

NETEVENTS

## EMEA PRESS AND SERVICE PROVIDER SUMMIT

*Draft*

### *Clash of the Titans Dell and HP Go Head-to-Head*

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**Editorial Director, NetEvents**

Panellists:

Arpit Joshipura

Vice President, Product Marketing, Dell

Jacob Rapp

Global Leader of Marketing, HP

#### **Manek Dubash**

Okay. So welcome back to the second half of the morning's session, and I think Arpit and Jacob and I have more or less agreed that we're going to have a little bit of fun, if we can, with this.

So what we're seeing here, we've been talking about SDN here at NetEvents for it seems like forever. It's probably only been since 2007 or maybe even 2008, because SDN was pretty much announced first here at NetEvents, we're proud to say. And we have now two of the behemoths, the big gorillas of the industry, to talk about why their version of SDN is better than the other guy's.

Now what's slightly scary is that during our coffee break discussion, both of them were saying, yes, I agree with him. No, no, I agree with him. So I would like you to pick out the differences and ask them some hard questions, which hopefully at some point we'll be able to do.

And we're going to start with a two-minute presentation from each of them, and I've got a little stopwatch thing on my phone here which I'll be watching very carefully. And you get two minutes each, no more, to whip through each of your slides. And Arpit is going to go first on the grounds that he is ahead in the alphabet. I thought that seemed like the fairest way of going about these things.

So without further ado, gentlemen, Arpit, if you'd like to go first with your two-minute pitch as to why it is Dell is best for SDN.

### **Arpit Joshipura**

Okay. So we talk about SDN in a broader context. And as I said in the five-step journey, it's step three and four, which is what's the path on migration to SDN. And Dell provides a choice. And I will talk about that choice, all the way from a fundamental disruption that Dell has created 20-plus years ago in the server market. And that is called disaggregation.

On the left is mainframes, if you remember, right? Silicon, software, ASIC, hardware application, all vertically integrated. On the right, it's a disaggregated model. Multiple chipsets from Intel, AMD or from Linux, Win, etc., and then any OS.

And what we announced earlier this year as Dell was our open networking strategy which is fundamentally following the server disaggregation model, where you can take any merchant silicon, slap in a thin layer of OS and right applications, including SDN and other apps on top, and basically we believe that the way innovation can move forward on SDN is by following a disaggregated model. Okay? Fundamentally because now you can have multiple ecosystem partners go on this.

And we have proven it on PCs and servers in the past. Okay? So with that background, there are three paths. And for those of you who have attended NetEvents before, it's the same slide. Sorry to disappoint you, but guess what? Strategy is still the same. The paths of different progress has been made. Three paths to SDN. You can either strip yourself out of it and take a very proprietary approach using REST-API-type solutions, and some of the web-scale companies do that. You can follow an overlay hypervisor type network virtualisation model using VMware, Microsoft or NSX, and some of the large enterprises do that and then you follow OpenFlow, which is the third way of doing it.

Okay. Challenge number one that still remains is organisation, whether you're marketing to the server admins or network admins, and that's the debate remaining. Okay? All yours.

### **Manek Dubash**

Thanks, Arpit. Two minutes and nineteen seconds, including the clicker. Jacob, you get two minutes and nineteen seconds, starting now.

### **Jacob Rapp**

Great. So at HP I think we are at the point now where we see our customers moving on from a technology debate to what solutions that they can actually implement and deploy today with the software-defined technologies. So actually tomorrow or later tonight actually, 6am Eastern time, there's a press release going out where we're announcing the next phase of our SDN and we're actually going live with it on October 1st with a set of ecosystem partners that are really changing the game and working within the enterprise.

So as we look at our journey through SDN, starting back in 2007, as I mentioned, we've put our initial stake in the ground around OpenFlow and controllers. But I think as technology evolves, that will continue to evolve as well. But fundamentally now we're looking at new ways to innovate using these technologies. And that's what our customers are looking for, ways of reimagining your security infrastructure, ways of making cloud successful. Not just how do I build a cloud, how do I use a cloud? How do I make it successful with SDN?

Mobility. We're one of the only vendors talking about mobility and actually how do the end user experience change? And in a panel tomorrow, 802.11ac and challenges and opportunities that we have there, but then really where innovation becomes the norm again within networking. So a whole new way of deploying software within enterprises' environments. I think gone are the days where there's one monolithic operating system that integration takes place then. You need an abstraction out of that so that innovation can take place seamlessly and you can get rapid return on that investment.

So when you look at HP's strategy for networking, really around agility, is trust that it's something that you can actually deploy and is ready and brings a lot of value because IT budgets aren't increasing. So how can we do all this with even a decreasing budget?

**Manek Dubash**

Well done. Inside two minutes. Congratulations. So two quite different stories, although the outcomes might be quite the same. Are they? Arpit?

**Arpit Joshipura**

The outcome for the end user could be the same, with different price tags and different experiences, depending on who interacts and which path they choose.

**Manek Dubash**

Okay. So why is it I would choose this disaggregated approach that you're talking about rather than the vertical approach, apart from the price? Obviously you get what you pay for, don't you?

**Arpit Joshipura**

So fundamentally I believe and the industry believes, right, and there are stats on this, 95% of the innovation comes from outside the company, 99% if you read the stats. Right? And our job as technology innovation companies and leaders is to create a platform that others can build on and not do everything yourself. There have been do-it-yourself, it's fast, don't get me wrong. If I do everything vertically aligned and do everything all the way from top to bottom, I will get to market fast. But the speed of innovation for other people to come on board and utilise it will not be that slow. So that's the fundamental difference.

And so disaggregation, think of this on the server side. 20 years ago, when it was disaggregated, did we even dream of an application called a load balancer that would run on a server? But companies figured it out. Now if Dell, when they disaggregated the model, would have said I did this because of load balancers, bad answer. We would not have thought of that.

So that's the concept, which is there are applications which we know today that can be written and developed and implemented, and then there are new applications that we don't know. There are proprietary applications that a customer has in their environment that they want to migrate. We just need to create a platform that is dependable and software-defined.

### **Jacob Rapp**

Yes. I think that I can add something to that. So I don't disagree that there needs to be a platform and an ecosystem built around that. That's something we've purpose built from the ground up. But what we've learnt over the past year of building up this ecosystem, it's much more than just a platform. You can't just provide APIs. It's an end-to-end sales model and a fundamental end-to-end shift for enterprises to start adopting software in this way. They have not been adopting software in this way up until the past few years. So they fundamentally need, okay, what are the end-to-end sales models? How do you incorporate the channel in this? All of these decisions, all the back-end sales [legion] opportunities, all those things need to be built in for an ecosystem to be successful, and that's something that HP has done with our app store. It's much more than just a portal or just an ecosystem with APIs.

### **Manek Dubash**

But isn't the problem with your model, this end-to-end model sounds scarily familiar, particularly in the network space. Are you becoming Cisco of SDN? Do we want that?

### **Jacob Rapp**

No, I think fundamentally we are open. And if you look at the controller-based architectures, it's an abstraction layer to what's beneath. So there is a lot of opportunity for interoperability with other platforms, such as when Dell switches its support to some of the protocols or even Cisco has their [day] to implement the open standards, because eventually they do get to the point where they implement open standards. So I don't think we're quite at that lock-in of this only works with HP gear across HP infrastructure.

And if you look at different controllers, HP upped their membership to Platinum and OpenDaylight, so as those platforms start looking more and more similar, and then NEC as well, who has been working with our ecosystem, is bringing their applications over to our controller and also using our switches underneath their controller. So it's really something that is fundamentally still open.

**Manek Dubash**

But Arpit's made a killer point, hasn't he? Basically his approach is going to save the enterprises a lot of money.

**Jacob Rapp**

I think we're still at that point as well, right? We've shipped over 30 million ports out to market that are SDN-enabled. The barrier for entry for us around 10K for a controller at the high end. And if you look at what – I know Cisco isn't here to defend themselves, but if you look at their barrier for entry for ACI, it's \$250,000 and it's interoperable at best with their current gear, where ours is fully integrated and really an integrated experience.

**Arpit Joshipura**

Yes, so, again, as we were chatting, it is the end result might still be the same. Okay? The path you take and the approach you take to get there is different. So you have three extremes or two extremes and us somewhere in the middle. So the one extreme is a hardware-defined data centre, as we pointed out. ASIX down to application, lock solid black box, as I was saying, like a mainframe, right, and we can deny that. Mainframes are dead. They're still around, but they're dead, right? And we don't expect networking to be mainframe-led in the next ten years, which is what some of our competitors are doing, so that's one extreme.

The other extreme is I'm so smart as a customer that I will take Cisco switches or HP servers or Dell storage or this and this start-up and I'll put it all together. There are customers like that, and we have learnt from them, like especially the web and the cloud guys who have implemented SDN but they don't call it SDN. They do all of the automation and all the provisioning and everything in a fraction of a second. And Dell's one of the leading suppliers to the cloud – the largest cloud infrastructure providers, server storage networking. And you learn from that, but they do it all because they have an IT staff and network is their business.

So those are the two extremes, and I think enterprises are in the middle. They don't want proprietary and they don't have the staff to do it themselves. And depending on the scale of the IT staff, you pick an approach.

**Manek Dubash**

But he's got a huge advantage over you, hasn't he? He's got an app store.

**Arpit Joshipura**

Right. And again, my statement on that is it's very simple. As I open, I can put a hundred people, a thousand people on writing apps. I can find 50 companies to partner with me and build my own ecosystem and I will only get somewhere, right. The best way to get out is allow for the openness so that people can innovate and build on it, a complete disaggregated model.

**Jacob Rapp**

Yes. I think if you look at what our customers are doing, as we talk with them about the app store and this ecosystem, and as we talk about the ecosystem partners, to truly innovate we need to deliver a platform for those ecosystem partners to go to market with. And it's much more than a set of APIs and disaggregation. It's something that, if you have a couple of guys in a garage, like when Bill and Dave founded HP, there has to be a low barrier for their entry. So as we provide for an ecosystem, it's not just a set of APIs. It's the sales model. It's the channel, the distribution, but it's also remote labs where they can actually go in and validate on actual hardware without bearing that cost, so actually bringing that innovation to market.

So we see our customers taking advantage of those pre-built applications. But as the set of APIs that you mentioned are open and they're growing, we actually see our customers starting to come back to us after they've deployed their first or second app and say, okay, well I actually see a great innovation in this area and our ecosystem allows us to team them up with a set of ecosystem partners that can build software for them or HP through our services.

**Manek Dubash**

Okay. So now we're at the point where I'd like each of you to quiz the other one. So who wants to go first?

**Arpit Joshipura**

Okay. I opened. Why don't you go first?

**Jacob Rapp**

Yes. So I mean I think we're, as we were talking during the coffee break, there's a lot of similarities with how we want the ecosystem to be open and the definitions of software-defined networking. So maybe I can quiz you on that. What is exactly your definition of software-defined?

**Arpit Joshipura**

Okay. So I don't want to go back to the slides, but to me it encompasses all of the approaches, starting from the disaggregated model where you go into a horizontal layer, the hardware silicon infrastructure, and then all the layers of software get disaggregated when different flavours of SDN come on board, whether it's the OpenFlow-based, whether it's the overlay with NSX, Open Stack or Microsoft or REST-APIs, XML, Chef, Puppet, right. Depending on the different carrier and enterprise types, you go with a different path. So there's no one answer.

And so that's why, from my perspective, three years ago when we launched our strategy and we started delivering products and solutions, we've always maintained that there's a choice to get to SDN. It's not one answer and one cookie-cutter answer.

**Manek Dubash**

And what do you want to ask him?

**Arpit Joshipura**

How do we team up to change the lock-in on the proprietary model that exists today?

**Jacob Rapp**

Absolutely. I think that's our end strategy, whether it's all the standards bodies working through the processes, right, whether it's OpenDaylight with the controller or just like ITF or various different protocols of VX LAN and so on. And also within – those are two areas, we ought to work with the open source and you also need to work with the standard bodies. And they're both going down the standardisation path, they're just two different methods to go about that.

But such as the ONF, so we have a different set of APIs today. And how do we come to that where we can actually make ecosystem development easier, where there's – when you write [how] it works across multiple different areas at the same time. Even though we found that it's not that difficult to change the APIs, it's just continuing to lower that barrier for innovation.

**Arpit Joshipura**

Yes. And I think the challenge will also be how does – when SDN and its principles get implemented to solve the telco problem on the [NF3] side, right, the problem just complicates itself even more with the OSS/BSS systems coming into play. So I think we have to solve the standardisation problem.

**Manek Dubash**

Your turn. Questions for these people.

**Arpit Joshipura**

I think the press is expecting him or me to punch each other and there's headline here.

**Manek Dubash**

We don't want blood on the floor.

**Arpit Joshipura**

Leaders of HP and Dell fight onstage.

**From the Floor**

Do you see a big difference between enterprise choosing SDN and telcos? What could be the big difference between telcos and classic enterprise? And from your point of view, what is the main difference for acquiring [again] because we expect, everyone expects NFV and SDN is the same thing, but it's not.

**Jacob Rapp**

Yes. I think it's just to your point is what's the definition of SDN. So I think from the enterprise perspective, they're looking at how do they solve different challenges, like security or bring your own device or how do I run a cloud, those types of things, where they're using a controller to create the abstraction layer, to provide that insight or integration. But within telcos, they're looking at network function virtualisation, virtualising different functions and maybe using SDN to steer traffic and do traffic engineering as a new way. So I think fundamentally it just comes down to that use case and the underlying technology that they're going to use for that use case.

**Arpit Joshipura**

So let me address it slightly differently. You have in a telco, telco as an enterprise is an enterprise. They could be selling shoes, for lack of a better term. So ignore that part of it, telco as an enterprise. But telco as a carrier, providing triple-play services, if you look at them, there are fundamentally two approaches.

The network side can go to the IT side and ask them, hey, can I use principles of SDN and you can expand your IT infrastructure to support a B-RAS or [EDGE rather] or EPC or a CE, right? Can you do that? And if so, I would like to use your standard infrastructure of compute servers and storage to enable that with an orchestration there on top. That's one approach.

The other approach is they might actually go and buy the general purpose infrastructure and layer on top the [VNFs], as we call it on the [NF3 side]. Those are the two approaches.

In both approaches, the fundamental underlying infrastructure, which is called NFVI in the NFV world, and it's loosely branded as SDN one to three layer at the bottom, they're the same, right. They're built on standard service storage networking that come together with some version of a hypervisor Open Stack-type environment with a loose layer of orchestration and API is running that the application's right.

The difference is on the IT side you've got SAP, Oracle, HANA, Link, Exchange, [Adobe], those kind of workloads running. On the network side you have [EDGE rather], B-RAS, EPC, those are the applications running. So that ended – by the way, requirements are very different from a control plane and data plane. But that's how you should look at this.

**Manek Dubash**

Okay. Any more questions? Anthony? Is there one at the back there? Okay, Bob.

**Bob Emmerson**

It's a very simple question probably and a very naïve question, but I'm going to ask it anyway. Everyone's talking about the app store and all the rest of it, I find it difficult to imagine what an app is for SDN. Could you just give me one or two examples of typical apps that a third party might develop?



**Jacob Rapp**

Yes, absolutely. So one example is, say, from [Gartecor], who actually is looking at a new way of securing the east-to-west traffic in a data centre because as you move – as apps move in the data centre or as you have the east/west traffic going, it's impossible to put a firewall in between it. It's really hard to do security in the data centre. You do it at the edge really well, but after the attacker gets in, what do you do? So for them, they actually use this nice analogy of if someone breaks into your enterprise, just physically, they've gotten past your security measures and they're going, trying doorknobs within the building, that person trying doorknobs may be a janitor looking to clean the room or may be that attacker. How do you know the difference? If you just lock the door, you'll never know.

So what [Gartecor] does is use SDN to basically keep that session alive and rewrite over to their honeypot to actually find out if that attacker is someone that's just misconfigured a device or if it's actually an attacker trying to do something mischievous.

Another good example, like our network optimiser from Microsoft Lync going into mobility. So you take Microsoft Lync, you plug in a laptop, Unifi Communication, it's a laptop, the network has a very hard time determining if it's something that is – needs to be a different quality of service. So if you actually know what's coming out, if you look at Microsoft Lync, Lync's server knows exactly what's going on. Why not just take advantage of that information. Networks have long been guessing at that. Now that we have software-defined networking, we can actually take the set of APIs directly from Microsoft Lync and actually know and set policy dynamically per user, per flow, based off what you know versus what you guess on. And there's a whole set of applications that are like application-driven networking.

**Arpit Joshipura**

Yes. So to me, think of all the apps today, right, as processes, systems and things that customers do, but they do it either manually or proprietary. Okay? So the fancy name for that is app, right, config tools, policies, capping, monitoring. All these have been done for quite some time. What SDN does is makes them agile and fast. Okay? One thing. Second thing it does is it makes them interoperable and if coded to the right specs, it can interoperate with a broader set of ecosystems versus if say a Telefónica writes a config management tool then it would only work in the Telefónica environment and I cannot forward it anywhere else, as an example. Right? So my point is that's today's version of apps.

Now, as I said, servers did not imagine that load balancer would be an app 20 years earlier. So what we have not crossed the boundary on is what apps could be developed in the future that can be directly run on the switch, using the disaggregated model I talked about that now has full access to the data plane and the data path and not just the control path.

**Jacob Rapp**

So can I add something in there real quick? So if you look at our app store, we have eight apps coming out right now with 30 unique use cases in development that will come shortly after. So I think we are there today with actual solutions that are utilised in this framework.

**Arpit Joshipura**

Yes. Don't expect 100,000 apps like an Apple app store.

**Manek Dubash**

Okay. Final question. Anthony?

**Anthony Savvas**

I don't know whether I'm a bit confused or we're all getting a bit complicated here, but this is about enterprises. So they'll be looking at their data centre about what software-defined networking would do for them overall, I would have thought. I'm just thinking about, to simplify things, surely they're going to be thinking, well, we need a single management system to do all this. We're not really bothered about individual apps, despite what's being said here. I know about HP OneView in the data centre. I'm just wondering what Dell has to rival HP OneView.

**Arpit Joshipura**

Okay. So there's a system called OpenManage that Dell has which takes all of the infrastructure, including third party, and we did a couple of acquisitions on Dell technologies and things like that, called Active System Manager. So from an infrastructure perspective there is a single management piece, both for Dell infrastructure and for third party. That is table stakes, so I don't want to talk about that in the SDN context.

What is more interesting is how does the new wave of management applications and config tool plug in, so things like Chef and Puppet? These are new wave tools that can be directly used in a new environment, which is SDN-enabled, to do the same things that were done by the legacy tools, but much more dynamic and agile. So that's where the things are heading, providing – and again, we've not talked about the midmarket or customer type of segment. There's a huge portion of the market that will go to Dell or HP and say I don't care. You solve my problem, you're in. And we solve that with our own tools and all. And it might be open and interoperable, but that's not the point. The point is how do we make the whole ecosystem evolve standard tools?

**Jacob Rapp**

Yes. I think he addressed that HP has actually one view and also intelligent management centre which plugs into OneView from the networking standpoint. And then it is something that's open and operable. It actually does more than just HP

devices. It's over 6,000 different devices from various different manufacturers out in the market.

**Manek Dubash**

Okay. Let's move on. I'd like to thank Arpit and Jacob. Thank you very much for being good sports.

[End]