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### *Debate Session III: Boosting Telco Cloud Economics*

**Chaired by: Pim Bilderbeek**

**Analyst, The METISfiles**

Panellists:

Frank Weiner	VP Strategy, Cyan
Mike Capuano	Vice President, Corporate Marketing, Infinera
Lee Myall	General Manager Cloud Computing, Interoute
Hugo Tavares	Chief Technical Officer, Lunacloud
Andrew McFazden	Head of Global Marketing - Network Services, Orange Business Services; Chairman, MEF

#### **Pim Bilderbeek**

Hi, I'm Pim Bilderbeek and I'm from The METISfiles. We're a two-man, one-woman outfit out of the Netherlands and we analyse the cloud market, amongst others. I'm here to discuss with you the topic called Boosting Telco Cloud Economics. With me is, I think, the smallest panel so far today, five people.

Going from right to left, I'd like to introduce Andrew McFazden from Orange Business Solutions, Hugo Tavares from Lunacloud - an up-and-coming European cloud provider based out of Portugal. Then we have Lee Myall from Interoute, a European alternative network provider but also of cloud and doing cloud aggregation and distribution. Finally we have Mike Capuano from Infinera and Frank Weiner from Cyan, both vendors who supply the telcos with their gear and software. They also have a stake in boosting telco cloud economics because it also will benefit them.

Now, to set the scene I want to cycle back to the year 2008. At that time, there was a guy called Joe Weinman, who some of you might know, who recently wrote a book on what he calls Cloudonomics. We'll discuss the topic of cloud economics a little bit

further on. But in 2008, Joe Weinman was working for AT&T and he wrote a blog post entitled '10 reasons why telcos dominate enterprise cloud computing'. Remember this is 2008, not sure what Amazon's revenues were in those days but if I say \$100 million and you double it every year, you'd probably have approximately what their revenues are now.

So what are those 10 reasons? Let me list them for you:

1. enterprise sales capability
2. Lifecycle service and support
3. Reliable operations at scale
4. SLAs with financial penalties
5. A full enterprise solutions portfolio
6. integrated hosting and networking services
7. vendor independence
8. global footprint
9. financial stability and market commitment
10. relationships and operations.

So remember 2008, Amazon did about - I'm guessing here, \$100 million, now we're in 2014, Amazon is doing a couple of billion, depending on who you talk to. I think Hugo, Lunacloud is not even close to those revenues. For OBS I saw some remarks that in about 2015 they might do a \$500 million in cloud, which I guess is what Amazon was doing in 2009, or 2010. Lee, I guess Interoute does not touch the \$100 million mark? (Lee: we are chasing hard). So basically my question is, guys, what went wrong? Here we have 10 reasons why telcos should dominate enterprise cloud computing. Obviously this is not the case today. So what went wrong? Question Number 1. Question Number 2 (if you agree that things went wrong), what can we do about it?

So first, do you agree with me or not? Maybe you'll say well, Pim, that is totally bullshit, we do dominate enterprise cloud. But let me give you the chance to talk about this. So let's start with Andrew from OBS here. Andrew, what went wrong?

### **Andrew McFazden**

I don't believe anything went wrong. [Again], if you look at the revenues that we see at Orange Business, the differentiation we have to make straight away up front is that we only do enterprise versus the total market which is consumer and enterprise. I think all of the attributes that you mentioned, that our noble friend listed in 2008 still apply. I think the customers, the enterprise customers of the service providers are fairly cautious. It's taken them quite a long time to decide whether or not to embrace the cloud in any case. So service providers like Orange Business Services have developed a suite of solutions. We have a thing called VPN Gallery which basically is dedicated connectivity from our platform, so from our network, into our own

datacentres, into the datacentres of Equinix and other third parties where we can offer secure effectively on-net connectivity to datacentres.

Because the concern of a lot of enterprise customers is performance and security. There are different experiences in the marketplace but by and large enterprise customers need to be sure of those two capabilities. I think the service providers, because they're providing a full end-to-end service to their customer with SLA, and we provide an SLA in terms of the cloud solution, is a real differentiator. Certainly for the operators.

**Pim Bilderbeek**

So no problem, everything is rosy?

**Andrew McFazden**

Like always, we'd like to generate more business. I think again, encouraging enterprise customers to understand that the risks - the perceived risks of moving to a cloud model are nowhere near as significant as they may think and encouraging them on that journey. I think over the next 24, 36 months, we'll see a significant increase in the revenue from cloud services for service providers.

**Pim Bilderbeek**

Okay, well let's move onto Hugo (Lunacloud). Hugo, I'll give you the chance to explain what Lunacloud is doing first.

**Hugo Tavares**

Okay, thanks. In Lunacloud, we are almost in a start-up company. We started in 2012. Our office is cloud services only and cloud storage solutions. We are an infrastructure as a service provider. Then we moved onto becoming a platform as a service provider. We focus only on [public] cloud service at the moment. I agree with Andrew when he said that it's quite complex for the enterprise to move onto the cloud. Because most managed service providers - I worked for 10 years in a managed service provider - supply custom solutions, custom products to enterprises and it's not easy for them to move on to the cloud. Because of that customisation, they need the VPNs et cetera.

In Lunacloud, we face that as well. Enterprises are also asking us, how can they migrate their service into the cloud, are they able to use VPNs, are they able to do whatever they want. It's not that easy. For us, we only focus on the public and some customers, that asked us for this, we have to say we don't have that solution for you. This is only for public, you sign up with us, you use your pay card or PayPal et cetera. You - with two or three clicks, you have your own server up and running and it's there, it's just there. It's infrastructure, it's connectivity. Beside the fact that we have SLA with our customers, with finance penalties, of course, but there is no commitment for them to work with us. They use the cloud server for an hour, they pay for that hour and they move on.

This is our business, it's as fast as we can to deploy cloud server in seconds. The bill is only for pay-per-use. So in the enterprise, they don't want to have that because they need to know how much they are going to spend in that type of solution. With us, it depends on the use. If they are using small server or big servers, it depends.

### **Pim Bilderbeek**

Okay, so you haven't got any enterprise customers then?

### **Hugo Tavares**

We have some enterprise customers. But not with specific - with custom solutions. If the needs fit with our products, they're with us because it's quite a lot cheaper than the solution from the telcos, cloud telcos. They don't need to move their information into the US, with the Patriot Act et cetera, since we have presence in Europe, in France and in Lisbon. Most of enterprises choose to host in France due to latency between the US and Europe.

### **Pim Bilderbeek**

I'll move on to Lee (Interoute). Would you agree with me? Have we been sleeping in the telco world? I get the sense from Andrew that everything is okay?

### **Lee Myall**

I guess I'll be the turkey voting for Christmas and I'll need to get my coat and get on the beach while we're here. So we have not been doing it wrong, I think that we've just got to get it a lot more right. So I guess I'd probably cover a couple of the bases that my colleagues here have been talking about. We have a full IaaS offering, so you can get out a credit card and sign up online. But we also have a good enterprise customer base and we have a considerable managed hosting business within that. So we've got this interesting situation of making sure we don't have - and I've had this conversation with a couple of people here - a Kodak moment where we let others cannibalise our business. We've got to do that ourselves in the right way and have a strategy to do that,

Maybe we could get together in five years' time and if I'm here, you'll know it worked and we'll be back on stage. I think most of you probably have a little bit of an idea of some of Interoute's history. But I joined in '03 to help Interoute getting to the enterprise sector. Interoute had a service provider or a wholesale heritage with an asset that interconnected PTTs and others. Over the years, 10 or 11 years, we've been making that asset increasingly available as a service of varying kinds. We've done communications as a service over it, with VPN we had an early offering for enterprise. The most obviously one of course, for us back in '04. But the full IaaS solution for me is the pinnacle of what we've been trying to do.

We address enterprise and the non-enterprise market, whatever we might want to call that, as well, as does Hugo. It's an interesting challenge too. The thing I love about it is, you can wake up this morning and you can see how many customers you've signed

up overnight while you're asleep. It's a wonderful thing. So we're not getting it wrong, got to get it a lot more right, I think.

### **Pim Bilderbeek**

I'm not convinced. I get the sense from the panel that telcos think enterprises only want to buy through a sales person and that they don't want to buy online. I'm not convinced that's the case actually.

### **Lee Myall**

Well they come at you in strange ways, frankly. So you're right, you've got your traditional enterprise model over here. One of my challenges and opportunity, obviously, has been to build a model that's more scalable for lower touch/zero touch sales. But enterprises come at you and when you're dealing in the online world, you have the shadow-IT person who's really doing the groundwork. They come in on a Gmail address with a very strange name, quite often. Frankly, you ignore them at your peril. Because when they like what they've tried on a trial, they go above the line and suddenly they work for Ford or somebody like that. - I'm not quoting an actual example there by the way -

So I think that the technically savvy and aware departments within large enterprises, if they retain that capability, they will be coming in and trying it for themselves and then they'll be taking their recommendations up through the management and decision making layers.

### **Pim Bilderbeek**

Let's move on to the hardware and software sides of the business, those that are building the network, Mike (Infinera), what's your take on this? You would have been able to sell lots more to the telcos if these guys got their story straight for the last six years, right?

### **Mike Capuano**

I think their story is straight. There's a lot of different dimensions to this discussion but I think one thing is that part of Amazon's growth is driven through SPs, right? A lot of SPs are providing direct connects service to Amazon, express route connect to Microsoft Azure, as they look to move to hybrid. I think a lot of Amazon's early success depends on the type of application that's moving into the cloud. If you're a web developer and you're just doing a web start-up, gaming or online shopping or whatnot then you might go right to Amazon. Another thing that's happened is shadow IT. They said, hey, I don't really want to deal with my IT department to spin up the server when I just want to test this application. So they got to Amazon.

But now CIOs are trying to figure out, how do I bring that in house in a secure, SLA guaranteed way. So I think we're in very early days of hybrid cloud. Synergy put out a report that said in 2013 the market was \$10 billion and by 2017 it will be, I think, \$35 billion. That includes platform as a service, infrastructure as a service and hybrid.

So I think there's a lot of growth. The legacy apps are going to take a lot longer. Either they're going to have to figure out how to adapt when they go in the cloud or they're going to have to rewrite them.

From my perspective, Infinera's just introduced a platform called Cloud Express. We've done that because service providers and internet content providers have come to us and said, the compute model and the connectivity model is changing where we have multiple buildings, I'm getting a lot of east-west traffic and we need to be able to connect those buildings together so servers can talk to each other as if it's one logical entity. So from my perspective, the demand we're seeing for that product is a proof point that the industry is growing, that we're seeing this bandwidth demand of east-west traffic because cloud is starting to be about the faster and faster.

### **Pim Bilderbeek**

Okay, Frank (Cyan), over to you.

### **Frank Weiner**

Thanks, yeah I believe we really just have seen the first couple of chapters in the broader story. From the telcos' perspective, they've been able to offer cloud services but their level of differentiation versus [over the top] vendors has been a little bit challenging to fully deliver upon. I think the maturing of SDN and NFV is starting to swing the pendulum in favour of the telco, at least for a period of time. The reason for that is that the cloud has been very dynamic and has supported the ability to rapidly spin-up applications and new functionality, but the network connecting it has been very static in nature.

Now that SDN is maturing and today we've got more than 120 service providers using SDN across the [WAN] there is better opportunities to coordinate and make the network more dynamic in conjunction with the cloud. So the telcos that can synchronise the network with the applications and the cloud are going to have growing advantage over this next period of time.

### **Pim Bilderbeek**

Okay. You mentioned SDN. When I look at SDN and NFV, I think, OK, so owning infrastructure is maybe not that important any more. I can just build a virtual [overlay] network with SDN on someone else infrastructure. So in that case, is there still value in a combined network infrastructure cloud offering? What's the value in such an immersed offering if over the top providers can just provide overlay networks with SDN across networks?

### **Lee Myall**

I think I probably need to take that given we've got 60,000 kilometres of the stuff out there. We're obviously competing against a number of people. At one end you've got AWS. The infrastructure asset that we have has enabled us to certainly initially in Europe deploy considerable density across data sovereignty and then interconnect that

natively within our network. So we're very much in control of performance and costs there. Which means then we are able to take a model with zero traffic costs, for example, or data transfer costs to our customer base. Customers are really waking up to that.

If you've got a very mobile application, if that makes sense, in terms of data moving around a huge amount, and an unpredictable call on that data, then somebody who can provide you with a flat cost base for that is going to be a favourable provider. For us, it's the fact that we've got this asset that we've had over time and that's our investment. We're able to leverage that, I think, better than some of the other players like AWS. So I wouldn't want to be without that asset. So that's my call on that one.

### **Andrew McFazden**

If you're looking at a typical enterprise customer, they've already got a VPN. They're using that VPN not only to access cloud applications, they're using it for managing their internal communications of their enterprise. So if the service providers that are providing those VPN services can step up further than they have done to provide the cloud access then I don't really see too much compulsion for those enterprises needing to migrate to an over the top provider. I think what we're doing from a connectivity side is to make sure that we're focused on providing the best end user experience. So we've moved away from providing purely MPLS networks for VPN to providing what we would call hybrid - a mix of quality internet access as well as VPN.

With my MEF hat on, this is really what the MEF is starting to look at. It's about how we as an industry can provide interconnected networks which are more agile than the static networks, that we've provided to date.

### **Pim Bilderbeek**

Hugo, you (Lunacloud) don't own network infrastructure, but you do own computer infrastructure, right?

### **Hugo Tavares**

Yes, we have compute infrastructure. Of course we're supporting telcos to deliver our interconnectivity. But we also use some sort of software-defined networking in order to automate all our processes internally. For us to deliver servers in seconds between different physical areas, we need to have some automation also behind and with software-defined switching we can achieve that. It's very easy for us. The cost of equipment is mainly the cost of the administration that we have to. To have a completely automated model, you need to have an SDN, of course. It's a must-have.

### **Pim Bilderbeek**

But you are not partnering with a network infra provider? Are you using Interoute or Orange today for instance?

**Andrew McFazden**

Maybe after today.

**Hugo Tavares**

Well it depends (partners with Claranet). No, it can be hard but because Lunacloud - the founder of Lunacloud, it's Charles Nasser which is the owner of Claranet and the country manager of Portugal of Claranet also. They are the founders of Lunacloud. So it can be hard to go to Interoute, but it depends. We are expanding also our infrastructure into Moscow by the end of this year and Claranet doesn't have infrastructure in Moscow.

**Pim Bilderbeek**

Right, so you need to get another provider than Claranet because they have no reach in Russia

**Hugo Tavares**

Exactly.

**Pim Bilderbeek**

So let's move on to cloud economics. So I'm just curious why telcos want to get into cloud economics. Because if I have the definition here of cloud economics, the cloud economics are the economics of enormous scale. The more companies sign up to a cloud service, the greater the scale of the operation, the more prices will drop. I agree with the definition, would you guys agree with the definition? Who agrees with the definition? None of you? You? Yeah, all of you.

So why would you want to go into that market? It just means prices are going to drop, it's going to be a commodity, you should stay away.

**Lee Myall**

Well, I think that we all know that with the likes of AWS and Google, for example, I don't know if you look at the headlines coming out from them, they've decided to be very price led, they're talking about storage pricing primarily. They're beating each other up. So that's obviously giving people the impression, I think, you're being the prophet of doom there, Pim, clearly. But you can differentiate. Because there are different types of customers, if people want to go deep and cold on storage then Glacier from AWS, there you buy storage in a way that's hugely efficient, fine.

You've got to work out what the market is for you. But also other things come into play, particularly when you're talking about enterprises. For example, take a look at SLAs. So I think it's quite interesting that some of the biggest providers that you might know of in the cloud sector, in order to actually have their SLA become truly effective for you, you probably have to deploy twice the amount of resource, maybe in another location that you're not looking to be in, for example. So what you've got

there is costs maybe starting to mount up in another area. But your headline cost on storage looks fantastic.

So the devil's in the detail. We've all had a good go at making big infrastructure investments pay on the other side, the network side, so we bear the scars and the success of that and I guess we take those into cloud economics.

### **Andrew McFazden**

Yeah, I think that it's not only a question of price, it's a question of profitability. If by having scale, we can sell things profitably, even though the prices may be coming down then it's an attractive value proposition.

### **Pim Bilderbeek**

Hugo? Lunacloud is not competing with Amazon (on price), you say?

### **Hugo Tavares**

No, you cannot compete with them (on price). The prices, it's - well, I think in terms of cloud storage, it will happen the same that happened with the email service. From the time when we were buying the mailbox et cetera. Now the mailbox is completely for free. The storage, it will be the same. But you need to have something that add more value for the customer, in order to have some high prices in the cloud storage, something that you feel that it's important for you to have it. Like your own private cloud storage, in the form of the Dropbox et cetera.

In Lunacloud, we can do that. We can price for the cloud storage. But you need to have more value for the cloud storage for the companies. One of the things is to create some private cloud storage for the enterprises.

### **Pim Bilderbeek**

That's something that a lot of providers are doing, private storage. But – over to Cyan and Infinera - are you not worried that the value of your equipment will diminish because of cloud economics?

### **Mike Capuano**

Well I think we started the discussion with NFV, SDN. We're both - Cyan focuses a lot on SDN but we both make optical here, right? The reality is, at some point, to move a photo from one city to another, you need to make the photon, you can't make that with software. So in our world, we're seeing an explosion of cloud. Again, both from internet content providers and from the service providers. So I'm not worried that they're not going to buy our stuff. I think what we're trying to do is make stuff that's easier for them. That's instead of a big refrigerator sized cabinet, it's a rack and stack server-like experience that they can quickly deploy to increase connectivity.

Lee, we were talking the other day and you said, what we're seeing now is that our network defines our cloud but the demand for cloud is stretching our network. So we're trying to provide a solution for you guys as you've got someone who says, hey, I

need to connect this datacentre with your datacentre or my enterprise with your datacentre, that we can enable you to do it really quickly. In 10 days, for example, instead of a few months. So I guess that's a long answer to, no, I'm not worried.

### **Lee Myall**

I think there were some stories out on PR with some rapid deployment by ourselves, hand in hand with your technology in the past. One point that came up, with AWS, well we do compete with them. There's competing and competing. So if you're saying, are we actually looking to get into a big above the line fight with them, that's one thing. But I think we all win business from them for a number of reasons. We find, certainly, for customers that want to have a service that's in region, closer to them, which delivers better performance - and AWS is somewhat restrictive compared to some of us on that area - then I guess we are competing with them.

So we're not running away but we're having to play to our strengths.

### **Pim Bilderbeek**

But there's a huge gap, there's a huge disparity between the billions of revenues that Amazon has and continues to grow and the telco revenues?

### **Lee Myall**

So I think there's a statistic around for \$1 billion in Europe, if I remember rightly, fairly recently. But we're later into the market, all of us, aren't we? I think if we go back to Tom's presentation first thing this morning about being - do you go in first or do you maybe learn a few lessons from others, whatever it might be, Amazon went straight in. So there's first-move advantage there. But I think we're all offering something that's a bit different, we've got a pedigree that's a bit different. We've all got growing businesses, we'll be happy to tell you that all day long, of course.

But we're certainly gaining market share. Part of that is because it's new entrants into cloud, so that's new cloud consumption, part of that is the conversion of managed hosting, and part of that is stealing business from the competitors that we're all fighting against.

### **Andrew McFazden**

I think, as well, just to [add proof here], I think when you look at - it's the revenue numbers that you're quoting, what you've also got to take into consideration, though, is the increased revenue and the incremental revenue for service providers from the connectivity service. The bandwidth requirements of the customers is exploding and we're benefiting from that by providing the cloud side as well.

### **Frank Weiner**

The other thing I would add is, in addition to the connectivity, and kind of following up on your opening statement about why chase this commoditising market, the answer is some of these services are going to be low margin but some of them are going to be

high margin. The way you're going to win those high margin is to be able to have a cost basis that's also spread across this low margin infrastructure. So participating is key to setting up to get the higher margin business. You can't just selectively pick what you want to play in, you've got to play across a reasonable platform to get your overall economics right.

### **Pim Bilderbeek**

Okay, so let's get back to those 10 reasons (why telcos will dominate cloud), I guess you still play on your enterprise sales capability, lifecycle service and support, reliable operational scale, SLAs, financial penalties, full enterprise solution portfolio, integrated hosting, vendor independence, global footprint, etc. You're not going to change anything? Or is there something that you think we need to do different as telcos want to boost cloud economics?

### **Andrew McFazden**

I think one of the things that we're already doing, that you'll see more of, is this full end-to-end capability and being sold as an end-to-end capability. Back with SLAs, enterprise customers are now talking about, well actually, I'm not sure I really need a site availability SLA any more. My end users are interested in the quality of their experience when they're using an application. So we're looking much more about application performance, tying that to SLAs. I think that's a big area of opportunity, and again, being a service provider that is providing that service from end to end, we're in a unique situation to be the one that can offer that.

I think another advantage, maybe some people might argue, but an advantage of the established service providers is the customer support model. I think the Amazons of the world, without disparaging our competitors, they don't have the level of customer support model in, place for enterprise particularly, that the service providers do. For major enterprises, that is a big consideration. They want to know that if something goes wrong, they've got somebody there that's going to fix it and an easy way to get to those people.

### **Hugo Tavares**

Well one of the things that I'm comfortable with is that I'm not competing with any of these [gentlemen]. Because the actual service providers, there is a lot of [heavy] infrastructure that you need to support a sales team, per-sales team, engineering team, project managers et cetera. In Lunacloud, we don't even have a sales team force, you don't have that. Our sales is for additional marketing only. We support a lot of start-up companies in across Europe. We sponsor a lot of conferences etcetera, for the developers. That's our sales force, it's digital marketing, essentially.

Since we don't have that heavy infrastructure to support, we can offer, of course, [customer services]. But of course, it's only for public cloud services, we don't have - we cannot support the customer from the beginning to the end. I don't know 99% of my customers right now. I don't know who they are even. Like we were saying, I look at the [front] and see how many sign ups I have this night. We offer services

across the globe so I cannot see the customer face to face and we don't want to have that.

So that's why we can - that's why we are in a specific segment of the market, it's like a consumer market essentially. We cannot, of course, compete with the Orange or Interoute or even Claranet.

### **Pim Bilderbeek**

I would argue, Amazon hasn't got any great number of sales people either. They've built a multiple \$billion business without any sales people. Andrew, shouldn't you get rid of some of the sales people and do something different? Maybe shift more to online ordering and onboarding?

### **Andrew McFazden**

I think we're doing both. Again, what we have to remember is that companies like Orange Business Services have got a very wide portfolio, which is why we've got a sales force. I think increasingly what we're looking to do is have portal-based services where customers can actually buy online. But - and the role of the sales guy, the account team is much more around consulting, supporting, advising and managing the relationship, as opposed to pure selling. I think we'll see more of that as we go forward.

The constant struggle is to standardise services. Because if they're customers then it's very difficult to sell them through a portal. If they're standardised, it's much more ready for portal base.

### **Pim Bilderbeek**

One thing I'm picking up on here is you all – most of you, Lee and you Andrew you supply mostly to existing larger companies. OBS maybe in a bigger respect than Interour do. So what about companies like Spotify and Uber and so forth, would they come to OBS, these companies? Or go to Interoute? I guess they're not, because you only cater to big companies so you're missing out on a certain portion of the market which might grow pretty big in the future.

### **Andrew McFazden**

No, they do come to us. They don't come to us necessarily for the same - looking for the same kind of model that we would have for a classic enterprise customer. But they have the same kind of needs. At the end of the day, they have an application somewhere in a cloud and they need to provide access to end users to that information. Depending on who those end users are, they may want or may not need the level of service that we provide through VPN rather than just going on a pure public internet. So yes, we do deal with them, clearly.

Also - and again, Orange Business Services is part of the Orange Group, so we've got a massive consumer business as well. So on that side we interface with them.

**Lee Myall**

Similarly, there's also - part of this is down to marketing of course. So we acquire customers that we don't meet, so we have enterprise yes, very much meet and greet and a sales model that will be very familiar to most of us here. But we are - we're acquiring customers who are in the mobile app space, for example, or they've got things like social media analysing toolsets that they provide as a service, that type of thing. They're small, early stage businesses some of them. They sign up without meeting.

So we've built a model to support that and one of my tasks for this year is then building a marketing machine that addresses and touches that market. So volume-based, low cost acquisition. So I think we can make ourselves receptive, it's down to then the marketing effort. If that's what you're choosing to do.

**Pim Bilderbeek**

Okay. I think we're nearly out of time. Maybe there is a question from the audience? If there is someone who would like to ask a question?

## *Audience Q&A*

**From the floor**

First of all, Pim, I'm a bit disappointed you didn't use Moses and the 10 Commandments in your slides. No, I was wondering, we're a couple of years behind the Snowden story. So do you guys see something happening there? Relocation towards European cloud, European cloud business coming home?

**Andrew McFazden**

Yes. Again, I guess I'm talking more on the enterprise side, rather than a public network. But what we're seeing more and more - and in certain markets, particularly in Germany for example, talking to my friends at Deutsche Telekom; their customers now want to know which datacentre their cloud application, their cloud information is located in. Because they don't want things to go outside of the boundary of Germany. We've just launched a service which is not directly analogous to what you're asking, where we've implemented 15 internet gateways around the world so that we can bring users as close as possible to the internet location that they're trying to access. Again, because of the fact they don't want to be shuttling backwards and forwards from one side of the globe to the US and back again.

So there is a lot more localisation, if you want to call it that, coming into this market. As I say, there are regulatory reasons, which is a whole different pool game to get into, which will drive that even more I think.

**Lee Myall**

Yeah, we see the same. I know of one customer which is a mobile banking app and that's again based in Germany and a key point for us winning that business was the fact that we've got a cloud computing zone in the German region. It's in region, stays in region, they can completely control the data. So I guess we're seeing the same as you.

**Frank Weiner**

Even on the vendor side, we've seen the same thing. We offer some of our software as a service hosted in the Amazon cloud where many of our customers have said, actually we want to store that locally so it's not subject to international law.

**Pim Bilderbeek**

Okay, understand. Any more questions?

**From the floor**

Actually a follow-up question. I don't know which companies are exactly American, which are not, but how do you defend the fact that you can keep data safe and inaccessible to others while the US Government has repeatedly stated that they can access servers that are based in Europe if it's from an American company. So I'm guessing there's a bit contradictory to that.

**Frank Weiner**

I can certainly - I think that's still playing out. It's still in the very early days on those types of things. It'll be interesting to see how the regulatory - the government and regulatory policy shakes out on that. I think it would be a huge disadvantage for the US if any company based in the US is subject to a different set of rules than companies based elsewhere. If that plays out, I think what you'll see is the companies will simply form other international-based entities to navigate around that. So I think that will work itself out over time, either through a settling of the regulation or the policy or companies learning how to work within it. I don't see it as a big issue, long term though.

**Mike Capuano**

I would basically echo that.

**Pim Bilderbeek**

Okay. Anybody else? Okay, I guess this concludes the session. Big thanks to the panel.

**Manek Dubash**

Thanks [Pim], great panel, great discussion.