted private cloud and had a preference for private solutions, it is probable that in fact this has resulted in a hybrid model overall - as their private cloud has not totally replaced their existing in-house set-up.

With such a significantly larger proportion of cloud users adopting private cloud, it bears consideration as to why this is the preferred model. A consistent feature of the results from this research is that cloud providers have not addressed the concerns of IT decision-makers. A private cloud solution therefore offers greater ability to control the perceived risks in using cloud, making it a more attractive proposition. This issue will be explored further in this intelligence paper.

What type of cloud services do you use to meet your organisation's needs?



A consistent feature of the results from this research is that cloud providers have not addressed the concerns of IT decision-makers

2. Barriers to cloud adoption

Key findings:

- A third of respondents have been forced to delay cloud adoption.
- Delays have lasted between an average of 12 months to as long as two years.
- The main barriers have been the need to maintain in-house control, confusion as to the benefits and blockages from internal organisational rules and culture.

The novelty of cloud has led to some confusion over perceived risks, causing delays in its adoption amongst 32 percent of respondents. This high figure suggests a market that is still some way from maturity.

The delays to cloud adoption that have occurred have averaged at 12 months. Digging deeper, the reasons for these delays coalesce around three areas: fears about losing in-house control (46 percent), confusion as to how cloud could benefit their organisation (43 percent), and an organisational culture that is not prepared for a new approach to information technology (41 percent).

These three responses suggest issues in a number of different areas. A lack of understanding amongst IT decision-makers about the nature of cloud and their ability to control it; a failure amongst providers to be clear about what cloud is and how it works; and organisations being slow to adapt their thinking and processes to meet the evolving requirements of new IT delivery models.

Further to these issues, there is also concern over the reliability of using cloud services, with 35 percent perceiving cloud computing as an unreliable service and 32 percent concerned over the buying process of cloud services from providers.

The most successful cloud providers will be the ones that address these concerns the fastest. Supporting efforts to develop standards in transparency and service level agreements to aid customer understanding will allay cultural fear towards using technology in new ways. This will also give organisations a clear focus of how to adapt their world views.

Clarity about the benefits of cloud will increase as early adopters bed in their cloud solutions and demonstrate this success to their peers; and as providers refine their offerings to more accurately reflect the needs of the market. Perhaps the biggest factor will be time, and allowing the cloud industry to mature.

The novelty of cloud has led to some confusion over perceived risks, causing delays in its adoption amongst 32 percent of respondents

This high figure suggests a market that is still some way from maturity

Which of the following have caused you to delay your transition to the cloud?

Asked of respondents who have delayed their transition to the cloud	Total	Fewer than 100 employees	100 - 1000	More than 1000
Prefer having in-house control	46%	50%	45%	47%
Benefits are not yet clear	43%	50%	48%	18%
Change will require big culture change within company	41%	30%	39%	53%
Cloud computing is not yet reliable enough	35%	60%	33%	29%
Current third-party relations/buying processes	32%	40%	33%	24%
Cloud computing is not regarded to be any different to other services	17%	0%	20%	12%
Having a direct relationship with supplier gives control	17%	10%	19%	12%
Currently locked into a contract which prohibits cloud adoption	5%	0%	7%	0%
*Other (please specify)	10%	0%	9%	24%

Other barriers to adoption that are determined in the research include: that cloud computing is not regarded as different to other services (17 percent); that having a direct relationship with suppliers gives control (17 percent); and contractual obligations that prohibit cloud adoption (5 percent). Vendor lock-in is elaborated on later.

The knowledge of IT decision-makers and their confidence in cloud will also change as cloud providers sharpen their offering and provide clear industry standards

3. Mitigating risk

Key findings:

- The majority of respondents believe that cloud is a riskier proposition than traditional IT hosting approaches.
- Data sovereignty and data security are of greatest concern to IT decision-makers.
- Lack of industry standards is leading to increased perceptions of risk.

The majority of businesses adopting cloud are currently opting for a private cloud model. The reasons for this relate primarily to a perception of the risks involved, and the belief that private cloud is best at ameliorating these risks.

The issue of data sovereignty ranks significantly higher than any other risk factor considered. 85 percent of all individuals polled believe that data security is the most important risk factor. This is followed by 72 percent who consider data privacy as the primary factor.

These are natural concerns to have when considering placing data externally to the traditional in-house infrastructure. However, a concern is that 54 percent of people surveyed felt that cloud was a higher risk approach than more traditional IT solutions, suggesting that cloud providers are not doing nearly enough to address IT decision-makers’ concerns. There appears to be a greater focus on the perceived risks than the actual benefits of cloud, and that as a result, organisations are not realising the full benefits possible through cloud adoption.

Organisations are not realising the full benefits possible through cloud adoption

Which of the following risk factors are most important when considering cloud services?

All respondents	Total
Data security	85%
Data privacy	72%
Dependency upon internet access	45%
Confidence in the reliability of the vendors	44%
Cost of migration	36%
Enforcing contractual liability for services if SLAs are missed	34%
Complexity of migration	33%
Confidence in the vendors business capability	29%
Vendor lock-in	28%
Confidence in the clarity of charges (i.e. will they be cheaper than on-premises)	27%
Confidence in knowing who to choose to supply service	17%
Lack of business case to need cloud services	13%
Lack of any advice from within the company to adopt	4%
Lack of any awareness by our current IT suppliers	3%
*Other (please specify)	2%

Concerns expressed in the research are not limited to security and sovereignty. Dependency on an internet connection and the reliability of vendors also feature heavily, with 45 percent and 44 percent respectively citing these as issues of concern for adopting cloud.

Further to this, the cost and complexity of migration for 36 percent of respondents features as an issue, with a similar 33 percent regarding cloud as a complicated process to migrate to for their business.

Taken alone, these figures highlight serious concerns. However, the extent of cloud adoption now occurring and the strength of the benefits possible through cloud suggest that these issues are to some level being overcome. What we are in effect seeing are the advantages of cloud drawing in the majority of organisations, although only up to a point. The functions that really matter remain on in-house systems – for the moment at least, until cloud can prove itself.

The role of the vendor also has significance in mitigating risk, with 29 percent believing that a vendor must be able to demonstrate sufficient ability as a cloud service provider. This is supported by 34 percent who want assurances that they can enforce contractual liability in the event of service level agreements being broken. Furthermore, 28 percent are concerned by the risk of vendor lock-in when procuring services.

These issues show the importance of cloud providers offering easily understood cloud services and the service level agreements that support them. A number of studies have highlighted a lack of consistency in service level agreements and methods by which to hold cloud providers to account. These problems are compounded by the newness of cloud as a technology solution. Cloud vendors have not had much time to build their reputations as solid providers. Nor have IT decision-makers had enough experience to know what needs to be in an SLA to cover them in the event of problems. There is a clear need to develop common standards and transparency if the cloud industry is going to be able to move into a better state of maturity.

What we are in effect seeing are the advantages of cloud drawing in the majority of organisations, although only up to a point

The functions that really matter remain on in-house systems – for the moment at least, until cloud can prove itself

4. The network

Key findings:

- Network capability is central in the delivery of an effective cloud solution.
- Adopting cloud services places additional strain on networks, meaning an integrated approach is necessary to optimise their operation.
- End-to-end accountability is the greatest benefit of having an integrated cloud and network provider.

Without a credible network, there is no cloud solution at all

How to adopt cloud is not the only thing that IT decision-makers need to consider. Without a credible network, there is no cloud solution at all. All services delivered within a cloud model are typically done so over the internet or private network and, as discussed in the previous section, having a reliable network and a trustworthy service provider that can be held to account are important issues identified in this research.

The significance of the network can be seen in the level of agreement expressed to a number of statements in the survey about its role in the delivery of cloud services.

To what extent do you agree with the following statements?

All respondentsww	Fewer than 100 employees			
	Total	100 - 1000	More than 1000	
It is crucial for IT managers to ensure the robustness of their network infrastructures to guarantee availability and performance	81%	70%	83%	86%
If the network isn't optimised for cloud services, then application performance will be reduced	61%	44%	66%	58%
The cloud computing model impacts the enterprise network by increasing network loads	49%	28%	57%	42%
The cloud computing model impacts the enterprise network by increasing end user expectations	37%	26%	40%	36%
The cloud computing model impacts the enterprise network by increasing costs	32%	14%	41%	18%
The network is simply the delivery mechanism and has little significance in a cloud computing solution	26%	16%	32%	14%

As the graphic shows, 81 percent believe that it is crucial to ensure the robustness of the network infrastructure to guarantee availability and performance. There is also agreement that without optimising the network for the delivery of cloud services, the performance of applications will be reduced (61 percent agree with this statement).

The increasing loads placed on networks from the greater use of cloud is compounded by increasing demand for more data-intensive applications (such as video or VoIP) and the explosion of mobile devices. Choosing a cloud solution is therefore increasing the amount of data a network needs to manage at a time when capacity is already being severely challenged in many organisations.

No matter the maturity of IT infrastructure and services, or the type of cloud either being considered or already in place, its success will depend on the network that supports it.

However, despite an overall awareness of the importance of the network and that cloud will impact on the ability of the network to function optimally, there was less agreement or concern given to the specific challenges that network optimisation faces. Only 37 percent agree that an increase in end user expectation will impact the workload of networks. However, the freedom that some cloud solutions give to employees to download apps or to set up their own infrastructure suggests that unless IT decision-makers are able to take tight control over the use of IT in a cloud world, they will increasingly find their network capability challenged.

When asked what the greatest benefit of an integrated network and cloud provider is, most (33 percent) view end-to-end accountability in combining both service and delivery of a cloud and network as the greatest benefit. This demonstrates support for integrated cloud/network provision as the market matures its cloud-based offering.

Unless IT decision-makers are able to take tight control over the use of IT in a cloud world, they will increasingly find their network capability challenged

5. Legislation and jurisdiction

Key findings:

- Respondents preferred to have their data stored in their home country (UK).
- While most know where their data is stored, there is significant confusion over what legal jurisdiction takes precedence over their data.
- This uncertainty is leading to a strong demand for greater EU legislation and regulation.

One issue that arises from the storage of data is the legal jurisdiction of where their data is stored. A cloud service provider can move data around the globe to wherever they have a hosting location. As a result, there is a debate about how legislation can be used to protect and manage data assets.

While 72 percent of respondents knew in which country their data was stored, a startling issue that this research uncovers is that nearly half (46 percent of respondents) are unaware of which country has jurisdiction in terms of access or privacy rights to their data. National laws can vary considerably, making this an issue of critical importance. This lack of awareness is all the more surprising, given the high number of IT decision-makers who register concern about data sovereignty in this research (67 percent). There appears to be a gap between desire and practice.

A cloud service provider can move data around the globe to wherever they have a hosting location

Are you confident that you know in which country your data is currently stored in the cloud?

Asked of respondents whose organisation uses cloud computing

	Total
Yes	72%
No	28%

Do you know which country/countries have legal jurisdiction over privacy control and access to the data that you keep in the cloud?

Asked of respondents whose organisation uses cloud computing

Yes	54%
No	46%

How important is the location of your data when deciding which cloud service provider to use?

All respondents

Important	40%
Extremely important	27%

The issue of legal jurisdiction comes back to the heart of cloud computing. These data concerns must be addressed by providers if cloud is to mature. Respondents offered a clear indicator of how this might be achieved. Firstly, there is a strong preference for storing data in the home country – in this case, the UK. A convincing 87 percent say they would be reassured if their data was stored in the UK.

Beyond the UK, 44 percent feel they would be reassured knowing that data was stored in the European Union. Only a minority (26 percent) stated that they would be concerned if their information were held in the EU, and almost a third (30 percent) were indifferent. Reassurance levels drop to 33 percent if data is stored in the United States.

Would you be reassured, concerned or indifferent if your data were stored in: EU (excluding UK)?

All respondents		Total
Reassured		44%
Concerned		26%
Indifferent		30%

Would you be reassured, concerned or indifferent if your data were stored in: United States of America?

All respondents		Total
Reassured		33%
Concerned		42%
Indifferent		25%

Would you be reassured, concerned or indifferent if your data were stored in: Any country outside of EU/USA?

All respondents		Total
Reassured		2%
Concerned		87%
Indifferent		11%

In total, 87 percent of IT decision-makers express concern at the idea of their data being stored anywhere other than the EU or America.

A combination of awareness that a cloud approach presents opportunities for storing data on an international basis and the concerns over sovereignty is leading to significant calls for regulation at the EU level. Nearly three quarters of respondents (71 percent) would support regulation at this level. Suggested priorities for this regulation include a common code of practice in data security, single EU legislation over data access rights, regulation over how data can move between locations or be transferred internationally, a single standard of data ownership rights; and regulations over liability and service level agreement breaches.

Storing data on an international basis and the concerns over sovereignty is leading to significant calls for regulation at the EU level

6. Cloud service providers

Key findings:

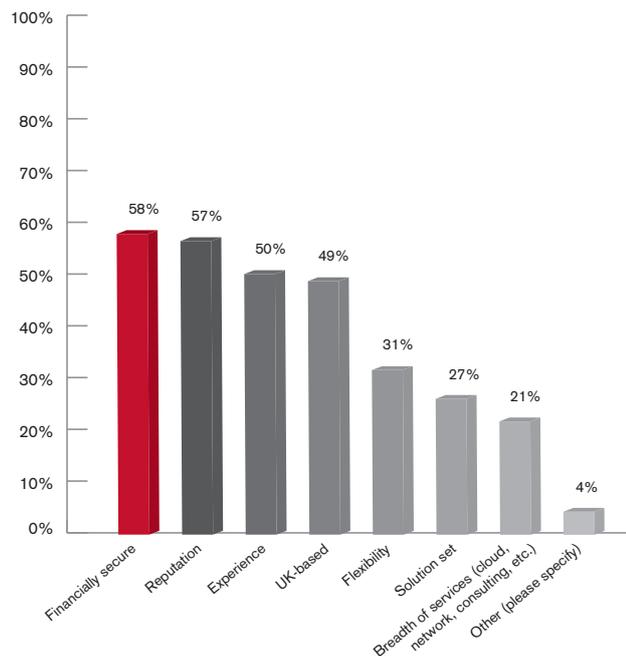
- The most important features respondents looked for in a potential cloud provider were financial stability, reputation and experience.
- When considering potential cloud providers, being UK-based is an advantage, as is having support teams available locally.
- Being able to migrate data both to the cloud and back is also a significant benefit, as is having a hypervisor agnostic cloud solution.

The research has uncovered a range of issues when considering cloud computing, both in the way in which a service should be delivered and also how it should be controlled. In a market that has such a range of cloud-based solutions, choosing the right provider is essential for IT decision-makers if they are to mitigate the risks they face, and maximise the benefits.

When asked what the most important traits were for a cloud service provider to exhibit, three factors proved to be significant to over half of those questioned. 58 percent want their provider to be financially secure; 57 percent look for a good reputation; and 50 percent choose their provider based on the experience that they have in providing the services on offer.

49 percent want their provider to be UK-based and 59 percent look for a locally-based support team

Which of the following are the most important traits that you look for when choosing a provider of cloud services?



Other interesting statistics are that 49 percent want their provider to be UK-based and 59 percent look for a locally-based support team. While placing data abroad may provide certain advantages, IT decision-makers seem less likely to pick those providers unless they offer a strong and supportive presence within easy reach.

When investigating the contractual obligations of an agreement between an end user and cloud service provider, 71 percent feel the ability to migrate both to and from the cloud into an in-house infrastructure is important.

Interoperability was also considered relevant, with 51 percent of respondents believing that it was important to choose a cloud provider that was hypervisor agnostic.

7. Conclusion

The findings from this intelligence paper describe a world that is ready to take on cloud as a preferred model, and is indeed already doing so in a number of ways. However, this is currently tempered by the cloud industry's failure to-date to overcome concerns over data sovereignty, security and reliability of service. The gap between demand and supply that exists is a sign of an immature market, which is not surprising when you consider how rapidly the cloud market is evolving.

As new players enter the market – including Claranet – these concerns will be met and once this happens, we can look forward to faster and deeper adoption of cloud in areas previously considered too risky. The benefits of doing this will be enormous and will spark faster innovation, flexibility in provision and far greater cost-effectiveness than ever before.

This report, and the research it is based on, provides a simple blueprint for cloud providers as they move to the next stage of maturity in their cloud offerings.

The gap between demand and supply that exists is a sign of an immature market, which is not surprising when you consider how rapidly the cloud market is evolving

About Claranet

Claranet is a managed services provider with experience in providing managed IT infrastructure services since 1996. We provide network and hosting services for our customers, enabling them to focus on their core business, not IT management.

The Claranet Group comprises 11 offices, 16 data centres and over 500 staff. Our international MPLS core network enables high service levels across 6 European countries and the US. We operate 24-hour network operating centres covering all countries. Claranet is carrier-neutral with a proven track record in delivering services. Our customers include Airbus, Channel 5, Amnesty International, De Vere Group, and WPA. Claranet strives for excellence and is committed to delivering the highest quality products and services.