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Conference Debate V: Reimagining the Enterprise Data Centre for Today's Hybrid and Virtualised Reality

Chair: Mike Sapien

VP & Chief Analyst US, Enterprise Services, Ovum

Panellists:

Murli Thirumale	Co-founder & CEO Portworx
Ajay Singh	SVP-General Manager, Cloud Management Business Unit, VMware
JR Rivers	Co-Founder & CTO, Cumulus Networks
Mohit Aron	Founder & CEO, Cohesity
Mansour Karam	Founder & CEO, Apstra

Mike Sapien

You can see the title of the session here. I just wanted to go and just kick it off for a few minutes. We only have a half hour, so I'm going to ask our analysts to pretend they're in a board meeting where we give them this idea. So you've got four minutes to introduce yourselves quickly.

This is all about the reimagination of the data centre. The thought I'd like to have you think about is that I see the enterprise data centre in some sense as being this IT

infrastructure innovation centre, because in this enterprise data centre new things happen. New technology gets introduced. You have new ways of doing things for IT network and infrastructure.

So in this vein of reimagining it, I guess I'd like you to figure out what are you doing to reimagine the data centre? What are you effecting? What either application or infrastructure? Then the last part of that is, where do you see your technology going next? So you're doing what you're doing today, but what - does it either go into other segments? Does it go into other applications? But let's start with, intro, how you're reimagining the data centre, and then where do you think it goes next? So you get a lot in, but you still only have four minutes.

Murli Thirumale

We're doing all of that at once? Okay.

Mike Sapien

I'm challenging you to get it done, so we can get some Q&A afterwards. So I'm going just right in order of the board, so Murli, you're first, so please go ahead.

Murli Thirumale

All right. Good morning everyone and welcome to this panel.

Should we have Mansour go first?

Mike Sapien

Oh no, he's last. He's had the whole hour. Come on. You go and now and then we'll get back to him.

JR Rivers

We already know what Mansour thinks. You can just sit there.

Mike Sapien

Go ahead, Murli, then we'll get back to Mansour.

Murli Thirumale

I'm Murli Thirumale. I'm Co-Founder and CEO of Portworx. Very simply, what we do is provide a persistent data layer for containers, when they're deployed, particularly in production. That's about the company.

My own background for many years at a very large company, HP, as a GM for about a decade, there. I left on my start-up journey and first start-up was a security appliance company. Second one was a storage appliance, and this one is cloud native storage, so it's something entirely different.

In terms of fundamentally what we do - and then I'll get to the reimagining of the data centre - if you think about the fact that container - which is a relatively new kind of technology - is really a packaging mechanism for applications, so that containers enable apps to run anywhere. What we do at Portworx is do the same for the data.

So if you imagine a container could run at any node, either in the cloud or on-prem, then the data needs to be there, and so we make data available everywhere. So we do the same thing for data that containers do for applications.

In terms of reimagining the data centre, for me, I think I personally have been around long enough that I've seen three decades of transformation. The first decade was enabled by my august friend and his company around here, Ajay, from VMware and his cohorts, really, in the first decade from 1995 to 2005, and it's still ongoing, of course, was about data centre efficiency - was about efficiency enabled by virtualisation that allowed all of the resource to be utilised wonderfully - so everybody remembers efficient data centres. If you've been in the Valley for a while - or anywhere in the world at that time.

The next phase - and these things all overlap, and they're all concurrent in some ways - was really about on-demand computing, enabled by the public cloud. That took VM virtualisation, but added on commodity hardware and a layer of on-demand stuff.

The third change we're seeing now - really literally in the last two years or so - has been about making things not just efficient and fast, but driven by innovation. So if IT ops led virtualisation and dev ops led the public cloud move, this movement is being led by developers who are accelerating innovation. The anchor for that is cloud native, because cloud native allows that public cloud experience to happen on-prem and be superfast and efficient, but yet allow rapid, rapid code development.

That's really what containers enable, is rapid deployment and development of code, and the anchor technology there is containers, so containers make apps portable. Remember Java Code Ones run anywhere? Here it's containerised ones and run everywhere. That's what containers enable.

So as this transformation is happening, the world now has to become cloud native, and just like in cars, where we've got new technology just because we have rear view cameras we don’t want to give up power-assisted - the cloud native incorporates all of the benefits of the past - virtualisation and on-demand, but makes it happen both on-prem and in the cloud.

So that's the transformation that I'm seeing happening in front of our eyes, and we're part, as corporates - the technology that enables that to happen faster in production.

Mike Sapien

Okay. Ajay, go ahead. Thank you.

Ajay Singh

Sure. Thank you. My name is Ajay Singh. I'm the General Manager for Cloud Management business unit within VMware. We are in some sense the consumption interface of a lot of the virtualisation and containerised technologies that VMware supports and provides. You all know VMware has been an industry leader in the private cloud and in virtualisation, but we have evolved from there to embrace the public cloud and embrace container-based technologies, to enable our customers succeed in the digital transformation.

Very succinctly, our vision, if you may, is around any device, any application, any cloud. What that means, basically, is that we will - through our digital workspace technologies - be able to support any device, be it a desktop, mobile, bring your own device, et cetera, through one common method, to support that - be it mobile, desktop or bring you own device.

Any application means whether it is your classic legacy applications, from the old days, to virtualised applications running on virtualised stacks, to cloud native applications that enable the agility and speed that Murli was talking about.

Finally, any cloud is all about recognising that it is a multi-cloud world. Most of our customers are looking to have one - two, three, five different clouds that they're going to be using, and how do you actually be the air traffic controller that enables you to leverage the resources of all these amazing public cloud data centres that are mushrooming around you, but at the same time, meeting your objectives around risk, compliance, cost - while enabling the agility and speed that your business units are looking for from a digital transformation perspective.

So those are the tricky balances that are required in this day and age, that for IT to be able to be much more - almost like an air traffic controller across all of these different resources, while managing the - and being the stewards of the risk and compliance and cost for the organisations, at the same time enabling the agility and the innovation such that when the digital transformation is much more mature, their companies are on the leader boards, in their respective industries, are doing the digital transformation.

So that's what VMware is about, and happy to talk more about it.

Mike Sapien

I thank you. JR.

JR Rivers

Hi. I'm JR Rivers, Co-Founder & CTO of Cumulus Networks, I'm going to lead off with what I see - or we collectively see around data centre transformation and then let you know how Cumulus Networks fits in.

I think the biggest observation I would make is less about technology and more about structure. The real question on the table is build or build not? Traditionally, companies would - when you started a company, you knew at some point in time you would have a data centre and you would employ IT people and you'd buy a ton of heavy, expensive equipment and do stuff with it.

That question is up for debate today. In fact we see on an increasing basis traditional companies and even new companies deciding, I'm going to move all, or most of my workloads in a public cloud. Or, I'm going to move very expensive application spaces off to SaaS businesses, and if I require it for data security, performance or as a core piece of my business, I will build data centre practices myself.

So it's becoming a very conscious decision, as opposed to an untold truth that you're going to build a data centre. You have to decide whether you want to or not. That is the

single largest trend that is occurring in the data centre space today. It's not about containers. It's not about virtualisations. It's not about storage. It's build, or build not.

When people build, what we see them doing is making a very conscious decision to build around [Linux]. Love you man, VMware has taken care of a lot of companies for a really long time, but if you sum up all of the virtualisations supplied by Google and Amazon, it dwarfs the number of virtual instances supplied by VMware today, and that trend will only continue forward Linux is a substrate of the modern and future data centre. So technologies that revolve around Linux - storage, networking and compute technologies - those technologies are going to come to the forefront and provide meaningful solutions to customer sets.

You're seeing people - I mean, who would have thought two years ago that Microsoft would stand up and say, we love Linux? Nobody would have thought that. Today, Microsoft is a Linuxified company from the data centre standpoint. Huge trend.

So those are the two big things we see going on in the industry today - build or build not - ask yourself that question. If you build, you're going to build on Linux and you're going to try and figure out how to operationalise against that the best you can.

With those two things in mind and having seen that a reasonable long time ago, Cumulus Networks was formed to help people build their networks with a Linux substrate so that networking - which is not just about your switches or not just about your routers, but it's also about how your containers connect with each other on the hosts, or how your virtual machines interact with physical machines throughout the whole system.

Networking is pervasive across the data centre, touching every single device that lives there. So Cumulus is focused on being the best and the market leader in Linux networking for people that choose to build data centres.

Mike Sapien

Go ahead, Mohit [unclear].

Mohit Aron

My name is Mohit Aron. I'm the founder and CEO of Cohesity. My background is I spent five years at Google, helping build the Google File System. After that I did a company called Nutanix. I was behind the concept of hyper-convergence, along with the rest of my team.

My company, Cohesity, is all about consolidating the unsexy part of the data centre that we collectively refer to as secondary storage. What is secondary storage? It consists of backups, it consists of tasks in development, it consists of a lot of analytics - anything that's non-mission critical, anything that doesn’t require [unclear] layers - we're all about that.

So it begs the question, what's the problem? Well, the problem is that for each of these workflows today our customers have to go buy solutions from multiple vendors. Even

within backups, they have to go to different vendors - one vendor to buy backup software, another vendor to buy storage, another vendor to buy a piece of hardware called a media server, on which to run the backup software.

So in essence, we have literally a mess in the data centre, and what we're trying to do is build a Google-like scalable platform on which we can consolidate all these workflows. So that's the phenomenon we refer to as hyper-convergence of secondary storage.

We provide - we go to the market with a very simple data protection solution, which gets rid of all those three-letter vendors that you have there, pushing their wares, and then we do more. Our logo is, we're not just a backup - we're way more than that.

But where we go from here? You may ask, what about the cloud? What about all these technologies, containers, virtualisation and that sort of stuff? I'd like to submit that I think of the data centre as owning a house, and I think about the cloud as like renting a hotel or renting a storage box - with the same pros and cons. In your house you get a little bit more control over what you want to buy. You get a little bit more security. You're not worried about noisy neighbours. In the hotels you get a little bit more flexibility. I drive to Tahoe once in a while. I rent a hotel and be done with it. It can be great for flexibility.

The data centre and the cloud offer the same things. The problem is that your house - if your house is very messy - if your data centre is very messy, wouldn't you want to go run, live in a hotel? So some of that stuff is happening between the data centre and the cloud, and our goal is to simplify the house, connect it with the cloud, and literally provide one continuum. It's not about virtualisation. It's not about containers. People care about their applications.

In my mind it should be really one continuum - the data centre - the house and the cloud - which is your hotel or the storage box, and the customers should just be able to run applications - specify some SLA - and the underlying infrastructure should just transparently run it wherever it's most economical, while meeting the SLAs. That's the world we want to achieve. That's what Cohesity is about.

Mike Sapien

All right. Thank you very much. Now, Mansour, please, your turn.

Mansour Karam

I will - since I had the morning to present, I will be brief. I'm Mansour Karam, CEO, founder of Apstra. Apstra was founded with the vision to really deliver business agilities through autonomous infrastructure. Really want to take the human factor - the human error factor out of the business of operating networks, and given that the networks are the foundation of digital transformation and of other - of everything else going on, in a sense, in your data centre, as JR also mentioned, it's really important to get the operational model in networks right, and through automation we can accomplish that.

Mike Sapien

All right. Thank you very much. I'm going to give one more round then we'll have the Q&A. I think we have a little more time. So this is all about basically given the essence

of the benefits, when customers have used your technology - and we've got everything from storage, containers, cloud management, secondary storage, control of cloud infrastructure - I mean it sounds like we've had all the components here of what happens in a data centre with you on the panel here.

What I'm trying to get at - to the audience, at the net-net, your customers tell you when they're satisfied with your offer, the major benefit is - and just explain that benefit - pretty succinctly, and then we'll go to Q&A. So, this time Mansour I'll let you go first and we'll go down the other way.

Mansour Karam

Well, for us it's simply a massive improvement in agility. Given the topic here is cloud, ultimately, it's about programmability. It's about the ability to deliver business services quickly, which means you need to have the ability to deploy applications quickly and for that you need to be able to dynamically deliver on your network services. The only way to do that is through programmability and through autonomous operations.

So by effectively implementing it, you'll get massive improvements in agility, which will essentially drive the rest of your business.

Mike Sapien

Right, thank you. Murli?

Murli Thirumale

I just have to say that everybody, after I spoke, said it's not about containers and then proceeded to talk about containers - so it's good to be a container guy on the panel.

I think we're an enabling technology. It's very simple. You can't put containers into production if you cannot place the data for containers to find. So, all of what we do is very simply, we put - we allow containers to be put in production by enabling the data to be available and persistent everywhere.

So I guess we're part of the core container deployment model, and so rather than - we've got a lot of people with lots of interest, talking about the benefits of containers really, affordability, speed and all of that, but for us, whether it's a customer like a Verizon or Comcast or a DreamWorks or a GE Predix - all of which have deployed Portworx, they just can't put it in production if they can't place the data effectively, and that's what we do.

Mike Sapien

Yeah, thanks Murli. Thanks for pinching those names, because I've heard that name and you, which I'd say 18 months ago, I don’t think - no offence to Verizon, by the way - I don’t think Verizon could spell container and know what it means 18 months ago.

Murli Thirumale

They can do more than spell containers now. They’ve deployed…

[Over speaking]

Mike Sapien

I know. That was 18 months ago. I would say with every single provider - not just telcos, but - no one mentioned containers. No provider mentioned containers. Today, as you mentioned, providers are on to this.

[Over speaking]

Mike Sapien

I'm sorry - Ajay.

Murli Thirumale

One of the things I'll end with is we were talking at breakfast - there's a lot of talk about how there's been high buzz and low deployment in containers and that's one of the catchphrases that I think I've heard. But it's really - nothing can match a 17-billion download buzz that you can get - of containers. That's too massive for it to be deployed, but it is being deployed. Literally in the last - I was just talking to Ajay here, and it's like in the last three months, our business has exploded. It's incredible.

Mike Sapien

Ajay, go ahead.

Ajay Singh

Yes. From our standpoint, like I was saying, ultimately, it's about managing risk and cost as an IT organisation, while enabling agility and speed in a multi-cloud, definitely containerised world - we see the future.

In that sense, if you think of risk and compliance, we just recently did a big announcement with Amazon Web Services, where we are offering the VMware stack running in the Amazon data centres. What that does is that it dramatically cuts down the risk of taking existing application, existing workloads, where you already have the people, process technology in place, and be able to run it in a public cloud data centre, with relatively controlled risk. That's one example where we're adding value from a risk standpoint.

From a cost standpoint that's your classic virtualisation, but where we are going is in more and more intelligent lights-out data centre management. How can you intelligently pack predictively looking at where the workload profiles are, and be able to pack in, intensify your data centres to the max, so you can run unit development and 90% utilisation of production at 70%, 80% utilisation - with confidence - hitting your SLAs?

Then finally, on the speed side, clearly, containers are the future there in a big way, and what we are doing is really supporting a set of polyglot development stacks - be it a Kubernetes stack or a cloud [Fowry] stack. I guess it’s a little passé, old-fashioned, open-stack stack, or indeed a function of the service - and who knows what the next development innovation is going to be?

We want to be able to support all of those innovations and be able to take them from development to a dev ops process, all the way into production - be that production running on our - on a private cloud, or in a public cloud data centre, running either on the VMware stack, or their own native stacks.

So that's the three elements. How do you do cost and compliance, while enabling agility?

Mike Sapien

Yeah, thinking about it, Ajay, just a quick comment, because I've seen - I'll say technology vendor walls falling down and Microsoft using Linux. How can that happen? Cisco talking about intent-based networking now. There was a time, actually, where Cisco told me they had no plans for SDN - I mean think about that, they had no plans for SDN at one point in time. These walls falling down, obviously, are seen as open up a lot more before.

Again, the AWS - maybe think about VMware. We've got AWS, where…

[Over speaking]

Mike Sapien

…to be fair to VMware that wasn't your view many years ago, but now, here you are.

Murli Thirumale

Absolutely.

Mike Sapien

So it's great to see that happen. JR, please go ahead.

JR Rivers

Yeah, if you look at the responsibility of any team responsible for building infrastructure, it's actually really simple. You need to provide as much capacity - whether it's storage, computer network, for your business needs as you possibly can, within a set of cost boundaries. So you're always challenged to add more capacity and manage or even in some cases reduce your costs.

That's an ongoing challenge that is not only not going to ever end, but it's continually become exponential as opposed to linearising. So, the customers that are happy with us come back to us and say, hey, you allow us to build network capacity. We get the bandwidth in our network and we get the operational capabilities that rival what the mega-scalers do.

You're not every going to hit the cost structure that Amazon gets, but if you can get to 60% or higher, that's way better than people are operating at right now. If you look at most data centre builders today they're operating at three or four X what their networks is, where mega-scalers, and we help people to get in to within 60% of a mega-scaler. That by itself is massive business benefit.

Mike Sapien

Thank you, JR. I would just highlight years with the multi-cloud aspect. I mean the early days of cloud, providers of all kinds [tell us] - kept taking about connecting to a cloud, and today we all see what's happened in every application is multiple-cloud resources. Every customer is doing multi-cloud, and I think your business is obviously in the middle of some of that management of the multi-cloud environment, not just the cloud environment.

Mohit, please go ahead.

Mohit Aron

Thank you. We closed a big bank as a customer last week - Morgan Stanley. When I first met them they said - jokingly - that they have a no vendor left behind policy, so they pretty much had a cloud from every vendor out there - storage vendor in the secondary storage space, and they were frankly tired of that infrastructure.

What we offered them is something very simple - one vendor to collapse all of that and shrink the data centre, along with 50% to 80% reduction in their costs. So that's how they benefit by going with Cohesity.

At the same time we also offered them a path to the cloud by - through our native integration with the cloud they can now transparently move applications back and forth between the cloud and the data centre. So that's the benefit they get.

Mike Sapien

Right, thank you very much. Again, you bring in this multi-cloud aspect of storage, as well as the hybrid environment of having on-prem, as well as obviously in the cloud and the data centre.

With that, I think we have time for some questions. Anybody have any questions in the audience now? Michael, do you want to go ahead? I mean there's a reason he sits up in the front, by the way. But go ahead, Michael, please.

Audience Q&A

Michael

[Inaudible]. In a hybrid environment, big enterprise - so they have their own data centre and cloud, can they [inaudible] the same time, to advantage? Not in little [inaudible] part, but across the board?

Mike Sapien

Yeah, do you want to - anyone?

Murli Thirumale

Well, I mean, since we are in a bunch of hybrid environments, I'll answer - not for the panel, but just for - from our customer viewpoint. I think the answer is absolutely yes.

Most of the vendors here are pioneers in their areas and are very much cognisant - nobody - no new age vendor works only on-prem or only in the cloud. They are usually in both places because - not because of our technology, but because our customers are in both places, and so - I mean I think I definitely see of course, VMware everywhere, and Cumulus and Cohesity as well.

We're not so involved with the networking layer, but given your pedigree, and some of the stuff that you've been doing recently, I think my answer has to be yes.

Michael

[Inaudible].

Murli Thirumale

We are complementary - from my view.

Ajay Singh

Yeah, I mean, actually, I would just say I think generally the world - the customers - the north star that's driving all of us - the world is fundamentally a multi-cloud world, and so if you're not multi-cloud in this day and age, you're missing the boat. The world is going containerised, so if you're not looking to embrace containers and figure out what to do about it, you're missing the boat.

So all of us - and the world is going more, if you may, autonomous, self-driving, if you may - that's where the world is going - artificial intelligence and all that good stuff. So if you're not doing that and you're not figuring out how to take the complexity out of the equation, because of all these variations across it, then you're in a tough spot.

Then the world is definitely looking for speed and agility, and certainly big vendors like VMware, we have the resources to be able to address all of those.

We just recently, for example, did an announcement with Google and Pivotal around the PKS service, which is the Kubernetes service that we just announced jointly with them. That's all about driving agility and containerisation in the marketplace. So we've got to do it all.

Mike Sapien

Mansour, go ahead, just cue that, Sarah.

Mansour Karam

Well, maybe just a couple of comments. One is that to me it's not about building versus going to the public cloud. Ultimately, for most customers there is a use case for having a data centre and a use case for having some data in in the cloud, so it's really hybrid. Certainly you can see that’s how all of these technologies are relevant in a hybrid cloud world.

Just talking about intent-based networking, certainly a notion of intent and policy is the only way to bridge a gap, if you think about it.

Mike Sapien

All right. Thank you. Another question - right here.

Anthony Caruana, Contributing Edtior, CSO Magazine

Anthony Caruana], a freelance troublemaker from Australia. I want to ask a technical question around particularly - all of this is quite software-driven - heavily software-

driven. Statistical analysis of error rates inside software - [inaudible] two to five errors as [inaudible] software code.

If we talk about maybe just one million lines of software code, that leads to something like 30,000 potential errors, which leads to - and the statistical analysis says about a quarter of those are exploitable. So we're talking about maybe for every million lines of code, 7500 exploitable errors that could be used by bad guys. We're in a very heavily software-dependent world.

We didn't have that level of exposure when things were a lot more hardware-driven - which I give were a lot less flexible as well, but things had to be written a lot more tightly. I'm really concerned that we're becoming so software-driven that we're actually exposing ourselves to bad guys in a way that we never did before, when things were a lot more hardware driven.

I mean you guys are all in the software business, effectively, even though we're talking about networks, which used to be a very physically-driven industry. What are we doing to make sure that we reduce those error rates and/or compartmentalise the capacity for bad guys to do things to us?

Ajay Singh

Let me take a shot of that. VMware, obviously we coined the term, the software-driven data centre, so you're right on. I mean, we virtualise not only compute, but with storage and network in this software-driven layer. But I will say, give you some security benefits too.

So for example, with our network virtualisation, we have - you have the ability to do east-west micro-segmentation and really lock up the access to only when somebody's trying to use an application. That's the only time you open up access.

So software-defined - yes, I agree, you have bugs that are exploitable, and obviously, there's a ton of energy put in making sure you minimise those errors, but it also enables you to do these kind of things that prevent the kind of breaches that you see at Target that is very visible breaches that happened over the course of the last few years, which were mostly east-west breaches.

The majority of the security infrastructure tends to be layered against the north-south breach, but today in this day and world, you have to assume that your north-south perimeter is going to get breached. Somebody is going to get phished. Something like that is going to happen.

The east-west starts to matter dramatically, and that's where the software-defined inner centre and software-defined networking - the ability to really lock down that east-west axis.

Mike Sapien

Right, JR, go ahead, and then we have to wrap it up.

JR Rivers

Yeah. There's - I think you're spot on. There's one thing that I've learned throughout my career is that software that's open for inspection tends to be the most rigorous and most secure software available, as opposed to proprietary software, or even software that was taken from an open environment and held off to the side.

So I think what you start seeing is most of the, the larger suppliers, the people that build data centres that have the highest level of security requirements, tend to use actually a lot of open source. Part of it's because it's lower cost, but a whole another part of it is so many people try to breach the Linux kernel and a lot of the major, important open source packages that are available - it's academic study. You can look at the code. You can find the breaches by inspection, not through test.

If you go back and look at the history of these hidden breaches, a lot of it is in proprietary software, but nobody knows where to go look at it, because the people that were inspecting it, or who cracked - hacked the code - got in through some back door. They're messing around. Nobody knows what's going on, and now you're incredibly in trouble, because nobody knows how to fix it, either.

Anthony Caruana

[Inaudible].

JR Rivers

Pardon? Say it again.

Anthony Caruana

[Inaudible].

JR Rivers

Yeah, but…

Anthony Caruana

[Inaudible].

JR Rivers

That's great, but if I told you what you could do to a Cisco switch today, what a bobby pin, you would freak out.

Mike Sapien

All right - let's not go there. We'll leave Cisco alone for today. Thank the panel very much today. We have to move on, but thank you all very much. Thank you.

[end]