NETEVENTS

CLOUD INNOVATION SUMMIT

First Draft

Above the Clouds
A Helicopter View on Where We're Heading

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So, I guess this is the wrap-up session and as the helicopter view would imply this is a sort of 50,000 foot or 150,000 foot view of the cloud and sort of where it is headed, so I'm hoping we don't go into any real network diagram discussions and bits and bytes and speeds and feeds. At least not for this.

So, I have some great panellists here. I'd just like to introduce them quickly and then I'll dig into some of the questions.

So, Shehzad I'm not going to try the last name, although it's not that bad, Merchant, Chief Strategy Officer at Gigamon; Paul, Vice President at Juniper; Virtual Sunil, President and CEO, virtual cloud from Nuage and then from Wedge Networks, Dr Hongwen Zhang.

So, again, there is going to be sort of a 50,000 foot helicopter view of the cloud, so I have some really, as you would imagine, have some high level questions here that I think should stimulate some good discussion.

My first one is in sort of an observation that I have had since I have been here, the premise of the cloud was really built on agility, flexibility, and cost, and also on simplicity. Although the message was intended to be around simplicity, it seems like things have got really complex and we would like to get your point on when will we ever get to a point where we really start to drive messages that speak to the business

challenges of this CIO and the challenges that they are faced with solving. I'd like to get your take on and maybe some key messages that come out of your company around how do we really drive the complexity out, simplicity of the message up and drive to the real business benefits that quite frankly the cloud was intended to solve.

So, why don't we start at the end of the table and work back and make this an interactive discussion.

Hongwen Zhang

Sure. Thank you for having us on the panel first of all. It's a fantastic audience here now.

Talking about some of the messaging for the CIO, I think this is a very critical question and I'm glad you brought this up. The cloud was really intended to transform the very nature of IT and if you look at this from a CIO's perspective, there are several things that stand out. To a CIO what's really important is agility. It's the cost of managing the right infrastructure. What we're seeing today is as your IT infrastructure grows the cost of managing that infrastructure grows linearly with it as well and this is a big challenge because IT budgets are simply not keeping up with that challenge. I think part of the promise of the cloud, where you can actually break that linearity where the cost of building out your infrastructure does not scale up linearly and so I think is a key aspect for a CIO.

The other one is, of course, security. Okay, so I can manage my costs, but at what cost? This is a big one. Is my data secure? Are my applications secure? So, that's another big aspect.

And a third dimension I think, and this is a critical one as well is okay, so I can make things more efficient. I can move to the cloud. I can reduce the cost of managing my infrastructure. Perhaps I can secure it as well. But, what is the user experience going to be? Are my constituents, the users, are going to be happy? I think talking in those three dimensions as opposed to talking about am I going to use this hypervisor or am I going to use this ISO image, I think talking in these three dimensions is going to be pretty important for a CIO.

Paul Obsitnik

So, I'm going to talk a little bit more, I'm going to address the question more from the service provider standpoint. When you think about the evolution of the cloud, VMware and virtualisation started out as a cost play. It was really how do I make more efficient utilisation of services. But I think people, companies realise that as they adopted it and evolved the aspect of agility and flexibility it became much more paramount and I would argue that's what has created the cloud and the cloud technologies. I think we're seeing some of the similar evolution when we look at SDN and NFV in terms of that evolution from is this an initially going to be a cost play and then seeing that, okay, there are cost benefits to it, but more importantly, there are a lot of revenue and service benefits to it.

So, when we look at the virtualisation technologies it's something that we know started out in the datacentre, but we're seeing, I think like many of us in the room, are seeing how that is getting deployed and evolved and is applicable throughout the entire service provider network. So, at Juniper, what we like to say is networking is complex. It is inherently complex, but it shouldn't be complex, definitely should not be complex for the end user and it shouldn't be that complex for the service provider. It should be complex for companies like Juniper and other individuals up here on the podium.

So, I think we're seeing some of that. Whereas this is a new trend and it is evolving, there is complexity as we as an industry, as a group, are working out some of those standards. But I think what we're going to see as that evolves and as we start seeing solidification and agreement and adoption of those standards, it will lead to some of the simplicity you've talked about, Sean, in terms of how is it something that you don't really think about SDN in virtualisation. What you think about is the services you can create giving a portal to your end customer so that they can go on, your VPN customer go on and add security as a service, so do bandwidth counting to schedule a pipe going to their network. Because, from our perspective, what I like to tell service providers, you've got challenges, but you have a great opportunity. Their number one core product, the network, is in ever-increasing demand and I think that is something that they can't lose sight of and they shouldn't lose sight of that it's in big demand, but there is also an opportunity. As we're looking at the need for greater customisation of services from the end users, there is a greater opportunity for them to drive their revenue and increase their economics that way. But, fundamentally, it's going to require an agile, flexible network and that's where a lot of what we're talking to comes into play.

Sean Hackett

Right, right. So, I would agree, but at the same a lot of the enterprise CIOs that we talk to, it seems like in a quick survey it's the biggest inhibitor is security and that's sort of a tired default response I think. But what it really is, is when you get down and really talk to them, what you find out is this movement internally is really complicated and it's gotten more complicated. I talked about consolidation, bigger datacentres, more complexity there. Virtualisation is supposed to simplify things. Not really. Not for a lot of CIOs.

So, the environments become more complex when it was supposed to be simpler and that's really impeding this movement to something that is supposed to be really simple like how do I consume third party services. So, that's sort of the foundation of my question was how do we get them over that bump? How do we get them to a point where they can quickly evolve their internal infrastructure, simplify the way it is consumed and delivered so we can start to really see the benefits as we move out to this amorphous thing that we call the cloud?

Paul Obsitnik

Well, it's interesting. We saw in the last survey that the CIO is regaining some of their lost glory and I think it is because of that fact.

I think we're trying to make it easier for the end user and a CIO's end user is the business head, the business unit. So, I think you're probably going to see some complexity at the CIO and I'm guessing that's why they're increasing in terms of level of importance because it is not trivial today to do it and you're changing the business makeup in the business flow. So, there is that element to it, but I do think we're getting to an environment where, for the end customer, they are seeing simplification. It is being easier for them.

Shehzad Merchant

If I may perhaps add a little bit to that as well. I think it's important to also understand the context of where we are coming from. If you look at networking as an example, the fundamental nature of networking hasn't changed in 20 years. It is the same. You've gone faster, you've got new protocols, but every networking device has a control plane and a data plane and a co-resident, making this a big distributor computing problem.

I think that the notion of driving simplicity is fundamentally what is making the push towards SDN and NFV. Conceptually, that is where it is going. By doing that whole architectural change, I think there is an opportunity to truly simplify the whole IT operations and this is not just about networking. This is actually about IT operations and I think that is a direction. It's not going to happen in a day, in a year, it's a decade long transition, but I think we are at the early stages of that transition.

Sunil Khandekar

One thing I would add to the conversation is I think the notion of, when it comes to simplicity or complexity, a distinction between that and elegance because we don't have to get rid of complexity and I think a lot of it is a state of affairs and relative maturity of this technology. The difference in the way you treat automobiles today as opposed to 70 years ago is that you were very conscious of the vehicle when it was a new mode whereas today grandma gets in the car and goes to where she needs to go. So, we will have to do things to make it more easy for this technology to be adopted.

When it comes to the CIOs, the main issue essentially is that they are under a lot of pressure. It's not the glory that is at stake, it's the issue of they're under a lot of pressure to deliver for their work groups. There is a human need to have your cake and eat it too which means they want the security, predictability and performance of a private infrastructure but with the economics of a shared infrastructure. That's the cloud piece.

So, I think it all comes back to the second part which is that CIOs are by design control freaks. They want control and visibility because they are accountable for the performance of those assets, the integrity of the data. So, as a result, by giving them the control and visibility to set policy in a way that it could be enacted independent of

the infrastructure, independent of whether it is their own infrastructure or someone else's, independent of where it is located gives them more levers to more elegantly handle the operations and still be able to go to sleep at night because they now that everything that happens in the network has got fewer touches, not more, which means fewer opportunities for mistakes and delay, but it's done entirely consistent with the policy that they set. In other words, the bad guys aren't accessing the information, the good guys aren't accessing the wrong information. Now, if that happens under whichever of the acronyms we propose, I think we will deliver value to the CIO.

Hongwen Zhang

I think that really the simplicity is really the single most important promise of cloud computing. If visibility is a bit lower than the 50,000 split view…

Sean Hackett

Just stay at about 25,000.

Hongwen Zhang

Right, right, okay. So, number one thing that cloud promised a very simple topology. This is very, very important. For us old enough, you would remember when Steve Jobs announced Digital Life when there is really a Mackintosh and they just have a start architecture connecting with either iPod, all those things, it makes previously very complex personal information management system very simple.

When cloud now is playing the same role. Cloud in the centre, now you've got start architecture. What does it mean? Another level of simplicity comes to application development. Now the developers, instead of worrying about inter-process function calls and the [mandatory] location and all those things, he make a function called to the cloud and things can be done in that much, much simple. So, I think the same innovations coming out from that way.

Now, Wedge Networks is a security vendor and we see a previous problem that was very difficult to solve, for example, that we are engaged with the car manufacturers. How do you secure all those smart cars? How do you secure all those smart grids? Previously, it is very difficult to do. Now, with this simple topology where connectivity is delivered through the cloud and the model becomes simple. So, that's from that that. Once you get the thinking model become simple and innovation will come from. So, that's our view there.

Sean Hackett

So, my next question, again, trying to stay at the 50,000 foot view but we can get deep. In the next five years do you think we will even use the word cloud? It seems to have lost its real definition anyway. At the end of the day, isn't this really about being able to give clients an option to execute workloads on the right execution venue and that doesn't have to be cloud the way we traditionally define cloud. So, it doesn't have to be Amazon, right. It can be old forms of dedicated hosting an ITO and it can be

internal. So, if that is the case and I think I'm getting head nods, so I think that might be the case, what role does the network play there and how can network providers come from the bottom up and be the control point and enable that sort of best execution venue environment with policy etc.?

Hongwen Zhang

Absolutely. If I can address this one here. If you look at it, there is a very similar analogy happened in the industry. Five years ago Nokia is a very, very strong company and today where is Nokia? I think if we actually really want to draw this differentiation between networking and application, I think we are wrong on that path. Application has to be built into the networking and that's why the SDNs and NFVs, as you look at it, that's really its purpose - introducing application and service into the network. So, service provider operators who are really just considering them as connectivity vendors, they are going to end up with the same situation as Nokia five years down the road.

Sean Hackett

Agreed. Anyone else?

Shehzad Merchant

It's interesting. We're talking about cloud and helicopter view and perhaps maybe the dimension of the future is not cloud and helicopter view, but it's fog and drone view which is that instead of a large nebulous cloud you actually have localised fogs which is localised clouds that are very specific for the application you're trying to address and they're optimised for those applications that you are trying to address. Along with that, they provide the visibility that you need to steer through the fog because if people are going to start putting tier one applications into a localised or a specialised cloud, they need to know who is going on. They need to know that the SLAs are being met. Today, most of the cloud environments don't even have an SLA to speak of.

So, I think the cloud of the future will have these constructs. It will be specialised. It will be perhaps localised. It will have visibility. In fact, at Gigamon we are in the business of providing that visibility as well and I think that starts becoming the direction of where we go in terms of the cloud five or ten years down the road.

Sean Hackett

So, the real question there though is how do you manage all that? How do align policy to ensure that the right workload is going to the right place and then sort of the glue that needs to bind this?

Shehzad Merchant

That's a great question as well. I think as part of the evolution, which is as you start looking at the specialised environments focused around specialised workloads, there are multiple aspects. There is a policy aspect. There is also visibility aspect which is

you can apply policy, but once you have applied it, how do you know the policy is actually effective. So, I think both of those go hand in hand. So, I think if you look at the evolution of how clouds will eventually operate, there will be a strong networking component perhaps driven by SDN architecture where the switching infrastructure becomes relatively simple, the intelligence is pulled out and there will be a separate infrastructure for the purposes of monitoring and management and that will have its own set of intelligence as well. Those two will proceed in parallel to truly provide predictability or reliability and resiliency in these very specialised fog or cloud environments.

Sunil Khandekar

One thing, in the spirit of helicopter views, if we go back to the point of will we use the word cloud in five years, I would probably say yes, sure, just as we use the term mobile today whereas when we started using it, it was a completely different construct. But fundamentally, cloud, public, private or otherwise, is a distributed system at its heart.

The distribution of the elements is critical and as systems become more distributed then the interconnection of the distributed parts becomes relevant. Imagine just like a circulatory system, if the human body were extended then the circulatory system would be critical to be extended as well. That doesn't mean that it is all about the network. The contrary. It just means that the network is a necessary but insufficient part of making sure the distributed system operates well. That's where I think our tendency to revert to the network is the product has to end because, at the end of the day, the difference between the services we are using today and planning for tomorrow and the services that we planned years ago for us then is that we have not a small number of services that are macro services to be used by all. We have micro services for communities of interest within enterprises and within consumers. So, as a result, when we talk about the infrastructures are interconnected, there are a lot of similarities but we are now fundamentally connecting very rapidly evolving communities of interest to a myriad of applications of their choice which can fall out of favour tomorrow, or take off virally tomorrow.

Will we call it cloud? Possibly. Will it be the same thing we envision today or two years' ago? Surely not. Look at social media.

Paul Obsitnik

I think you're going to see an evolution. I agree 100%. We will be using cloud. My son has taken an intro computer science course in high school and I'm calling what he is doing software defined networking. So, that's how far it has gone astray. So, we will be calling it cloud, but it will be different. But, fundamentally, what we're doing is we are creating the network to become a service creation platform. That's ultimately what we need to do and where we need to get to. I think with a lot of the technologies we are talking about, it's allowing us to do this and to be flexible to adapt to where the network needs to go.

In monolithic we talked about mainframes in the last panel session. But even in the technologies today it's very difficult and time consuming to make changes to the network. So, with the technologies we're talking today, we're talking about an automated way to take what is resident in policy, which is really where it needs to be driven, we need to have the service and the policy drive the changes to the network with the flexibility that we are talking about.

I think we also need to be careful, it's not a centralise everything or a decentralise everything question. It really is looking at what is the most intelligent way and having the flexibility to centralise where you need to and decentralise where you need to because when we talk to service providers, a great example is I've had questions asked of me what does that mean with SDN and NFV everything is going to centralised in the datacentre.

Well, to get to that decision presupposes that bandwidth is unlimited, has a zero cost and is zero delay and we know that's not the case. So, some services are more logically resident in the datacentre. Some are going to be more logically resident at the edge. There is one large service provider in the US that is thinking about turning all of their central offices into 2,000 mini datacentres.

So, I think fundamentally though I do agree, we've got to drive it form the services and the policy and the network flexibility gives us the capability to allow that intelligence to drive what the network is really doing.

Sean Hackett

Okay, good. I think we might be out of time. We have time for one more. One more question and we'll do this one quick. We have five minutes.

What I've heard in the last presentation we run our own surveys and I see surveys from others that say enterprise demand is spiking and enterprises are definitely putting dollars into the cloud. So let's remove SAS from the equation there for real infrastructure. The real sort of the hush-hush in the industry is but no one is really making any money. If we look at external cloud, you have Amazon making anywhere between $3b and $by. They won't tell anyone and everyone else fighting for sort of table scraps. So, although we see the intentions of demand show up in these surveys, we're really not seeing any real dollars being spent in true cloud.

So, my question to you is very quickly what are the top two or three things you thing need to happen to really stimulate demand? I mean really stimulate demand from the enterprise.

Shehzad Merchant

Sure. So, let me take a quick crack at it. I think it's a very broad question and it has a lot of facets to it, but I will bring one piece of it to the table here. If you look at today what are the kinds of applications or services that are being moved to the cloud, by and large, a lot of it is tier two, tier three applications and typically ones that don't require an SLA. It's because the cloud doesn't provide any SLAs today. I think what

will really drive demand is when you can start taking a tier one application, move it into the cloud and get a fixed SLA.

Now, what does it take to get there? I think the key piece that is missing today is visibility. You can go up to Amazon web services, slide your credit card, say I need 20 virtual machines, X amount of memory, X amount of CPU, it's done. But can you also slide your card and say I want visibility to these five applications and I want to know exactly what is happening with these five applications? No you can't. I think being able to deliver that kind of visibility is going to be a key enabler for broader acceptance of the cloud for tier one applications.

Paul Obsitnik

I would probably posset that there is three things. Human, performance and I think security is an issued, but that could touch on the human side.

I think I agree with Shehzad, performance is an issue. You can go out and do a lot of interesting things with Amazon. It's happening today, but how are you going to put your mission critical applications out on Amazon. I would conjecture that most companies aren't going to do that today. So, we need to get to a point where the performance, the SLA, the requirements, that are driven for those mission critical applications can go out to is it the public cloud? Is it going to be more of a hybrid VPN cloud done by the service providers? I think there are a couple of ways it could happen, but I think that's one area that needs to be driven.

The second area is security. We saw it earlier. There is a concern of the end user community if I put it out in the cloud what does that mean. My father still does tape backups of his computer because he doesn't trust putting his data, his very important data, out on the cloud and I think it is that element that CIOs also, to keep it internal is the safe choice. To put it external might make sense, but there is risk involved. So, I think that security element.

And that I think brings us to the third one, the human side. We are talking about changing organisational structures, changing behaviour and we all know how long it takes all of us to change those elements. So, I think that's the thing that I personally wrestle with is that's a governor on deployment and it's not a technology issue. It's an organisational dynamic organisational behaviour issue which it's not my expertise in solving, so, that's the one that I grapple with the most.

Sunil Khandekar

I think my view is consistent. It really comes down to confidence and competence which is the confidence part is trust, security, policy driven, is it doing what I want it to do and competence is can my people do it. Confidence and competence, once we address that we will have broad adoption.

Hongwen Zhang

Yes, so there are really two key elements from our point of view. One is the fear of failure. The other is the reward of being successful. Today, we know that there is a

lot of tendency trying to move into the cloud. Everyone is afraid of making mistakes. Security is a very common, a very convenient excuse for not moving to there. So, basically if we can, as an industry, we eliminate the fear factor so that when people move to the cloud, the cost of failure is not that dramatic there will be a lot of people willing to try, a lot of entrepreneurs willing to try.

The other thing that really introducing new innovative high reward applications in the cloud that will attract people to use the cloud.

Sean Hackett

Good, well I don't want to stay in the way of lunch, so thank you everyone. It was a great panel. Thank you all.

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