FINAL

Wide Area Networking: As the Technology and Players Mature, What's Happening with SD-WAN and MPLS?

Chair: Erin Dunne

Director of Research Services, Vertical Systems Group

Panellists:

Conrad Menezes	Vice President, Industry Initiatives, CTO Office, Aruba, a Hewlett Packard Enterprise company
Prashanth Shanoy	VP of Marketing for Enterprise Networking, Cisco
Kelly Ahuja	Chief Executive Officer, Versa Networks

Erin Dunne, Director of Research Services, Vertical Systems Group

Good morning. All right, day 2 of NetEvents, here we go. I'm Erin Dunne, I direct the research practice for Vertical Systems Group. We're a market research firm and consulting firm based in Boston. If any of you were at the meeting last - I mean at the dinner last night, I'm thinking I'm just going to have Mark come up here and do this for me. So anyway, my company focuses on wide area data networking and tracking the migration of enterprises moving from legacy services into the emerging sector. So this panel is perfect for us.

I think we've heard it a couple of times before, but just to reiterate, networking used to be designed to connect sites. We're not there anymore, as the traffic flow has changed

that impacted not only the design and the decisions, but certainly the implementations that our enterprise customers make. We've seen transitions from - there's people in this room, people up here, we've been around here for a long time. We've seen the transitions from private networking into X.25, then into frame relay, ATM, private lines and then into ethernet and dedicated IP VPNs. Those dedicated IP VPNs, as you can see up here on the panel, mostly based on MPLS. There we go.

So just some quick background. We've had 20 solid years of really good growth of MPLS and VPNs. Thousands of organisations worldwide with millions of sites trust this technology and depend on managed VPNs for connectivity. This is a $40 billion market and just some quick background, revenue for MPLS is down across all access speeds. I don't think that's a surprise to anybody. We're losing sites, also there's a lot of price compression out there.

However, the number of enterprise sites at T1 and below are dropping through the floor. If you have T1 access to your MPLS network, you're actively looking to change that. Most likely, the T1 was the only thing you could get and you're already bandwidth constrained. However, the connectivity to MPLS at above T1 or E1, that's still growing, which means that you have an ethernet pipe connecting to your MPLS network and guess what, you're pretty happy. We're not seeing those connections drop off at all.

So in short, customers like their ethernet access to MPLS, but what's changing? On the low speed side, that stuff, as I just said, it's going away. What are they replacing it with? You guessed it, some sort of an implementation of SDWAN, which is what we're here to talk about and that implementation may be a carrier managed service, like you see up here. Nice definition and diagram of that. It might be a DIY, it might be installed through a systems integrator, it might be some sort of a hybrid deployment. There's pros and cons of each, we're going to hit them with our panellists.

And something else I wanted to just bring to your attention real quick, here are the top service providers that are selling carrier managed SDWAN services, this is based on sites. They're installed and they're being paid for. Here are the top providers in rank order. Something interesting about this, the top five are also the top five on the MPLS leaderboard. So this is a pretty tight market right now between the MPLS providers and the emerging SDWAN market.

Another thing I'd like to bring to your attention, says it right on there, the top equipment vendors or the technology suppliers to these carriers are VMware, Versa, Silver Peak and Cisco. We have two out of the four sitting right here up on the panel, so that's great news. But as I said before, SDWAN, it's not just a managed service; it brings in an entire market of hardware, software, service providers, equipment vendors, security, cloud-based offerings and much more.

Representing here on the panel we have three gentlemen that are big players in this market. One not a big player, a soon to be big player in this market. I'm going to turn the mike over to each one of them right in a row, just to do a very quick introduction of who they are and what they do within their organisation and then we'll move on from there. All right, let's start with Conrad.

Conrad Menezes, Vice President, Industry Initiatives, CTO Office, Aruba HPe

Good morning, folks, thanks for having me here this morning. Conrad Menezes and I'm with the office of the CTO at HPE Aruba Networks. A bit of my background, four years at Bank of America prior to joining Aruba earlier this year. Four years at Sears Holdings and then 17 years at American Express in CTO and CIO positions at these firms. Then in between I've consulted to other sectors as well.

Erin Dunne, Director of Research Services, Vertical Systems Group

Great, thank you.

Prashanth Shenoy, VP of Marketing for Enterprise Networking, Cisco

Thanks, Erin. Hello everyone, Prashanth Shenoy, I have the pleasure of leading Cisco's enterprise networking from a product and solutions marketing standpoint. I've been at Cisco for a really long time, started on the engineering side and I was also one of the first software engineers building the MPLS design for our catalyst product line back in the days too long ago. Since then, I've worked in different industries - service provider, commercial, public sector, building, networking and security solutions predominantly and over the last few years driving the enterprise networks marketing at Cisco.

Erin Dunne, Director of Research Services, Vertical Systems Group

Kelly?

Kelly Ahuja, CEO, Versa Networks

Kelly Ahuja, CEO of Versa Networks. I've been there for about three years, leading the company. Gone from about 10 customers to over 1000. Prior to that, I was at Cisco for 18 years, heavily involved in their networking portfolio and ran service provider for a while. Prior to that I actually worked for carriers designing and building, supporting networks of all type, including X.25, frame relay, MPLS.

Erin Dunne, Director of Research Services, Vertical Systems Group

I mentioned that word, didn't I? I did, I said it. Just to show we've all been around for a little while. So as you can see, on this panel we have a real wealth of information here. Not only are they working for the vendor community right now, but the history here not only on the services side, on the enterprise side, buying, selling and probably breaking networks. Also on the standards side, participating in that as one of the designers, but also as a heavy participant in the standards bodies.

So I think I want to start ~~and I'll start~~ with Kelly since he just ended off, is I think everyone here in the audience would love to know what is your company's unique

capability in this market? Why Versa? I'm a service provider, I'm an equipment vendor, I'm a systems integrator, I have to choose equipment from some vendor in this market, why you?

Kelly Ahuja, CEO, Versa Networks

Yes, so there's many things that customers tell us why they select us. The first thing is instead of just focusing on the WAN, which is a lot of a lot of what the first generation SDWAN companies did, they focused on MPLS arbitrage. They said you don't really need MPLS, you can actually use the internet and do a secure VPN. We actually focused on something different, we focused on what we call a software defined branch and that's something that we came up with back in 2016 and been focused on that.

So what that does is it actually reduces, eliminates appliances at the branch, not just adds another SDWAN appliance, but really eliminates appliances at the branch. The second thing that we do is we're a complete underlay and an overlay device in one. What that allows you to do is gives you the flexibility to be able to exist to an exist MPLS network, as well as connect, build an overlay network which is by far the best in the industry.

The third one is we provide you full contextual visibility across users or security network and applications, all in one single pane of glass. Then you can actually define policies across any of those dimensions. The last one is because we have - and I know you said not to mention this but full security stock integrated, you're actually allowed to do an internet breakdown directly anywhere you want to. So that's the part why customers choose us. So in terms of why we're different, that's why we're different.

Erin Dunne, Director of Research Services, Vertical Systems Group

I think that's great. The reason you said about the security is that we had two security panels here, then us, then another security panel. So we're going to try to go a little light on the security side, just to give some time to other players - all right, Prashanth, how about you?

Prashanth Shenoy, VP of Marketing for Enterprise Networking, Cisco

All right, Cisco, as you know, has been in the space and we started the company 35 years ago, starting off with routing. So the first thing that customers really look for Cisco is to make sure they can transition from a traditional WAN environment to the software defined environment and we provide a really simple, elegant, seamless solution to move from the traditional network to a hybrid WAN, to a fully advanced SDWAN solution, while providing investment protection on their existing infrastructure. We've seen a lot of our customers who can migrate with literally zero CapEx, with just a software upgrade on their existing WAN infrastructure. So that's the first differentiator, providing investment protection without making the migration extremely complicated.

Number 2, we provide the maximum control and flexibility in terms of their deployment choice. They want to go managed service, they can do that. They want to do it yourself, they can do that. They want to work with the channel partners, they can do that, while providing the deployment flexibility to do overlay, underlay, physical, virtual and whether you want to deploy security services, application services, at the edge, in the cloud where it's probably called private, we provide that flexibility. So the customers really appreciate the fact so it's not one size fits all.

The third key thing really is to networking and WAN is really, really complex, but we shouldn't make it complicated for our customers. So we really provide that simplicity at the enterprise scale. We have customers from basically five sites to like 15,000 sites that have deployed our solutions with a single management consult and they've seen benefits ranging from 40 to 3000 per cent reduction in bandwidth, as well as drastic improvement in application performance for their SaaS application and their data centre application.

Erin Dunne, Director of Research Services, Vertical Systems Group

Great, thank you. So somewhat of a new entrant into this marketing, so interesting to hear what Conrad has to say.

Conrad Menezes, Vice President, Industry Initiatives, CTO Office, Aruba HPe

Sure, Erin. I think our value proposition is very simple. I think I tell people we were late to the SDWAN party, but we are early to the SD branch party, right? If you note that we don't call it SDWAN, we call it SD branch, because we present a unified view of the wireless side of the network, the wired side of the network and the wide area network. So we bring that into context in a single pane, which is very important when you're dealing with operational aspects of the fabric. I think troubleshooting takes time and it's very easy to move from the wireless domain to the wired domain to the wider network domain to be stitched together, operational issues as and when they come about. I think that's perhaps the most important value proposition that we find customers gravitating towards. It's not just customers on the enterprise side, it's also carriers as well

Erin Dunne, Director of Research Services, Vertical Systems Group

Right, thank you. So before we get into a little bit more about use cases, competition and DIY versus managed SDWANs, I did want to try to keep to the title of our panel here. These guys have been playing in this market for a long time. I made a couple of statements here about the MPLS market, essentially here's where we are as far as the revenue goes, revenue's dropping, high speed sites sort of stable, low speed sites going away. I'd like to see from each of your perspectives, do you agree, do you disagree, are you seeing something different within the market? So maybe a quick comment on each of them. You want to start, Kelly?

Kelly Ahuja, CEO, Versa Networks

Sure, so we actually see the market evolving very rapidly, but there are two segments of the market. There is going to be a DIY segment of the market, which is enterprises, large enterprises, or companies that want to build their own, manage their own and operate their own. Essentially, they want to disaggregate the underlay because they want to get the underlay from different providers and build their own network and we have many customers do that today.

Second is the large, I call it the mass market, where they don't have a lot of IT staff or network teams, they see this as something that they've got to do to provide internal connectivity, but they don't have the expertise to do it. For them a managed service path is the best and that's kind of the mass market. The last one is SMB who don't really care, all they want is internet connectivity and they want security and they don't really care.

So for us, we don't really mind either model. In fact we've actually seen a hybrid model emerge, which is on the managed side, which is some of these service providers, we deal with about 100 service providers globally. Some of them are realising that their customers want a hybrid model which is partly managed or co-managed is what they call it, where they're providing the underlay, the devices and perhaps doing the monitoring, but the customer's actually doing the policy setting themselves. So that market's continuing.

In all of that, MPLS is not something that's going away tomorrow. We're seeing MPLS circuits continually being used. In some cases, customers that had dual MPLS connections in one site are maybe going down to one, but a bank's not going to get rid of MPLS any time soon and many other customers won't. Now in other vertical segments, perhaps maybe a retail, they probably didn't even use MPLS to start with and if they didn't, they're not going to start using it now because they can get just broadband connectivity much faster and easier. I do agree with you that we are seeing that low end of the market, the T1, E1 actually go away and that's actually getting subsumed. In fact, we've got banking customers that had ATMs, are taking away all wired things and they're actually just putting LT SIM cards into those devices that are going to the ATM machines and just doing wireless on those.

Erin Dunne, Director of Research Services, Vertical Systems Group

We still track all of those access lines. There are some ATM machines that have 9.6 or multi drop lines, they're still out there, guys, really. So Prashanth, Cisco, you got a business selling routing and switching MPLS gear, so what are you seeing, quickly?

Prashanth Shenoy, VP of Marketing for Enterprise Networking, Cisco

I think on a broad base I do agree with Kelly here in terms of how the MPLS market is transitioning. I think the death of MPLS was called a bit too early when SDWAN came in and that's not the reality, as Kelly mentioned. You do see MPLS especially in large

scale enterprise, where high reliability, high performance is required. The basic change that we are seeing is it used to be like MPLS or nothing. Now with the emergence of pretty highly reliable broadband connection and with the emergence of 5G and technologies like that, you're seeing MPLS being complemented by these kinds of broadband access based functionality. So you'll have more activity with MPLS being one of the active links.

The second thing that we're seeing is because of this traffic steering and application specific intelligence that we have in the wide area network, it's being able to effectively utilise your MPLS links for the right applications, without having to send every single application traffic to your MPLS link into your data centre. So that's where we are seeing it. It's more of the usage of MPLS and it's the complementary nature of other transport that helps MPLS being less dependent on than what it was five to six years back.

Erin Dunne, Director of Research Services, Vertical Systems Group

Great, thank you. Do you want to comment, or do you want to jump right into some user cases?

Conrad Menezes, Vice President, Industry Initiatives, CTO Office, Aruba HPe

I absolutely do. I have a customer-centric view because I've just given my background and experience with large enterprise. I think MPLS is dying and I think what's killing it is the cost, because if you look at the access circuits that institutions have traditionally had into their remote sites, it's usually been T1 or DS3s and then if you required more bandwidth you went with metro ethernet. Well, it comes at a cost, right? MPLS metro ethernet isn't cheap, for a 100 Mbps access circuit with 20 Mbps bandwidth speed, the average cost in the US is around $2000. Compare that with the broadband circuit that's 100 Mbps down speed and 20 Mbps up, that's $200. So $1800 difference, a little over $21,000 on an annualised basis. For a site, for an institution that has thousands of sites, if you do the multiplier with 1000 sites, that's $21 million in savings right there in year 1.

What I've seen customers do is relative to the deterministic characteristics that Prashanth mentioned are on MPLS, if you just take the US as geography, latencies are pretty deterministic, internet paths are not taking a different path. There is a northerly fibre run and a southerly fibre run across the US and then there's some breakups in central. So it's not so much about latency, I think what customers do is since they've got a level of confidence in MPLS they move in a dual MPLS network, for instance, they move to eliminating the second MPLS circuit adding broadband and then a year later they're moving to dual broadband.

Erin Dunne, Director of Research Services, Vertical Systems Group

Absolutely seen that.

Conrad Menezes, Vice President, Industry Initiatives, CTO Office, Aruba HPe

But that said, just to cause some debate, if that's okay, we're not seeing that shift from MPLS to a consumer broadband that you would get at home. A lot of the large enterprises are relying on a dedicated internet access that a service provider will provide. Because they do want someone to provide some level of SLAs, because you get what you pay for and 100 Mbps, $100 internet access at home is not necessary what an enterprise is going to rely their primary business on. They may use it for backup and by the way, many of them do, as for a backup but not for the primary connection.

Erin Dunne, Director of Research Services, Vertical Systems Group

Right, thank you for that. We have all those market numbers too, but the primary access pipe that we're seeing for those carrier managed SDWAN services is DIA. Basically, a fibre-based internet access pipe over ethernet to the cloud and that's nailed up. So anyway, I'm going to come back to Conrad here and shift over to some interesting use cases. Why does an enterprise customer - what's driving this SDWAN market? Now, we all know the buzzwords, but I want some specific use cases that you're seeing from your business.

Conrad Menezes, Vice President, Industry Initiatives, CTO Office, Aruba HPe

I think it's less about the network, right? It's more about business outcomes and I think businesses have strategies that then transcend down to what IT does or IS does in the domains they operate in. I think the allure of cloud, consolidation of data centres, moving of workloads from what would have been private data centres to the public cloud is certainly appealing because of the agility it brings to it. IT for the longest time has - I think the business would say you guys cost too much and take too long. So when you think about the speed at which you can spin up services in the cloud space, it's drastically different than what you can do in data centres today.

So I think that's a dynamic that's driving SDWAN as an overlay technology allows you the flexibly to do different models. You can do a local breakout, you can do a breakout at a carrier neutral facility, or what I call a communication hub, what used to be the older central offices, right? So there's new terminology over there and I think that's appealing because you don't necessarily want to haul all of your data traffic back to your data centre, doing it in the traditional style that you would have done, utilising a MPLS network. So leveraging those flexibilities is certainly very appealing.

Erin Dunne, Director of Research Services, Vertical Systems Group

Do you see any use cases for your specific gear offering that these two may not see, for Cisco or Versa?

Conrad Menezes, Vice President, Industry Initiatives, CTO Office, Aruba HPe

I think the ability to - what I said before, the ability to manage the wireless and wireline network from a single pane, I think, is the single biggest pinpoint. Because I think having run large networks, global networks and having different teams in the wired side and the wireless side, on the wide area network side, because that's a reality today in different organisations across different sectors. To be able to give them a single pane of glass is very powerful because everyone's looking at the same page for the lifecycle of…

Erin Dunne, Director of Research Services, Vertical Systems Group

Prashanth, do you want to - interesting use cases?

Prashanth Shenoy, VP of Marketing for Enterprise Networking, Cisco

Yes and then to add to Conrad's point, as I said, it's all about the business outcome and the focus, the whole reason why SDWAN even exists today is because of the emergence of cloud, right? So if cloud didn't take over and public cloud and SaaS applications, you wouldn't truly need SDWAN. So as in a typical [unclear] needs based permit if you look at SDWAN number 1 thing back a few years back was help me save cost and I'm paying too much for my MPLS circuit, right? Make me the best utilised MPLS circuit possible. So the SDWAN, with this transport independence, was used to provide that cost efficiency and agility.

Then as applications started moving and workloads started moving to public cloud environments and they had more than one place where their application resides, it was all about how can a guaranteed application experience, no matter where my applications are and no matter where my users are. So SDWAN was meant to solve that and provide that consistent, reliable application experience for a public or a private cloud environment.

Now - and I think Erin asked us not to mention that word - it's all about okay, now I have so many SaaS applications I want direct internet connection to the SaaS applications, how do I guarantee the security policies for these applications and for users and how do I do it at scale? So it's all about security and that's why you see so many security vendors coming into the SDWAN space, like Fortinet or Palo Alto or Zscaler or et cetera. So it's now all about providing SDWAN and security as a single stack. So those are the use cases that we see. Cost reduction obviously number 1, application experience for your SaaS and private cloud applications and security, no matter where your users are, no matter where your applications are.

Erin Dunne, Director of Research Services, Vertical Systems Group

I would agree. Do you want to jump in?

Kelly Ahuja, CEO, Versa Networks

I don't disagree with either one of the panellists. I think the biggest thing that we see when we talk to customers, why they want SDWAN, is really about visibility, being able to understand what's going on in the network and being able to have control and do that control in a programable or an automated way. So that's fundamentally what we see happening.

The one thing they do tell us, which is slightly different than what my colleagues have said up here, is that they actually don't just want disaggregation of underlay and overlay; they want disaggregation of software from hardware. Both of my colleagues are from companies that actually will sell hardware, so even the software defined is supposed to be software only. Most of the industry is actually selling hardware defined solutions, so that's one thing that also differentiates us, which is we're software only and will work on any CPE appliance that we've certified and take that to market. So that's the other use case that the customers are coming in and saying, I want disaggregation of hardware and software.

Erin Dunne, Director of Research Services, Vertical Systems Group

Okay, well I'm going to go back right to you. Do you see the same thing? A customer is asking you to disaggregate the software from the hardware.

Prashanth Shenoy, VP of Marketing for Enterprise Networking, Cisco

Where it absolutely makes sense we do and that's why I said when you talked about what are the differentiators, one of the key points that I said was SDWAN is not a one size fits all. You will never find every single SDWAN customer asking for the same set of requirements, never. So it's very, very important to listen clearly to what the customer needs. If they have remote branch offices where they want fully virtualised services, they don't have IT there, they don't have hardware platforms there, absolutely we can provide an [unclear] based fully virtualised security plus WAN services to that branch office, all again managed through a single simple management consult.

But I don't think large scale branch offices with mission critical applications, with a large number of employees, with a large number of SaaS applications, will only want a fully virtualised service. that's why we provide that flexibility of choice while having that simplicity of management from a single consult, whether you want physical, virtual, whether you want public cloud, private cloud, whether you want it at the branch or the edge. That's where I think the difference is compared to what Kelly and I think.

Erin Dunne, Director of Research Services, Vertical Systems Group

I'm going to keep you right there and ask you when you're at the final and it's whittled down to top three vendors coming in for a deal, who do you see? Who's the other two besides Cisco that you see?

Panel Speaker - Male

You're asking me?

Erin Dunne, Director of Research Services, Vertical Systems Group

I'm asking you. Any other two?

Panel Speaker - Male

No.

Erin Dunne, Director of Research Services, Vertical Systems Group

I'm going to get kicked under the table.

Panel Speaker - Male

Absolutely so…

Erin Dunne, Director of Research Services, Vertical Systems Group

I'm going to ask the other two too so…

Prashanth Shenoy, VP of Marketing for Enterprise Networking, Cisco

So we do see a lot of - one of the vendors is not there. We do see sometimes VeloCloud and VMWare, Velocloud being part of VMware. When people come from a data centre in perspective into their wide area network. We have started seeing security vendors out there, as I mentioned, but it's all about security and having a full SaaS security stack. If they're coming from that angle for their SDWAN environment, then sometimes we see vendors like Fortinet, as an example. Absolutely we do see Versa Networks.

Erin Dunne, Director of Research Services, Vertical Systems Group

You see Versa?

Prashanth Shenoy, VP of Marketing for Enterprise Networking, Cisco

…where SP led conversation happened, absolutely.

Erin Dunne, Director of Research Services, Vertical Systems Group

Kelly, same question for you. Two names, who do you see?

Kelly Ahuja, CEO, Versa Networks

Typically, Cisco in enterprise and then service provider, not anyone anymore. There used to be Nuage apparently before, but I don't think we're seeing them much either.

Erin Dunne, Director of Research Services, Vertical Systems Group

Okay, Conrad, you're just sort of entering, getting some traction in this market. Who do you see?

Conrad Menezes, Vice President, Industry Initiatives, CTO Office, Aruba HPe

We certainly see Cisco and we see Fortinet.

Erin Dunne, Director of Research Services, Vertical Systems Group

Okay, I just got a high sign to see if there's any questions out here in the audience. I know that there's…

Conrad Menezes, Vice President, Industry Initiatives, CTO Office, Aruba HPe

Erin, if I may, I think I just want to jump back to the last question that you had raised, around NFV and X.86. I think it really comes down to the maturity of the enterprise IT organisation, the maturity of their toolsets, the maturity of their resources, because as Prashanth just mentioned as well, there's no one size fits all. You really have to think about performance and performance at scale when it comes to software defined wide area networking, because there's a lot going on over there within that fabric, based on the policies that you would have set on a predefined basis, as well as real time conditions existing across the underlay network.

So I think sometimes the allure and the promise of NFE is lost with the complexity of data operations when you're having to deal with vulnerabilities with patching, with firmware and software upgrades. All of those play a key role, so I think customers need to think that over in terms of their own processes and the tools that they have in place before going down one path or another.

Panel Speaker - Male

I'd agree with Conrad on the NFV implementation, but I think software versus hardware is a different battle.

Erin Dunne, Director of Research Services, Vertical Systems Group

Who am I looking at up there? Okay, go ahead.

Derek Jee, China SDN Lab

We're from China, SDN Lab the number 1 SDN [media] in China. So we have a question about the roadmap for the next generation SDWAN products. As far as we understand, some of the companies which were not mentioned here are actually having [WAN migration] background. So we are very curious about the future of WAN optimisation and how the SDWAN companies on the stage incorporate this with WAN optimisation, that's the first question.

The second question is about CDN network, if anything relevant or not relevant at all for CDN companies to show up in SDWAN, in their list.

Erin Dunne, Director of Research Services, Vertical Systems Group

Okay, I got the second one, the CDN companies, but the first one I couldn't hear WAN.

Derek Jee, China SDN Lab

WAN optimisation, like a riverbed or [unclear].

Erin Dunne, Director of Research Services, Vertical Systems Group

Okay, thank you. I'm just going to hand it off, who wants to jump in?

Kelly Ahuja, CEO, Versa Networks

The traditional WAN optimisation that's been under so far was really built around the premise of two things, which is it was networks that were site to site and they were connected via low bandwidth links. Clearly you still have to do some level of optimisation of traffic that's running across those. In the new world what's happening is as more and more of the applications are moving to the cloud, the concept of WAN optimisation has moved to being more SaaS or application optimisation for things that are not bookended, because now the connectivity, as Erin said, is actually much higher speed. So the site to site traffic that's remaining typically is some level of traffic that could be voice, video, et cetera. For that there's lots of techniques that are supported today in SDWAN, like forward error correction, packet replication, et cetera that can handle that.

Now there are a couple of things that still pop up around [unclear] and cashing that are still required in certain conditions and those are things - and TCP optimisation, those are things that most SDWAN vendors either are supporting today or will be supporting soon. That's my view.

Panel Speaker - Male

Yes, I think that makes perfect sense and that kind of adds to your second question. I think it was around CDNs, right?

Derek Jee, China SDN Lab

Yes, CDN network. It also has a lot of the branch - a lot of [unclear].

Prashanth Shenoy, VP of Marketing for Enterprise Networking, Cisco

So you can add that to the environment as and when, it all depends on where the workloads are and what you want to do with the workload in terms of optimisation and cashing. So with the rise of edge computing and IoT devices, the more and more edge processing or data create you do need some sort of a CDN there with some sort of WAN optimisation. That's where those two things come together. But as Kelly mentioned, for more of SaaS applications and heavy cloud native applications, you don't necessarily need WAN optimisation at the edge, but more around low balancing and optimisation at the edge of the cloud. That's where we see these two markets getting defined. Obviously for traditional applications we already have built-in protocols for TCP floor optimisation [unclear] all of that, cash [redundancy] that we already have that works just fine.

Erin Dunne, Director of Research Services, Vertical Systems Group

Conrad, anything?

Conrad Menezes, Vice President, Industry Initiatives, CTO Office, Aruba HPe

Yes, I think Kelly's response to the first question was appropriate. I think the second question around CDN is just another application in the cloud, right. So I think if you look at your application workflows from the branch, a CDN is just another destination point for that traffic.

Erin Dunne, Director of Research Services, Vertical Systems Group

Okay, thank you. We have one question over here.

Audience - Male

Yes, we've heard a lot about multi-supplier clouds, clouds where people can move [server instances]. Are there any standards so that businesses can be more resilient by having more than one SDWAN provider? Because in an MPLS based history you tend to be single supplier, right? Because that's almost physical wires. So can SDWAN help people be more resilient about their connections?

Kelly Ahuja, CEO, Versa Networks

Clearly even MPLS or frame relay or X.25 or all the technologies, ATM, the interoperability was done at a network interface, either a UNI or an NNI. So in that

context I think a similar thing applies, there are industry forums of looking at that. However, most of the SDWAN implementations are somewhat proprietary nature, they use encapsulation that's proprietary. We're all fully standards based encapsulation and we're happy to work with anyone and we're actually demonstrating that at one of the industry forums. But it's only at that network layer or through the controller layer.

I think that there is a lot of algorithms that get implemented around how you do detection measuring, switching links, that sort of isn't a closed system between the controllers and the devices, that has to be maintained. But there's no reason why these systems shouldn't be interoperable. We've had customers that actually put two devices on a site, sometimes it might be a Versa and something else and they're sitting side by side and both have two overlays being built across an underlay.

Prashanth Shenoy, VP of Marketing for Enterprise Networking, Cisco

I think the differentiation will be definitely in the overlay. It's the software [unclear] that differentiates and that's where figuring out what is the right vendor who can do this automation of policies, doing analytics, doing security, becomes more and more crucial. The S part of SDWAN, the software defined, is what is going to create the differentiation in the market going forward.

Erin Dunne, Director of Research Services, Vertical Systems Group

I did want to add a little bit to that, that the MEF, which is formerly known as the Metro Ethernet Forum, does have that on their roadmap to add some standards around multi-SDWAN connectivity. The reason is is that if you look at these top level providers, they don't have just one SDWAN vendor any more. All of them have started with one and then moved into multiples. How do they manage that? So this is something that is being addressed.

Conrad Menezes, Vice President, Industry Initiatives, CTO Office, Aruba HPe

Erin, can I add something?

Erin Dunne, Director of Research Services, Vertical Systems Group

Please do.

Conrad Menezes, Vice President, Industry Initiatives, CTO Office, Aruba HPe

So I'd be remiss if I didn't say I co-chaired the open SDWAN exchange working group. I think the intent was to drive interoperability across vendors. This was going back to 2014, 2015. So I think we drove to a point where we said we built the architectural framework, we built a services abstraction for different areas, path management, policy, et cetera. I think you'll see something from the MEF coming out soon, to Erin's point,

in terms of how can you abstract the services for these different platforms across different vendors so that carriers then have some sort of a standards representation in terms of how they go about monitoring and managing networks.

Erin Dunne, Director of Research Services, Vertical Systems Group

All right, I guess orchestration will be a conversation for next year at NetEvents, right? At that point I would like to thank all of the gentlemen here on my panel. Can you give them a big hand? Thank you very much.

Manek Dubash, NetEvents

Thank you, Erin, for a great job once again.