

NETEVENTS 2015 CLOUD INNOVATION SUMMIT

FINAL

Debate Session II: Software Defined Cloud Networking - The Formless in Pursuit of Ephemeral?

Chair: Brad Casemore

Research Director, Datacentre Networks, IDC

Panellists:

Tom Gowan	Director of Services Integration, NTT America
Nand Mulchandani	Vice President, Citrix
Dave Holly	Dave Hawley, Global Product Manager, HP
Chris Liou	Vice President Network Strategy, Infinera
Eric Hutchinson	CEO, Spirent

Manek Dubash

Thank you, Jerry and thank you very much to the panel and Jerry, thanks for the commercial.

I'd like to invite Brad Casemore from IDC to come down and tell us something about software defined cloud networking, not a term I'm familiar with, but hey, tell us all about it.

Brad Casemore

Hi, folks. Good morning and we're going to have a panel discussion today about the state of SDN in the enterprise and beyond. I look forward to the discussion. We had a bit of a chance to talk with some of the panellists this morning and I met a couple of panellists just now. But I think it's going to be an informative, interactive and we hope lively discussion. So, we look forward to it.

I'm just going to present a few slides to cue things up and then we'll get right into it.

The reason why we're talking about SDN and cloud in the same context is that, you know, I'm a guy who covers, I'm Director of Research for Datacentre Networking at IDC and in the past, when somebody who had a networking mandate got up and talked to a forum like this, we would talk about a bag of protocols and the mechanisms and so forth and treat networking as a detached and separate silo. I'm not going to do that today. What I'm going to talk to you about is the context and why things are happening and why things in some areas are happening quickly and why they're happening slower elsewhere. I hope to impart some perspective and again some context to the discussion.

So, cloud services is a key pillar. Cloud is a key pillar of what IDC calls the third platform. The third platform is really a generational thing. It's new application workloads that are defining what has to happen in the infrastructure, including the network. So, if you think about third platform applications, cloud is a key pillar. We also have mobility. We have data analytics. We have things like social business and we also have, of course, the Internet of things which is emerging.

On this slide that you see on either side of the stage you can see some of the metrics that IDC is tracking that relate to cloud. 80% of US companies today are at least considering private or public cloud. Some have made more headway than others. Enterprises using cloud expect to increase their cloud spending by 34% over the next 24 months. Public cloud IT, you can see the \$122b metric there for spending in 2018.

Another important factor here is that 90% from a developers perspective of new commercial apps are now developed specifically for the cloud and that's, I think, an important factor as we talk about what needs to change in the infrastructure. This is driven by the workloads. Networks do not exist in a world unto themselves. They exist to support critical workload. We can see infrastructure spending that's related to cloud services again growing. This is really where the growth is for service providers as well and, again, this slide really - I won't spend a lot of time on this, but really what this slide is showing you is that the growth again is in cloud and cloud infrastructure, including cloud networks such as SDN. The non-cloud is not where the growth is. It's probably obvious to everybody here, but this slide really makes that clear.

We talk about the third platform and cloud being a key pillar, but I really want to emphasise the generational aspect of this in a networking context. We had our first period that we could call a first pillar of networking which was all about networking for mainframes and other systems and mini computers.

We had a second period. That was about the early days of switching and multiprotocol routing in LAN/WAN technologies. I guess I lied; I am talking a bit about protocols. I'm sorry.

Then we had the third period which is really networking for the third platform applications which is all about SDN and other architectural approaches. It's about automation. It's about providing a network that's DevOps friendly and certainly developer friendly. It's about hybrid cloud. Of course, the third platform apps and we can see that more predominance of East/West traffic. The focus is on automation, programmability and orchestration in this world.

This slide just shows you what I was talking about before. The growth is in private cloud and public cloud. This is worldwide infrastructure and you can see the growth rates there.

This is interesting too. This is a slide that looks at traditional IT network service providers, other cloud service providers and hyperscale. The hyperscalers I think have actually, certainly for networking and right across the board, there have been innovations that have come out of hyperscale (I think that was mentioned earlier) and are making their way down market. They may not be used in the same manner as they make that migration. They'll be repackaged in many cases. But I think those innovations are critical. They're having an impact not only for other cloud providers, enterprises and service providers, but they're also having certainly significant implications for the supply chain in the networking industry.

And again we've moved from traditional networking to software defined networking in its various forms.

It's an IDC presentation, so of course we have to have a forecast slide. We've got the SDN market reaching about \$8b in 2018. If folks want to visit with me, so, if you want to talk about how we break that out in the segments that are part of that, I'm pleased to have that discussion.

This is a survey slide we did. What's driving today's SDN deployments, and that will lead us right into a discussion. We asked which of the following factors is the primary motivation for considering your implementing SDN and right up the top, they had to mention just one factor, so that's why the percentages are not high across the board. Needing the network to have more agility to support virtualisation applications in cloud was right up top at nearly 30%. Increasing the ability to deliver new applications or services 23%. A similar answer in many respects. Requiring better

programmability of the network for operational efficiency and OpEx gains, again over 20% and you can see the others.

But, SDN, there is still a lot of traditional IT and traditional IT infrastructure out there. I think as we turn the discussion over to our panel here, we want to talk about what they're seeing out there in the marketplace and we also want to talk about what some of the inhibitors are to SDN as well as some of the drivers.

So, I'll have the panel introduce themselves starting with I think a gentleman you already know.

Tom Gowan

So, again, I'm Tom Gowan. I work for NTT Communications. We're a service provider that provides global cloud and networking services. Thank you.

Nand Mulchandani

I'm Nand Mulchandani. I'm the VP of Product Marketing for Cloud Infrastructure at Citrix. As you all know, we have a number of products in the cloud infrastructure space and the networking space that fit together in sort of a holistic way around that.

Dave Hawley

Hi. I'm Dave Hawley from HP. I'm in the networking organisation supporting software defined networking and the cloud infrastructure networking components.

Chris Liou

I'm Chris Liou. I'm the Vice President of Network Strategy for Infinera. We're a provider of optical networking systems that form the optical infrastructure for many of the world's service providers and content providers.

Eric Hutchinson

Hi. I'm Eric Hutchinson. I'm the Chief Executive of Spirent Communications. We're providers of test monitoring and assurance solutions for data communications companies worldwide.

Brad Casemore

Thank you, Eric and you were kind of enough to pitch in today, so we definitely are grateful to have you here.

Nand, I think I will start with you because we had an interesting discussion earlier this morning about this contextual issue and what's driving a lot of this change. I wonder if you could talk a bit about the observations that we discussed earlier.

Nand Mulchandani

Yes, absolutely. It was a fun discussion. I hope we can replicate that here. So, really what we sort of talked about, the fact that, and I think you pointed this out in your opening, is that when we think about networking we think about cloud, we think about applications. One of the problems I think that has happened in the debate so far in general, customers and vendors etc., is that there hasn't been a holistic view of all of these things integrated together. What's pushing what? What's creating pressure? What's actually a reaction to that?

One of the things that is really great about the panel is we've got people who are from core networking, cloud infrastructure, applications all coming together and there are a number of different drivers. If you sort of think about this as follow the money, there is a huge number of things going on in the application world and the DevOps world that I think are going to have a dramatic impact on all the layers below. We were talking about the cake and how the sort of frosting side of it is going to drive a lot of the things there and also the lower levels of the cake putting pressure on the top layers.

So, when we talk about SDN in isolation, one of the questions becomes, well, what are the drivers? What you have to do is actually follow the trail up to different sort of areas. So, one of the areas that we think about and do a lot of work on is things like the rate of change in application refresh. When you actually think of cloud enabling, we talked about private cloud/public cloud, the debate is, to me, not about private cloud and public cloud. It's really about the types of applications you're about to run.

If you take a traditional application that's running in a virtualised environment and just slide it over to a public cloud you really absolutely get no benefits. Actually, you'll probably increase your cost structure in a dramatic way because you're getting no benefits but just paying per hour charges for a system that's on all the time. So, the rate at which legacy applications are being cloud refreshed, that is actually driving a huge amount of sort of downward pressure on whether you're going to change your application development methodologies, your languages, your stack, your provider, your storage, your networking and that's the dog and the tail aspect of this is who is wagging what and what's happening there. So, you have to follow the chain of events and the changes going on.

The only other piece I would talk about is, before we sort of circle around, is there was some mention about Docker, for instance, the previous panel. One of the surprising things I think going on in the application world which I think everyone in the networking world needs to be very aware of is there are 20 year old kids out there that are driving huge changes in these application patterns. That is actually going to be sort of the next generation of architecture that all of us are going to have to deal

with both from a vendor's perspective as well as customers inside IT and that change is happening at an incredibly rapid pace. There are some aspects of standardisation, but there is a huge amount of fog of war going on. So, we're going to have to really have to track this very carefully and react to it in a fundamental way very, very soon.

Brad Casemore

That's a great point. We spoke about that earlier. There is a generational aspect to this that I don't think is fully appreciated. That's why you have these changes from the mainframe era to the client server era and now to this third platform era. They happen every 25 years. Someone who is in the IT industry, we are very technology focused and technology is important, but there is a human element to this that is a major factor when these significant shifts occur.

Dave, I wonder if you could talk a bit about some of the aspects that you're seeing and whether you're agreeing with some of the gist of the discussion and also where you see differences?

Dave Hawley

I think the general tenor is absolutely correct. One of the challenges that typical enterprises have is that although they may have the frontend of their application development, the latest technologies being built on these new architectures and services, they've been left with a legacy going back through client server and mainframes. These are tied together and the business critical applications are often running on more traditional infrastructure. So, you'll often talk to a vendor where they'll say, "80% of their applications are virtualised, or being able to move to cloud". But, 80% of their servers are still running the traditional big iron applications.

The challenge I think we have right now is to go from the new world of cloud and the excitement of these new applications. How do we deliver the same flexibility and enablement of these SDN services onto the traditional infrastructure? That's where I see a lot of the innovation, a lot of the work going on in the community is to actually bring traditional workloads, traditional layer 427 services and enabling them in the same cloud environment. That's going to allow the transformation that takes on that remaining 80% of the servers that are sitting in a customer datacentre.

Brad Casemore

Great observation. I know Chris you're coming at it from a different perspective and some people might be saying, "What's an optical guy doing up here?" But, if you could explain your perspective on this and also where you see commonality with some of the themes we've discussed.

Chris Liou

Yes, as an infrastructure provider we actually see both the side effects of all this dynamism in the datacentre environment. A lot of the service providers and content providers that we provide infrastructure equipment to are starting to explore and actually deploy SDN to help programme and manage the optical infrastructure essentially to provide bandwidth whenever and wherever it's needed between their datacentres. We don't have visibility necessary to the workflows and applications or workloads moving across the network, but we see the effect of that. With the introduction of new capabilities into the optical layer, many of our customers are interested in using SDN to better extract or increase the utilisation of their optical resources in the network, provide bandwidth services on demand to support these high-level applications.

We also have some customers who are in the business of selling networking as a service capability. We just recently announced an SDN deployment with Pacnet who provide datacentre connectivity services in the Asia Pacific region. What they found was that their enterprise customers are increasingly interested in being able to order bandwidth services on demand between datacentres rather than being subject to long-term lease requirements for bandwidth services. So, we're starting to see this downstream effect both from all the activities happening within a cloud environment as well as the convergence of new technologies in the optical layer resulting in the gradual adoption of SDN, even for the optical transport layer.

Brad Casemore

Yes, it's interesting to see these observations because we have got a very eclectic mix here. We've got people who are all through the stack and solving different problems and also Eric, from your perspective, I wonder if you might talk about some of the things that you folks are seeing right now.

Eric Hutchinson

So, we're very imbued in the technology and discussion of the technology and the rollout. One of the questions here is why isn't enterprise embracing SDN, cloud wholeheartedly and all in? Well, it's because they don't understand the technology for a start. The decision makers, as you say, it's a generational point. They're used to investments in IT.

What's the real business benefit of moving to cloud, SDN services? It's to give you operational flexibility. Let's get away from the big CapEx spending, this big commitment, you're tired in, you're locked in for a depreciation charge for years. You want to be a more agile business. The inhibitors are everybody in your organisation is used to what we've done before. They're used to the old proof of concept approach. They're used to testing to the nth degree. They want the Service Level Agreement with the cloud service provider. How do you measure all of that

stuff? So, they then throw in it's not secure, it's not reliable, you'll lose your privacy. But, actually, what I'm really worried about is I'm losing control. So, it's lack of trust. That's the real issue.

So, where we come into this is what we're doing and developing and rolling out is this merger of development and operations so you get flexibility and we can give people assurance around these new services. So service providers have got a massive business opportunity here to provide small enterprise, medium enterprise, with a whole raft of cloud services that are very flexible. But, they need assurance so that they can demonstrate both on the provisioning side and as a user that you've got the tools to do that and that's where we play.

The other part is as being part of the OpenCloud Forum, to get those standards for the NFV out there so we can move on much more rapidly than we have done in the past. Until we get through that lack of trust, then it's still going to be bogged down in I've got a legacy network, it's a nightmare, how do I make all this stuff work.

Brad Casemore

It's a great aspect that you brought up, that operational one of the fear. There is a lot of fear of change and it leads to political stalemates within organisations. Sometimes the technology architecture is the least of the discussion. It's how it impacts the organisation and I think that's a lot of what you're trying to work through with the work your company is doing.

And, of course, you guys have been involved with actually some early adopters of the technology and you've done some very innovative work on that front.

Tom Gowan

We have and I think it all comes back to services driving the model because what we found is that NTT owns Dimension Data which is one of the largest players in the world. When SDN first became prevalent a few years back, all of our customers said, "I want to switch all my switches to SDN. I'm going to save so much money". We realised that it's not about saving money on infrastructure. That's not the play for SDN.

We further realised the play for our customers is they don't need to understand the technology. They just want the services to be enabled to be dynamically provisioned and delivered on demand.

So, for us, we've been driving innovations in enabling the infrastructure, using SDN as a service provider enabling technology and then the customer, and it's really just a portal thing I want this service, I want that service and things are automatically provisioned. So, on a private cloud we use SDN to do dynamic bandwidth changes between global datacentres. In our network backbone solutions we use SDN to do

configurations of the provider end router so the customers can automatically create VPN connections or do things dynamically. So, for us, it's about delivering the services to the customer and then the customer basically doesn't need to know about the technology.

Nand Mulchandani

I think the point that you just made here is I think highlighting one of the key issues here that we need to discuss is from a service provider perspective, from an enterprise perspective, the requirements from a networking and application perspective are very different. You run your system and services with that customer mentality in mind and I think that even though this idea around the private cloud and being able to run like an Amazon or an NTT internally, people have been talking about it, but the reality of the situation is there are very, very few companies that have actually gotten there.

So, to a large extent, tying this back to the overall topic of SDN is you have to really look at the use case that is then driving that level of requirement for agility at the network layer. The feeling is that, especially for the enterprise networks, that has not happened yet because again, this level of application refresh, the dynamism and the per hour compute cost, management and other stuff just isn't there. I mean only in the top end of the enterprise market do IT organisations run with that level of sophistication. The broad, broad mass market, to a large extent, feel that virtualisation plus some stuff on top is private cloud. They're running the same applications. There are some aspects of self-service and other pieces, but it just haven't driven the requirement to go refresh the entire application stack or infrastructure stack to go give a level of dynamism because it just isn't there yet.

Brad Casemore

Your point is if it's a legacy application, it's a client server application just virtualised. It's still a client server.

Nand Mulchandani

Yes, exactly and what level of dynamism does that thing need, because it's not bursting or scaling. They are not signing up 5,000 new users a day. It's the same old steady flat workload that's kind of just sitting there for years and years.

Brad Casemore

And that's another factor. The push to provision faster isn't there in that context.

Nand Mulchandani

Yes, exactly. Exactly.

Brad Casemore

Dave, any further comments on that point?

Dave Hawley

One thing that I think gets left behind a little bit is the real concern about security. I think that was the number one issue that was brought up.

Brad Casemore

Yes, very much.

Dave Hawley

I think there is both a misunderstanding and an opportunity here because ultimately cloud architectures provide privacy and provide multi-tenancy and they're inherently more secure than a traditional datacentre. So, the cloud and SDN architecture separates workloads in a way that you could never do in a traditional datacentre. However, you still need to look for intrusions. We see all the threats that are happening at the application level and the security team at that company is trusted to ensure that any type of intrusion into their network, or any type of threat can be detected and I don't think we've done a good job of building that into the same architecture. So, that's another challenge for enterprises who want to shift their mission critical functionality onto a cloud. How do I make sure that I'm not opening myself up to a different set of risks that I'm reading about in the paper every day?

Brad Casemore

I guess, Chris, we discussed earlier, one of the things that is interesting is that there are a lot of issues, as we've just heard and we've certainly seen it too in terms of enterprises getting to the point where they're ready to embrace cloud and then ready to make changes to their infrastructure that aligns better with cloud. But, you're already seeing in your space a lot of demand for the type of services that you guys are providing and you're not having to wait for some of those roadblocks to be knocked over.

Chris Liou

Absolutely. In fact, just to echo on Tom's comments there, especially in transport, because service providers are interested in opening up new revenue opportunities, networking as a service has become sort of this new emerging market opportunity. But one thing that we find often is that some people misconstrue SDN as network management. It is very important that in addition to programmability and automation that the right level of abstraction is also provided through those APIs because then if you have to manage every individual vendor's equipment and technologies with very

vendor specific protocols, that's not solving any problems. I think SDN has a promise of simplifying that problem. When customers want bandwidth, they don't want to know what the underlying technology is. So, a key missing piece that we found over these years is make sure that you've got the right level of abstraction. I think many of the standards bodies are starting to work on defining that so that all the vendors can offer a similar type of abstraction for bandwidth services.

Brad Casemore

And the abstraction is important everywhere. Like, for instance, we were talking about earlier, there is a bridge right. As much as we certainly love to talk about what's happening in the datacentre, there is a lot going on with software defined technologies in the WAN now too where abstraction is very important. Abstraction and policy and so forth and virtualisation and it's extending all the way out. I'm sure that you folks are seeing that as well.

Chris Liou

I mean it's not even a debate I think now in this day and age that infrastructure as a code is the core driving factor across every piece of hardware and software that we do. Any vendor or company that doesn't have that baked into their model, like you were talking about having the API set.

Again, going back to the 22 year olds coding right now, the fact that a piece of the infrastructure, whether it be a network piece of infrastructure or application or any other stack, does not have a callable interface that they can code to and set up an entire piece of infrastructure end-to-end application all the way down, you're not even a player anymore then if you're not thinking about that.

Dave Hawley

What I think is really an interesting transition having come from networking is that the standardisation that was all focused on IEEE and standards bodies and IETF is now taking place in these open source communities who are developing APIs. These are the new standard interfaces that everything we build will be based on. It's a new world and it's an adaption for both the vendors and for the customers that we work with.

Brad Casemore

I think it's a good point right. We're seeing open source. Certainly we're seeing it in networking. It's all through infrastructure now. Vendors have to make tough choices around where they want to add value. But the customers also have to approach it very differently as well, so I think it's a great point.

I was just going to say, Eric, talking about the infrastructure as code, how has that changed the way some of the customers who work with you approach this?

Eric Hutchinson

So, we're working very closely with some of the key innovators in deploying NFV infrastructure across the globe. It's very fast moving. We're seeing a lot more agility in the way that's changing, adopting open standards. NFV needs to be a global way of doing things otherwise it just doesn't work, going across all service providers.

So, yes, it's very fast moving. There is a lot happening. You're going to see a lot more happening in the next six to twelve months, very rapid.

The key inhibitor, security. So, enterprise customers, the challenges of security attacks and everything, they can't keep up. You can't buy in protection. Cloud actually offers the ability to take security to another level because you can take a global database of all the malware, everything you recognise you can add to that database. You can be much more responsive. So, again, this is an opportunity to make a much more secure network and overcome that key inhibitor.

Nand Mulchandani

So, double clicking on the security issue, right, because when you talk about security and aggregate it, it becomes one big glob of discussion.

Brad Casemore

A lot of things.

Nand Mulchandani

So when I was running security products at VMWare, one of the things we did was you break the security problem down into a couple of different components. There is security of the platform. There is the operational security of the cloud provider that is operationalising that infrastructure and then there is the actual security with the applications running on top of the infrastructure. There are three different things.

Now, the security of the platform, I think somebody made a point earlier, the security of the platform itself in many cases is probably more secure running at a service provider than actually your own internal IT because the best practices and they've got actual dedicated people, there is a lot of domain expertise etc.

I think one of the issues when they talk about the adoption of private/public cloud and why I'm scared about it and security is an issue is because the actual security of their own applications is not up to snuff and exposed out on the public Internet, or with a

misconfigured firewall actually can have some incredibly bad side effects because if you're operating in the nice little castle of your own enterprise, you've got it hardened out on the shell and you can run applications that are not as hardened or well written inside the enterprise. Those applications people are really, really scared about on that front and then there is obviously the data sovereignty issue. Not only from a snooping perspective, but again, data exposure and all that other stuff.

Tom Gowan

I think the more we push services to the cloud, that application layer coupled with SDN and NFV enabled, I mean now I can have a virtual appliance for any type of security appliance I ever wanted. The trouble with customers is that they don't have the expertise to know every single appliance, how to configure them properly, how to do proper firewall configurations.

Nand Mulchandani

That's correct.

Tom Gowan

So, if the service provider can offer that as a service and not only protect the platform itself with compliance and what-not, but also provide an application layer, security delivery, or even just application delivery model that is secure, I think that's where the next step needs to be.

Brad Casemore

And that service chaining and in the enterprise, the insertion of services can be one of the biggest challenges in the SDN context.

We're going to open it up I think for some questions now from the audience, if anybody has any questions for the panel here.

Audience Q&A

Juan Tellez - Apcera

This is Juan Tellez from Apcera. I was up there earlier. I was wondering if the panel could talk a little bit about how SDN is changing the market for firewalls and whether you see micro firewalls and firewalls per VPN, firewalls per application and the

models around that because when you're doing that, are you still masking IPs, that sort of thing? Thanks.

Brad Casemore

What wants to kick that off?

Nand Mulchandani

I'll take a shot at it. You know, the thing is that again tying back to I think the application architecture question is if you take the traditional sort of web application, the firewall config is kind of generally well known. When you look at what EC2 does, other things, you can configure the firewall with the application and everything is packaged nicely and everything.

What's going to happen I think is I would say SDN itself is probably not going to drive or change the firewall config piece. It's much more of what the application demands are going to be.

The whole thing, and I think this came up in your panel was around Docker and micro services is currently what's going on in the container world and Docker world and the OpenStack world and other pieces is the current generation stuff that's happening. Two, three, five plus years from now people are going to rearchitect the application in a fundamental way to be micro services based and I think the security requirements from a firewall perspective and from a networking perspective are going to change in a fundamental way. So, the way, for instance, micro services get IPs and network connectivity between themselves to the outside world etc. is also going to fundamentally I think have a big impact on the way networking services have to be changed to deliver that to the micro services world on the application side.

Brad Casemore

It's a fast evolving space and expect a lot of change.

Nand Mulchandani

It's a fast developing space with a huge amount of fog of war of what's going to end up happening. Nobody has any idea where this thing is going to land eventually.

Tom Gowan

I think it's really going to be driven by the developer community. We've been trying to develop this kind of marketplace idea of letting the community decide how do I put together an application model or template and now I can share that with 20 other enterprises out there. This is my best practice of how I build to this based on

whatever is on the underlying and that could include this virtual firewall or this virtual something else.

But, by itself it's not going to be just what's the next new virtual firewall. It's going to be I'm a developer and I'm developing some app and this app requires this piece and this piece and this piece to come together and here is a framework and now here enterprise community you can utilise this for your own enterprise app and I the developer developed it, not the service provider or the vendor.

Nand Mulchandani

The vendor has to provide the programmability to enable the developer to pick and choose the pieces they want and assemble it on their own as opposed to a Citrix Netscaler giving or offering the service in a particular way that we have decided to be packaged and deployed out there.

Brad Casemore

Prescribed.

Nand Mulchandani

Prescribed to the customer. The developer is going to prescribe it to us. Give me the programming interfaces and get out of my way.

Brad Casemore

Again, it's a big shift for organisations and for the vendor community. It's a huge shift.

So, do we have one more question? We have one more question. No, we're done. We have time for one more question. The light is in my eyes.

Rob Ayoub - NSS Labs

Kind of back, and not to harp on the security question, but it does bring up a really good point. One of the big challenges we see a lot is that forensics piece, logging that. You all mentioned, and I agree with you, from an architecture, from the service provider side, there definitely can be a more secure system. They have some resources. But, again, as you move up the stack and you start talking about things like alerting and again logs, forensics, how do you see that being solved? Do you see it more a services model? Hey, we're going to provide that security for you. Do you see more of a hybrid approach where here let's open this up? You're the trusted security team at the enterprise. We're going to do some sharing and some openness

there to just that team. How do you see that, or even just more insight into the application layer being provided at the cloud? I mean how do you see that playing out?

Brad Casemore

Eric, did you want to?

Eric Hutchinson

Ultimately, I can see the development of security as a service if you like where the cloud, because you can capture so many of the issues, attacks and varieties, you can then collate that. You start to recognise malware before it has been attacking you because criminals are lazy. They reuse code as much as possible. So, there may be things out there that haven't been active attacks, but you can see them coming because you can collate that to the known malware. If you can provide that sort of global database, then you can give people enhanced security before you suffer the attack. That ultimately makes the cost of attacking the network more expensive for the attacker.

Brad Casemore

The rich analytics through cloud service can actually be a remedy for this.

Eric Hutchinson

Right.

Tom Gowan

A global threat intelligence capability tied to how do you use that data to effectively dynamically manage wherever the application environment is. So, for us, the innovation that we're trying to look at is taking global threat intelligence data from the 40% plus Internet traffic that NTT sees from being a global Tier One ISP and then turning that into data that not only we can see as far as threats and proactively react to threats, but tying it to an elastic services infrastructure model that you can push. So, for example, if you have a branch office and that branch office starts getting a DDoS attack or some type of attack, the device itself can automatically say, "I'm being attacked. Let me go to the services marketplace, download a scrubber app to this device. Have it up so the DDoS is prevented and then take it down" and now the customer is only paying for the utility of that service when they needed it at the time they needed it and we can provide that kind of visibility and support. That's kind of where we're going from a service provider.

Eric Hutchinson

Absolutely.

Dave Hawley

I think these services can be provided via the service providers. They can be provided as subscription services to an enterprise. With a cloud environment you have a programmatic record of everything that happened. So, the forensics aspect of it is solved and I think with the programmatic KPIs, once again, you have the ability to instantiate security services as part of the fabric of the cloud to deliver those types of malware services.

Nand Mulchandani

Yes, I mean some of the stuff you're talking about in terms of global databases for malware and stuff like that, there are actually lots and lots of services that do that today. At the DNS level, there are companies like Open DNS do that. Google itself actually does a huge amount of work. NTT, like you're talking about. Anybody who carries a tremendous amount of traffic already sees a lot of the malware. These types of databases are, I wouldn't say well developed or well accessible, but at least the providers themselves and people who carry or can direct flow control around networking or traffic actively act on this stuff today. I mean there are malware sites. There is a site called Fish Tank, for instance. You can look on the Internet. It's a crowd sourced sort of malware and site reporting service etc. But, you know, it's sort of an easy example of that.

The key point in the question that just came up is based on a DDoS attack or a malware type thing, what can providers or companies do in that situation? We've got products like Cloud Bridge and things that can do things like redirect traffic based on latencies and stuff like that.

So, it's one thing is the point you're making is there is the alerting side of it and then there is the reaction side of it. The connection is not very well made yet today. The stuff is happening down here, but the stuff on top isn't reacting because it just isn't connecting.

Brad Casemore

Right. I think with that we're going to wind up and I want to thank my panellists for participating today. I thought you guys were all lively. You all participated. So, thank you very much. I want to thank the audience. Thank you.

[End]