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# The Links between Public and Private Cloud

## They're closer in language than in today's IT reality

Martha Bennett and Tony Lock, Freeform Dynamics Ltd, June 2012

*If 'cloud' is all about services based on shared public infrastructure, isn't 'private cloud' a contradiction in terms? Nevertheless, the term 'Private Cloud' has become widely accepted, and indications are that it may be gaining more acceptance than public cloud among IT professionals in the mainstream. But what about the relationship between the two? Is a blend of public and private cloud regarded as the way forward?*

### Key Points

#### **'Cloud' concepts are widely understood, but practical experience isn't yet widespread**

'Cloud' terminology continues to be the subject of debate, in particular the expression 'private cloud'. When terms are explained, there is general acceptance of what defines both private cloud and the various types of public cloud models. In terms of actual experience with cloud services, the supply side (Hi Tech vendors and service providers) is a long way ahead of other organisations in acceptance of public cloud. The difference is less pronounced with private cloud.

#### **Private cloud is a more natural fit for those preferring internally controlled service delivery**

Most organisations outside of the Hi Tech / service provider community prefer, on balance, to keep IT in-house. Unlike public cloud services, private cloud is a comfortable fit with this preference, and many IT professionals see private cloud as a logical progression from other ways of modernising internally run and/or controlled IT infrastructure.

#### **'Hybrid cloud' models are far from universally accepted**

Supplementing internal capabilities with external services – on either a permanent or ad-hoc basis – is an attractive proposition for some IT shops wanting to keep service levels high but costs under control. In practice, the majority of organisations outside of the Hi Tech / service provider sector are reluctant to embrace the concept today. Looking to the future, however, there are few that don't see a requirement for blending onsite components with hosted cloud services.

#### **The need for processes as well as tools to support hybrid cloud is clearly recognised**

Requirements here fall into two main categories: the business process and contractual aspects of a hybrid delivery model, and the technology tools to support it. Service level agreements are obviously critical, as are clear accountability and good coordination, supported by monitoring, management and self-service tools that span private and public cloud environments.

#### **In future, hybrid delivery models will become more common**

The requirement to improve the efficiency of IT delivery, together with a mandate to keep costs under control, holds the potential to encourage greater use of delivery models that blend internal and external sources. And as organisations move towards a more service-centric approach to IT delivery, the emphasis is likely to focus on the quality, cost and security of services rather than the precise nature of the infrastructure used to deliver them.

*The study upon which this report is based was independently designed, interpreted and reported by Freeform Dynamics and executed in collaboration with The Register news site. Feedback was gathered via an online survey of 106 respondents, mainly IT professionals from the UK, USA, and other geographies. The study was sponsored by Microsoft.*

The Microsoft logo, consisting of the word 'Microsoft' in its characteristic bold, sans-serif font.

## Public cloud and private cloud – complementary or contradictory?

When the term ‘cloud computing’ first emerged, it was used to describe hosted services using shared IT resources delivered by commercial service providers over the internet (or some other wide area network) on a pay per use basis. It wasn’t long, though, before the expression ‘private cloud’ started to appear on the horizon. Private cloud is all about creating a flexible infrastructure in an enterprise datacentre or dedicated hosting environment to deliver ‘cloud-like’ capabilities – such as rapid resource provisioning, dynamic workload management, and even a degree of self-service – but managed and controlled by the internal IT department.

While debate around the terminology continues in some quarters, ‘private cloud’ has nevertheless become established in the IT lexicon, with many major vendors of datacentre hardware, platform software and management tools now offering private cloud solutions.

Several questions arise: Are public and private cloud being accepted, and indeed adopted, to equal degrees? What about the relationship between the two? Are we seeing the emergence of ‘hybrid cloud’, where organisations supplement internal capabilities with external services?

To investigate, we conducted an online poll in May 2012, asking 106 respondents around the world for their views (see Appendix for more details). In addition to requesting responses to very specific questions around public and private cloud adoption, we also gave them the opportunity to give us their opinion on how they viewed the terminology and developments.

As with all online surveys, the self-selection principle means that the sample is skewed towards those with experience of, or a keen interest in, public and private cloud. Readers therefore need to be careful not to take the data we are presenting out of context, and in particular be aware that levels of activity or awareness in our sample are likely to be higher than in the general IT population.

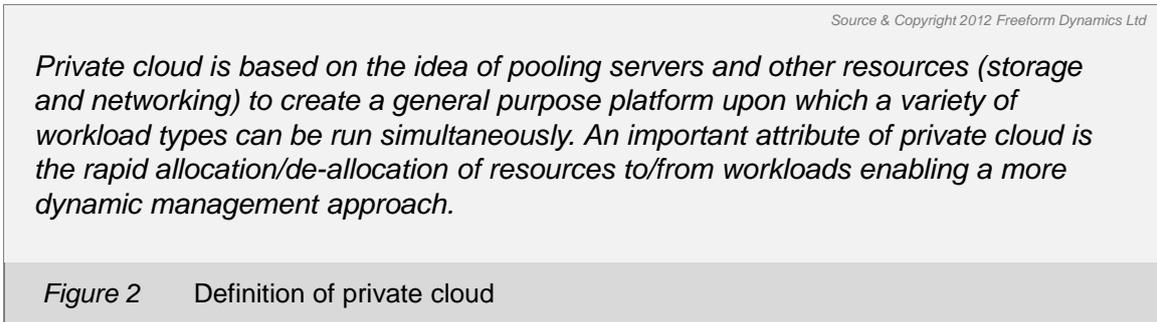
## Defining public and private cloud

Before we take a closer look at what our survey respondents told us, it’s worth spending a little time on the terminology and definitions we used in the poll, and which will also be used in this report. Let’s start with ‘public cloud’. Freeform Dynamics has sub-divided this into a number of distinct categories to help readers understand the major options (Figure 1).

Source & Copyright 2012 Freeform Dynamics Ltd	
<b>Infrastructure as a Service (IaaS)</b>	<i>In which server cycles and other resources (storage and networking) are consumed and paid for ‘on demand’ (the model initially made famous by Amazon with AWS)</i>
<b>Platform as a Service (PaaS)</b>	<i>Hosted environments providing everything needed for building and executing bespoke applications in the cloud (app server, DBMS, web server, security, monitoring and management, etc)</i>
<b>Utility-style Software as a Service (SaaS)</b>	<i>Hosted applications that are horizontal in nature, e.g. email, content management and other productivity and communication tools that tend to be used as they come by each customer with minimal functional configuration and integration work</i>
<b>Complex Software as a Service (SaaS)</b>	<i>Hosted services around ERP, full scope CRM and other applications that generally require significant functional configuration and/or integration work to get up and running in a specific customer environment</i>

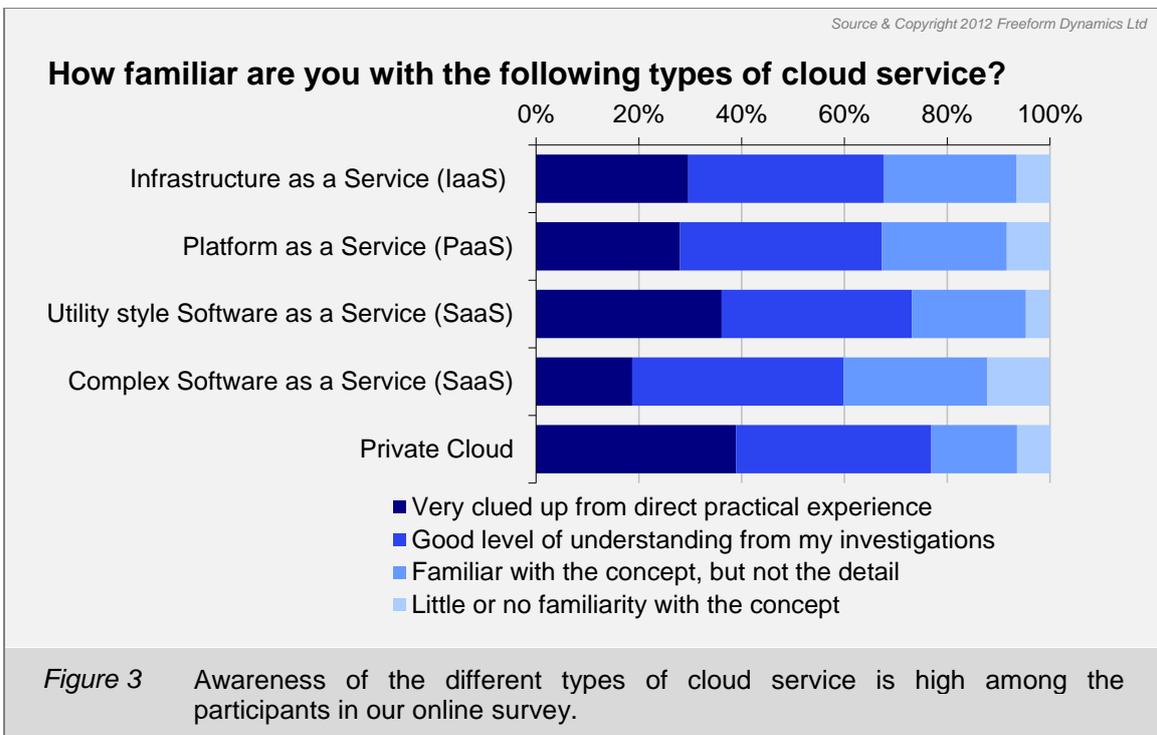
*Figure 1*    Definitions of the main types of public cloud service

The definition used for private cloud is shown in Figure 2. We also asked our respondents whether they agreed with the definitions we presented, and found that on the whole they were happy with our categorisations and explanations.



## Awareness, experience and attitudes vary across the ‘cloudscape’

Using the ‘cloud’ definitions provided above, we asked respondents about their level of awareness of the various services as we had described them. The answers indicate that our sample contains a significant number of early adopters, reflected in the comparatively high level of those with ‘direct practical experience’ of the service types (Figure 3).

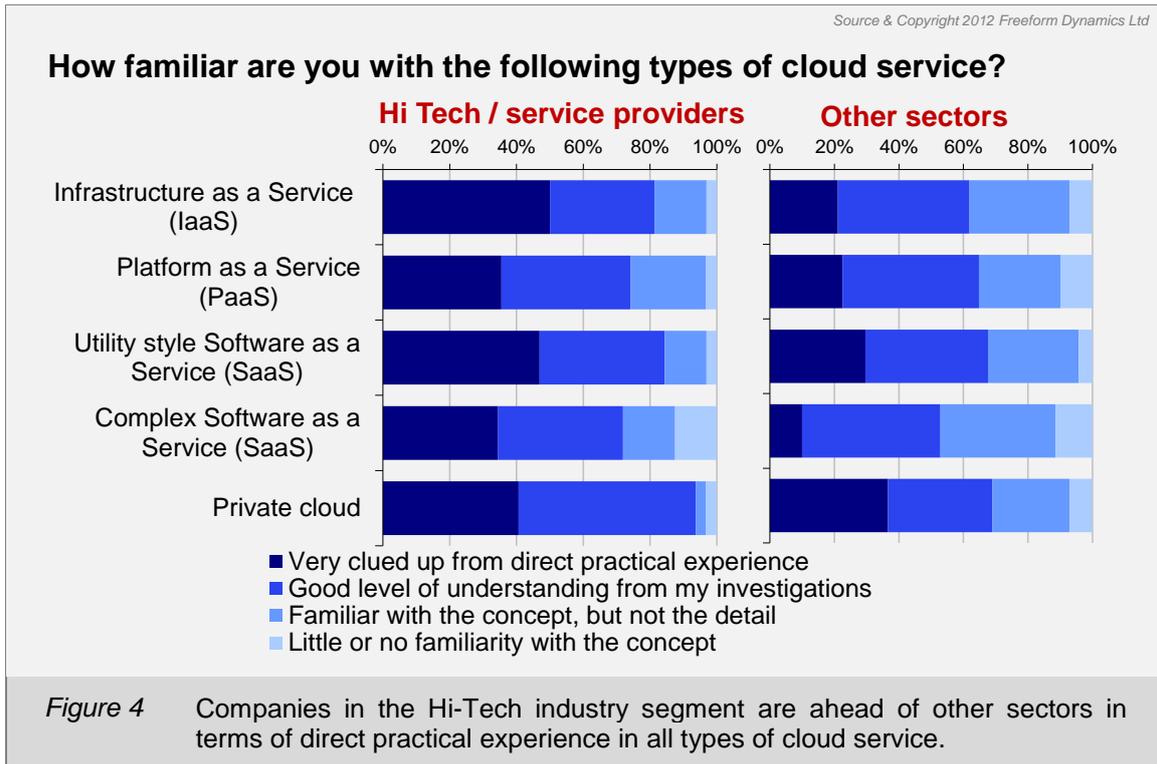


It’s worth reiterating the caveat outlined above: our respondents were self-selecting, and their level of knowledge and experience shouldn’t be regarded as representative of the IT community as a whole. Bearing this in mind, it’s nevertheless worth noting that the concept of private cloud appears to be resonating well, and in terms of practical experience is ahead of any of the public cloud services we asked about. In many ways, this should come as no surprise, as many organisations have already begun their journey to a more flexible approach to workload management, starting with x86 virtualisation. We also know from other research that many regard private cloud as a natural progression from server virtualisation and management. It’s beyond the scope of this investigation to delve more deeply into private cloud here, but there’s a report available that’s dedicated to this subject (see Further Reading).

## Are all users equal?

When looking more closely at those with a high level of public and private cloud awareness, it is clear that the results presented in Figure 3 contain a disproportionate number of respondents from a single industry sector – Hi Tech / service providers. This grouping encompasses IT service providers of many kinds as well as ISVs and systems integrators.

There are two key reasons why these organisations are overrepresented in our sample of early adopters: One, the nature of their business makes them more likely to be early adopters of cloud technologies for their own use. Two, it's in their interest to build up service and consulting offerings to take to market. In light of this, we decided it was worth analysing whether this sector was ahead in terms of actual direct practical experience, as might be expected given its composition. And that is indeed what we found (Figure 4).



Given the comparatively small size of our sample base, one needs to be careful about leaping to conclusions. Nevertheless, there are two factors worth highlighting in the context of these findings.

- While far fewer of the respondents in other industry sectors report actual experience, there is still a considerable amount of interest in various public cloud services, as evidenced by the comparatively high proportion of those declaring a 'good level of understanding from my investigations'.
- Private cloud awareness shows a slightly different pattern of understanding and knowledge. In terms of practical experience, the difference between Hi Tech / service providers and other sectors isn't as great as with public cloud.

So what could be behind these results? In our view, what we're seeing here is a reflection of the difference in readiness and attitude between organisations working on the 'supply side', namely those selling or advising on cloud services, and those on the 'demand side', namely organisations buying cloud services.

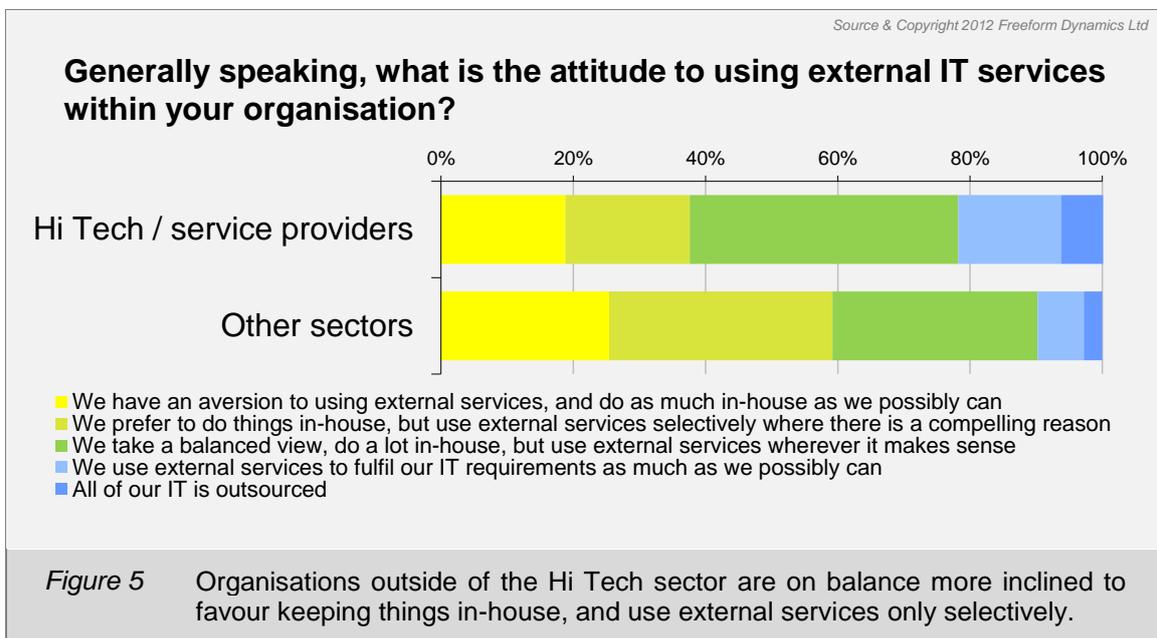
Public cloud, by definition, is all about using external services and many end user organisations report reservations when it comes to the use of such facilities. While only about one in five of our respondents expressed outright 'aversion' to using external services, the overall preference remains

balanced in favour of in-house provision. On the other hand, sell side organisations have a vested interest in selling cloud solutions as well as being more comfortable exploiting them whenever it makes sense.

### Are attitudes shifting?

As we know from experience, getting business people and IT staff to accept radically new solutions usually takes time, and preferably first hand reports from their peers that the solutions are reliable, cost effective, relatively risk free and really do make a difference. As a consequence, it is of little surprise that the acceptance of cloud and the general use of external services is shifting only very gradually, despite what many vendors and marketers may claim. When we asked about attitudes to using external IT services in a survey carried out in Q2 2011, providing exactly the same options in the choice of responses, the results were on the whole very similar<sup>[1]</sup>.

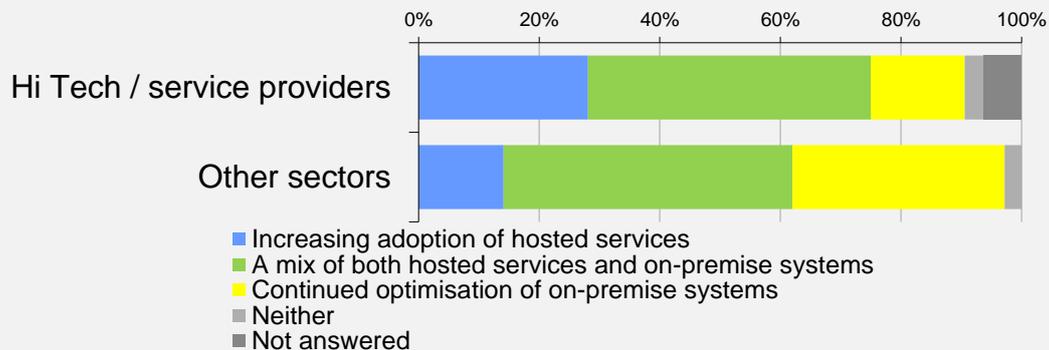
That said, a more nuanced picture appears when we compare the responses given by those working in Hi Tech / service provider organisations to those in other sectors with respect to the use of external services (Figure 5).



Going back to internally delivered and controlled services, our surveys have shown that many see 'private cloud' as a logical progression from other ways of modernising an organisation's internally run and/or controlled IT infrastructure. In particular IT professionals state that they see private cloud as a development from the virtualisation and management improvement projects they are undertaking, thereby bringing greater flexibility to the delivery of IT services.

Seen in this light, it comes as no surprise that early adopters in all sectors are beginning to exploit the potential of private cloud technologies. For organisations outside of the Hi Tech / service provider arena, the focus remains very much on optimising dedicated systems running inside the data centre. In the next three years, respondents indicate efforts will centre on improving IT service delivery either on its own or as part of a blended service delivery model (Figure 6).

**Overall, when it comes to IT service delivery, which of the following will you primarily look to over the coming 3 years to drive improvements or cost savings?**



*Figure 6* Looking into the future, organisations outside of the Hi Tech sector continue to remain less keen on hosted services, but they are regarded as part of the mix.

## Hybrid cloud – magic potion or witches’ brew?

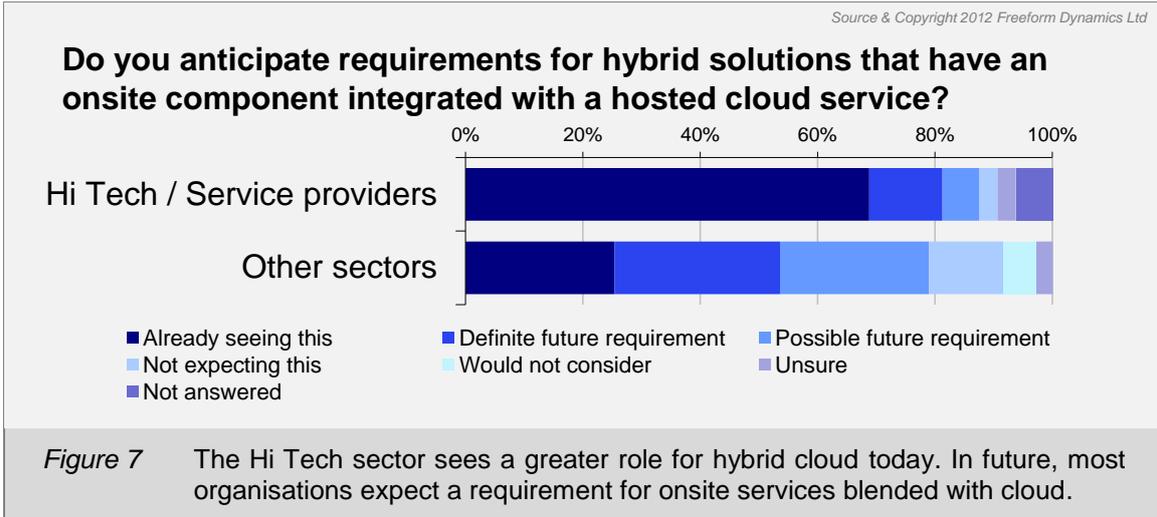
Talking about a blend of external and internal capabilities brings us neatly on to the topic of ‘hybrid cloud’. There are many different ways in which internal capabilities can be supplemented by, or mixed with, external services. Two key scenarios that are attracting some attention are hybrid solutions that have:

- An onsite component integrated with a hosted cloud service, and
- An application running in a private cloud environment, but which ‘bursts’ into the public cloud at times of peak demand.

An example of the first scenario would be software development being carried out in-house, but with testing at scale over a defined, but limited, period of time being run on external cloud resources. An illustration of the second would be a company running its customer facing web store on internally managed equipment that has sufficient capacity to handle ‘routine’ operations, but for occasions when customer use of the site is expected to escalate dramatically, during a peak shopping period or as a result of widespread promotional campaigns, capacity from the cloud would be acquired to supplement resources so that customers continue to enjoy good response times.

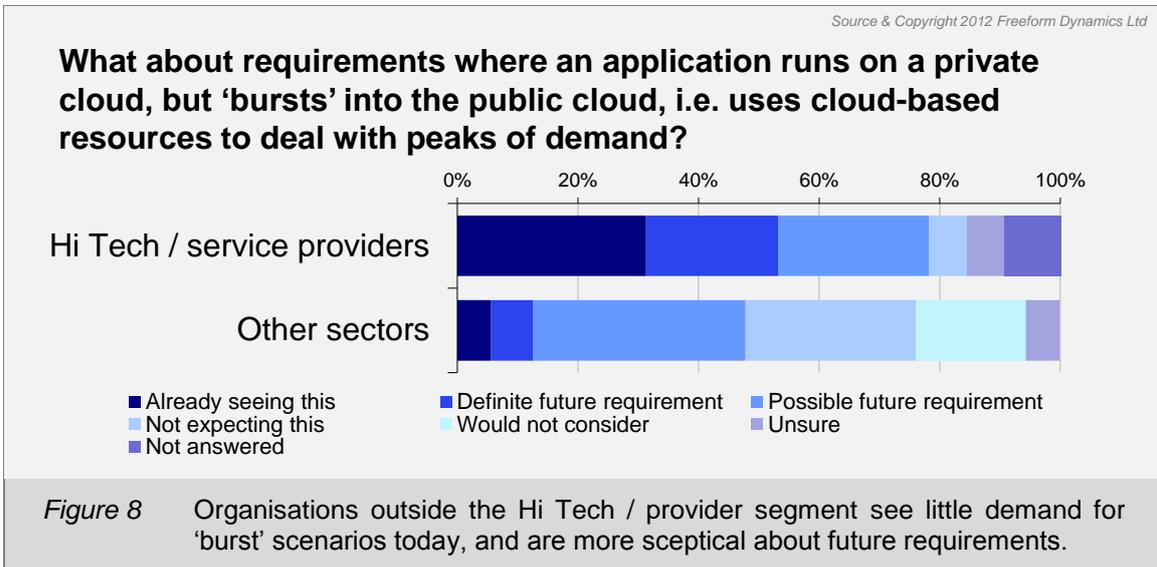
Both scenarios could in theory be regarded as attractive for organisations wanting to keep service delivery levels high, but without having to carry the cost of acquiring and maintaining compute resources that lie idle much of the time. There are already a few examples of such approaches being used by enterprises, but in practice, take-up is ahead in organisations represented in the Hi Tech / service provider segment, where familiarity with such solutions is greater, and they are more accepted.

When it comes to the first scenario – a blend of onsite and cloud components – over two thirds of firms in the Hi Tech / provider segment are already seeing this as a requirement, compared with around one in four organisations in other sectors. When it comes to future need or potential, though, there are few who don’t see this type of hybrid service as part of the mix (Figure 7).



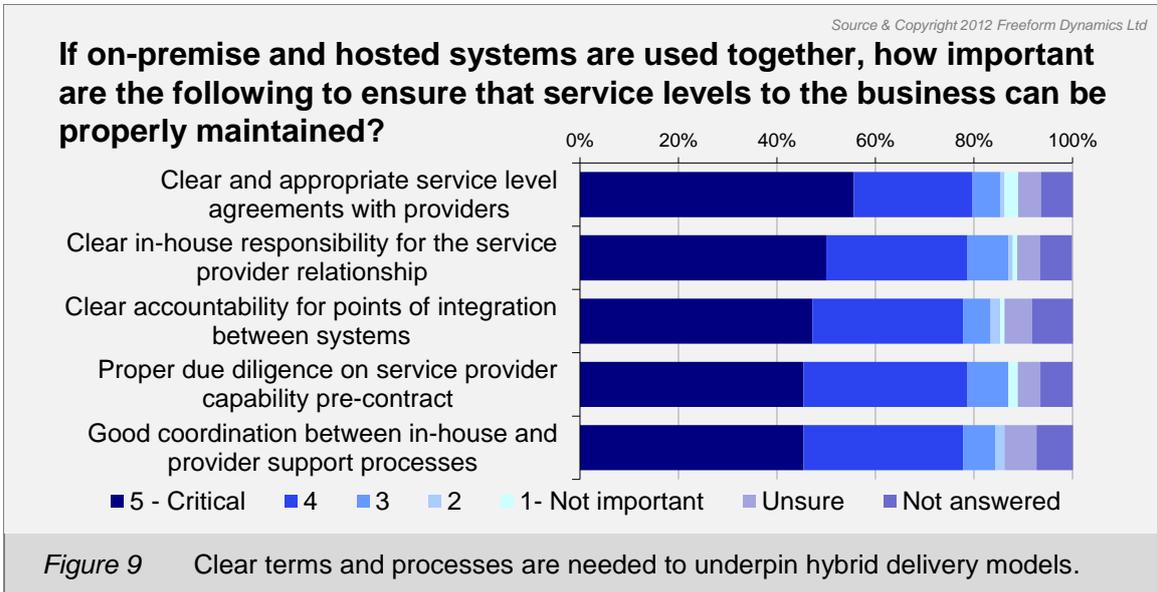
There are many reasons why organisations outside of the Hi Tech / service provider sector are less keen on hybrid solutions at this point. The list includes, but isn't limited to, concerns around security, data protection, back-up and recovery, integration, reliability and connectivity. It is also reported anecdotally that some cloud offerings have yet to meet the expectations of customers in terms of cost or providing assurance on service levels. Importantly, organisations may also need to modify their existing IT budgeting systems in order to be ready to handle the financing of cloud-based delivery. For some industry sectors, legislative or regulatory requirements concerned with the physical location of data may be an added factor mitigating against adoption.

When it comes to the second scenario – internal capabilities supplemented by capacity from the public cloud at peak times – both current take-up and future demand appear more muted (Figure 8).

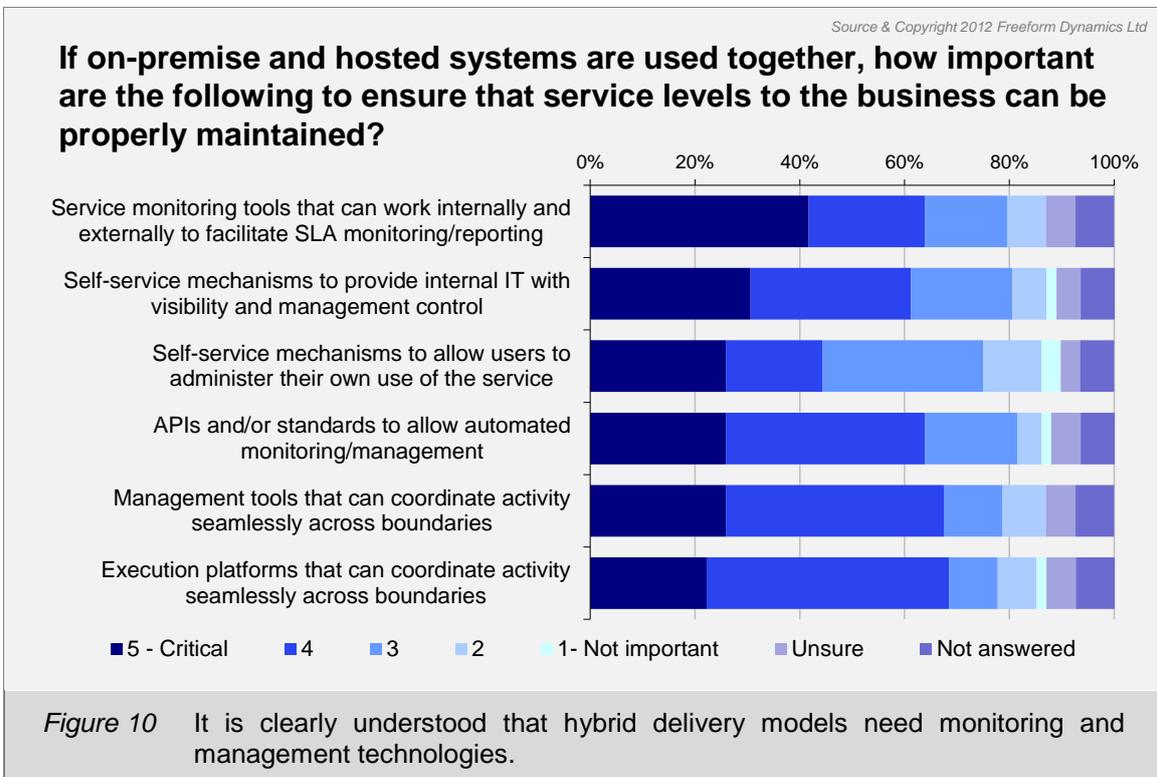


Not only is there a big difference between supply side and buy side when it comes to requirements today, there is less enthusiasm on both sides when it comes to future expectations. In addition to the concerns outlined above associated with the delivery of hybrid services, there are two further reasons why the 'burst' type of hybrid cloud is not as popular. The first is straightforward: fewer organisations are likely to have this type of requirement. The second is around enterprise concerns about providers' ability to guarantee the extra capacity, as many organisations are expecting their own peak demand to coincide with that of their competitors in the same sector.

But while there is clearly a gap between the Hi Tech / service provider view and the attitude of other sectors when it comes to 'cloud readiness' today, things are much more aligned when it comes to the elements that organisations state as being required to provide a solid foundation for any type of services deal. Such recognition extends beyond the obvious requirement for providers to put clear and appropriate service level agreements in place (Figure 9).



As the figure highlights, some of the elements thought to be critical for the business use of hybrid cloud solutions have little, if anything, to do with technology. Indeed, most of those mentioned above are very much concerned with operational processes that should be common practice in existing business operations. But in emerging areas such as hybrid cloud, establishing any form of good practice takes time and experience. That said, respondents recognise that technology matters need to be addressed as well (Figure 10).



As can be seen, there is widespread recognition among our respondents of the importance of tools to monitor service levels effectively in such cloud environments as well as to provide visibility to all parties involved in service operations. Being mostly IT professionals, it is no surprise that they also highlight the requirement for standards and APIs to be developed, as well as the need for management tools capable of working across both internal and service provider systems.

## **All forms of cloud remain part of the forecast**

As we've seen from this poll as well as other surveys, considerable uncertainty remains on the part of mainstream enterprises about making significant use of external services to support important, business critical IT systems. It's also clear that those on the supplier side of the house have a more bullish view of the opportunities for, and prevalence of, public or hybrid cloud offerings than their existing or potential customers.

That said, there are indications that the requirement to improve the efficiency of IT delivery, as well as keeping costs under control, holds the potential to encourage greater use of external services, as offerings mature and experience grows over time. In the meantime, with IT departments seeking to move towards a more modern and dynamic infrastructure, we're likely to see a more rapid adoption of private cloud architectures.

This goes hand in hand with a slow, but steady, move by enterprises towards adopting a more service-centric view of the delivery of IT services. Progressive IT organisations already acknowledge that their overriding driver is to deliver the right service, securely, to the right people in the business in as cost-effective manner as can be achieved while maintaining the required service quality.

Our research over the past two years also indicates that external services are no longer viewed as being something that has no place in IT operations. Attitudes may not be changing that fast, but there is an acceptance that IT solutions in the future will likely involve a blend of internal resources and external services. The precise balance of what IT service is delivered, using which resources, depends on the assessment of a complex set of requirements; these include service quality, cost, and security, as well as considerations around systems integration and complexity. The trust of external suppliers will also be a matter that must be tackled, but over time it is likely that hybrid systems will become a matter of everyday life in IT, and managing the quality of service delivery will be the main focus point.

## **Reference**

1. Cloud Computing Checkpoint: First signs of more general mainstream acceptance?  
<http://www.freeformdynamics.com/fullarticle.asp?aid=1344>.

## **Further reading**

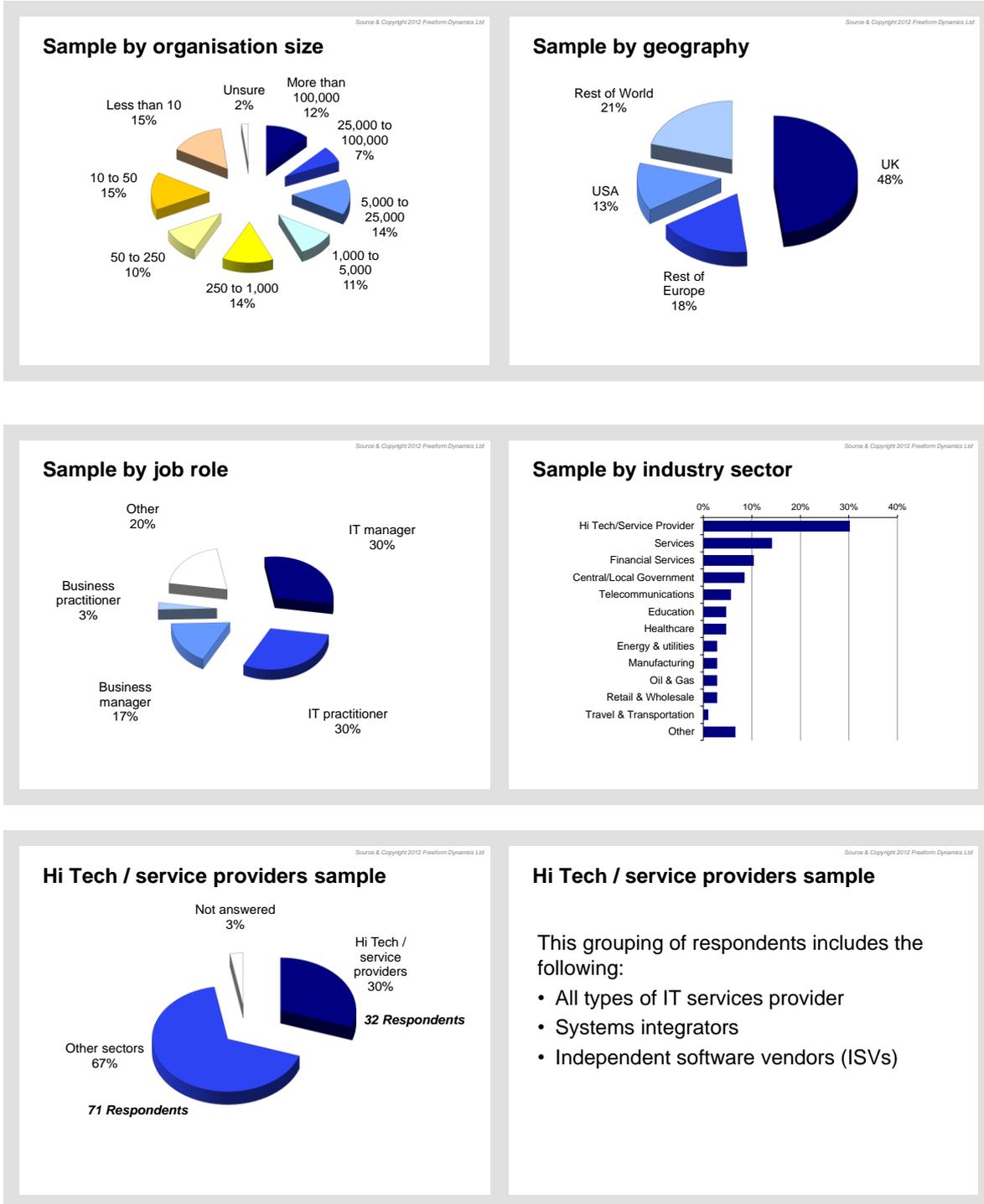
Private Cloud in Context: What's it for and where does it fit?  
<http://www.freeformdynamics.com/fullarticle.asp?aid=1526>

Both of these reports are available for free download from [www.freeformdynamics.com](http://www.freeformdynamics.com).

## Appendix: Study Sample

Feedback was gathered via an online questionnaire published on The Register news and information site ([www.theregister.com](http://www.theregister.com)). The respondents, totalling 106, were mainly IT professionals, representing a cross section of job functions and working in a range of different industry sectors.

The sample distribution was as follows:



## **A note on methodology**

The web survey approach used in this study is subject to the 'self-selection' principle, which basically means that people with a greater knowledge of or interest in the topic are more likely to have responded.

Such self-selection does not undermine the analysis we have presented here as we have focused on the relative emphasis of different perceptions and types of activity. Indeed, in fast moving areas it is often useful to investigate the views and behaviour of those that are ahead of the curve. It does, however, mean that it would be inappropriate to regard any of the statistics we have used as a representation of the absolute level of need or activity across the business community as a whole.

The study was completed in May 2012, and we would like to take this opportunity to thank all of those who took the time to participate. Your help is very much appreciated.

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