New Directions for SD-WAN

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Featured Speakers:

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Mark Vondemkamp, VP of Product in the Service Provider and Edge Business Unit, VMware

Mark Fox, NetEvents
Welcome, everyone, I'm Mark Fox CEO of NetEvents and delighted to welcome the international press here for our session on New Directions for SD-WAN. Chairing the session today, we have Scott Raynovich Founder and Principal Analyst at Futuriom, Scott is also Columnist for Forbes Magazine. In addition, we have our Archana Khetan, Head of Product Enterprise Routing at Cisco, we have Professor Martin Curley, Director of Digital Transformation and Open Innovation at the Health Service Executive in Ireland, and we have Mark Vondemkamp, who is the VP of Product in the Service Provider and Edge Business Unit at VMware. So, without further ado, Scott, over to you.

Scott Raynovich, Founder and Principal Analyst, Futuriom
Great. Thanks, Mark. Happy to have all of you here today. I look forward to an interesting discussion and some good questions from the press. So, I'm going to give a short presentation about our findings in the SD-WAN market. Futuriom is in small independent research company and we focus really on end user research in the cloud, communications and infrastructure space, so anything providing the infrastructure software underlying networks to both Cloud and Enterprise. And as everybody knows, SD-WAN, has been a really interesting market that I started following really about eight years ago. I did a couple reports at a previous business I had known as the Rayno Report and I got interested when a bunch of these venture level companies were being funded and I said, what's this SD-WAN thing in a program? Well, nearly 10 years later, here we have really a multi-billion dollar market, so it's exceeded

many people's expectations I think. Futuriom has been doing an SD-WAN Growth Report for about five years where we project the growth and give an overview on what's driving the market. We just released our fifth annual SD-WAN report, and that available in the press materials section for the event that you can access and download for free. So, let's move on and talk about some of the findings. This is the fifth annual report, we really focus on end user surveys and interviews. We have two annual surveys, and we interviewed both vendors and end users and we collect anonymous data from the vendors about what they see in terms of growth and revenue set in different segments. When we do the survey's we filter everybody to make sure they're shopping for SD-WAN or networks and they know what it is and that they are director level or above. And then we're constantly interviewing end users so you can see some of my materials on Forbes. We also publish a lot of ongoing interview activity on futurism (inaudible)as well as various client websites. So, let's move on and see what we've found so far. There are a few top-level conclusions, both from the SD-WAN Growth Report but also some material from January when we did an SD-WAN Managed Services Report and they're very closely tied together. The demand for SD-WAN, for those of you who don't know what SD-WAN is, software defined wide area networking. It helps virtualize enterprise connectivity and provides many other value-added services including application performance, security, a number of things. And it's this virtualized networking platform that has created the demand the idea that instead of buying boxes, discrete boxes and plugging them in and manually configuring them, you can have a software based networking platform that could also use commercial, off the shelf hardware, specific vendor hardware, you can plug it in, you can manage it from the cloud with software, you can add additional applications, you can switch out the links, you can connect direct to cloud services. So all this has created a lot of demand for this type of service, and as I said, when we first did this report four or five years ago we projected it would hit a multi-billion dollar run rate and it has it's now crossed the $2 billion dollar mark, what we count are a combination of the monthly, we count anybody to shipping SD-WAN as a monthly service which may include a hardware component but has to be bundled with the service. And as many of you know this market is can be complicated, and people sell things different ways but we're really measuring the monthly and annual service revenue from SD-WAN. Another thing that's happened is the whole work from anywhere, the hybrid work environments, has increased security needs and virtualized security networks. This is helping the SD-WAN market, as it expands into an area known as SASE, or secure access service edge. This is going to spur the development with service providers who have additional security and value-added services that can be packaged with SD-WAN. So once you have the SD-WAN platform you can add different security functionality whether that's threat detection or antivirus or firewall as a service, all these security services are being bundled and integrated with SD-WAN platform so it's kind of becoming a Swiss army knife if you will for any networking service. The other thing we keep hearing from end users, comes up on pretty much any interview that I do, is that they like the flexibility and the management of SD-WAN. They can log on to a portal, whether that's the vendors interface software, cloud based interface and orchestrate and set up templates to manage hundreds of branches if they want, or if a service providers providing the service, there's a co portal, they can manage the devices, they can even manage the services in real time. And really that's the cloud consumption model as we call it, like just like you buy Salesforce or MailChimp or office 365 from the cloud, you can now buy, manage and buy your network services from the cloud, which is really quite revolutionary. SD-WAN is starting to extend into multi cloud so connecting to fabrics from colocation

facilities like Digital Realty or Equinix or connecting to the ad services offered by the large cloud providers like Amazon. We're also seeing the integration with enterprise branch wireless to leverage 5G and Wi-Fi 6 and have a seamless branch that can do everything, SD-WAN, 5G Wi-Fi connectivity on a secure connection. So those are the top trends in the market. So, when we surveyed some folks, we asked them if SD-WAN is going to grow as part of a strategy to find alternatives to leased or private lines, and you can see overwhelming 90.8% of the respondents say yes, so really what's happening here is the last generation was really dominated by a technology known as MPLS. MPLS is often delivered in a proprietary way both from the service providers and the vendors. They're locked into a long-term contract, it can be expensive. They can't switch it out, and what the end users have told us over the years, is they want to migrate away from this or have alternative so that they might not necessarily rip out all their MPLS but they want to start using things like private internet transit which are growing in popularity, and really efficacy, performance. Private Internet is really a viable alternative now so you can pair, you can use SD-WAN to toggle between these connections if you will or pair them up or manage them together. That's really been a key factor in the in the early days of SD-WAN. And it's growing now as SD-WAN expands and offers security functionality, there's just all sorts of options. So, as we moved in the next slide. Another key theme I highlighted was that the pandemic environment last year really drove awareness of people's digital network strategy like how are we going to manage networks virtually? How are we going to set up different networks, how are we going to move them around more quickly? SD-WAN plays directly into this, and I'm sure as you read in the Business Technology press the everybody's taking a second look at their digitization and their digital transformation strategies are really accelerating them and that's reflected in this survey when there's more of an emphasis on finding secure Remote Connectivity, 80% of end users said that. So, let's talk about the next slide, again key takeaways here, SD-WAN is seen as a valuable way to manage many enterprise cloud networking functions with the simplicity of software from the cloud, that's really the key value there. SD-WAN platforms becoming strategic for delivery, delivering pretty much any network function, multi cloud networking, SASE, cloud security, application visibility and control. Many of these things were packaged as disk discreet boxes and or applications in the past. And now, when you go to an SD LAN platform sometimes all these functions are available on the next slide we'll have a couple of work. Takeaways. We really see SD-WAN is becoming part of a larger work from anywhere initiative, and it's part of a digital transformation strategy to provide more efficient remote user experience security application control and collaboration. This is going to contribute to the growth. Many of the SD-WAN vendors broke out additional remote access products, either with a client or without a client or things with software that tie into the SD-WAN platform. But think of it this way, it's a virtualized way to control a network from the cloud, okay this person is going to move over here, we're going to move there, the network's going to follow them, they're gonna have secure access to the corporate applications, we can control the policy and what they're accessing, wherever they go, whichever network. They're attached to very flexible. Okay, and finally, on the next slide our revenue this just shows you the impact that the SD-WAN market has had. As I said when I first started tracking it was a tiny market that a lot of people didn't really track, of course, two of the folks on our panel here, Cisco and VMware, made quite large acquisitions in the space. Cisco acquired Viptela of course and VMware acquired Velo Cloud, both in 2017. Once this market started ramping up and now it's starting to get mature and the market is consolidating HP bought Silver Peak last year, Palo Alto bought CloudGenix so you see the traditional

networking, security vendors integrating their tools with SD-WAN as an interesting platform going forward. So, that's the kind of the background of the market, let's go to our panelists and we're gonna have a discussion, I'll let the panelists each introduce them real themselves, real quickly, also fortunate to have Martin here who's an end user, you can give us that shopper and buyer perspective. But, why don't you each tell us a little bit about yourself and what you're doing in the SD-WAN market.

Archana Khetan, Head of Product, Enterprise Routing, Cisco
Thank you, Scott. Let me go first. Good morning and good afternoon everyone. My name is Archana Khetan, I head the product management team for the enterprise routing portfolio at Cisco. It's really exciting and a pleasure to be here and thanks for the invitation to be on this show today. Just a little bit background about myself. I joined the industry in the early to mid-90s This was at a time when internet was still new to most companies, they were still figuring out how to use internet for the business advantage, we still had mainframes in, most data centers that (inaudible) connectivity was still transitioning from a circuit to a packet switch network. And then the security, most commonly was a list of ACLs on a Cisco router if a customer had deployed internet connection. And in the last two and a half decades, I have run Product Management for networking, security, and compute space. So, from that perspective, I've had the benefit of looking at the journey in for each of the three spaces network, compute and network application security, and it's amazing to see how far these journeys have come together. I joined Cisco in late 2019, in the routing and this is my second stint at Cisco, before this from 2012 to 2014 I was also in the data center team running the portfolio strategy and planning, across all of the data center products including compute virtualization and data center networking. And what is really unique about the space right now, which is really exciting for me and my journey so far is that even though the three different infrastructure domains have been influenced by each other, for the most part they have been evolving in their own lanes, in their own silos, and I think right now the industry is evolving, or they both have to work much more closely together. So, I think from a portfolio perspective really the interplay of how network security and applications work closely together to give users the ultimate user experience is really the Holy Grail that we are targeting within our organizations. So, look forward to the rest of the panel and we'll pass it on to Martin.

Prof. Martin Curley, Director, Digital Transformation & Open Innovation, The Health Service Executive
Thanks Scott for the very helpful analysis. My name is Martin Curley, a longtime tech executive, I was a VP at Intel, running European R&D and, more recently I was an SVP at MasterCard running their global digital practice but about three years ago, I took on the challenge of joining the HSE which is the equivalent of the NHS in the UK, driving a digital transformation. We have a very ambitious agenda trying to transform from being a laggard in Europe on digital health to be the leader by 2025. And in the last year basically in response to COVID we've been able to actually develop a number of different platforms, for examples around vital signs automation or remote monitoring of COVID-19 and respiratory conditions and so on that proved very useful. So we've been able to reinvent and actually move from a waterfall delivery type model to a very agile and iterative process underpinning the future or the vision of becoming a European leader in digital health. With our network we have a complex distributed environment with about 3000 different facilities located on the island of Ireland and we're at the early stages of exploring the possibilities of using SD-WAN to transform our network and the vista

ahead of us looks really exciting, and the transformation of our network should run in parallel with the transformation of our digital solutions portfolio, and so glad to be joined you today, look forward to the discussion.

Mark Vondemkamp, VP of Product in the Service Provider and Edge Business Unit, VMware
Excellent, thanks Martin. All right, hello everybody, Mark Vondemkamp, I lead the product for the service provider and its business unit here at VMware. My background started as an engineer, actually a long time ago, I've got to see quite a bit of transformation in the marketplace appliances to virtual machines now containers. And now these cloud delivered solutions I spent most of my time focusing on, the data security stack. Although I have had periods of time where I've actually owned way in optimization products, I guess through a startup that I was In, I transferred over from engineering to product, have been on the product side for I guess almost 20 years now. And here again, involved in both small companies from scratch and larger companies trying to drive new businesses and initiatives, so look forward to today's conversation and with my colleagues on the panel here.

Scott Raynovich, Founder and Principal Analyst, Futuriom
Great, thanks. So, we'll let's go to the first question, and I'll start in the order we started and then we'll reverse it for the next question but so Archana can respond first, I talked a little bit about the impact of the pandemic and remote work and how basically the world has completely changed, at least the business world has changed in the last year. How have you adopted your strategy in response to the accelerated digitization and these trends such as work from anywhere?

Archana Khetan, Head of Product, Enterprise Routing, Cisco
So even before the pandemic hit we were already thinking about our network edge and secured access to applications in a fairly fundamental way, in the way that we always defined our SD-WAN strategy. To be able to provide connectivity to any user, irrespective of its location, to any application, whether it be cloud, hybrid cloud or multi cloud, and across any type of transport or services. So, when the pandemic hit it really made a bigger use case for a user working from home. We already had the solution from a technology perspective available to us and for us it wasn't mainly about packaging the solution and creating an offer in the market that could have been either easily consumed. And we did that, you know, in a fairly short manner. But if I look at the market in the way it has evolved over the last one plus year, I would say in the very early phases of the journey. Most of our customers were basically reacting to their business need, because the pandemic came to them, unplanned surprise. And so, what we really saw was customers beating up on whatever teleworker solution they had already adopted the market. And if you look at most of the teleworker deployments the pandemic most of them really were designed. I would say for the most part, you know 10 plus years ago, in a world where most of the applications were still residing in the data center, and most of the teleworker solutions deployed in the industry, we're really working on a paradigm that needed to tunnel the traffic all the way back to a data center or some corporate location where presumably the applications were located, and most often the users came to us from two different tasks. One was better user experience, a better experience that allowed for the flexibility to divert traffic based upon where the application is actually placed. And as we know this is exactly what the value prop of SD-WAN has been, which has

been in the cloud centric world. And then the second issue we saw was from the IT side which was about the teleworker solutions provided, automation and zero-day provisioning at scale, but they really lacked the service as an observability. That was really needed to troubleshoot problems. And when you have a portion of your remote employees working evening hours those experiences are acceptable to end-users, but when you have pretty much the entire workforce during the critical business work from home this becomes very unacceptable. So, it took us a fair amount of time to spend the time with our customers, both enterprise and SPS, in terms of explaining the evolving market landscape and how the teleworker solutions need to evolve. And what we are seeing now is that as companies are coming back to work with respect to planning what the workforce strategy needs to be, the one thing which is emerging is the concept of the hybrid workplace, which means more and more companies are looking at their employees returning to work, but not necessarily in a full time manner, but giving them the flexibility to shift between on prem, in the office, or in a work from anywhere kind of concept. So, what we do see is that customers do want to have a 20 worker or a hybrid workforce or work from anywhere solution that can seamlessly move across the independent of where the user is situated, which means that they want to have the same solution, the same technology, the same policy set, for managing the user and the connectivity needs, irrespective of the location. So, suffice it to say that the SD-WAN solution that we have is an extension of our branch offering, includes both the teleworker and the brand solution to address the wide variety of needs,

Scott Raynovich, Founder and Principal Analyst, Futuriom
Excellent, thanks Archana for that. Let's hear the end user perspective since Martin is, I understand that you're just looking at this technology, correct Martin? You haven't deployed it, so has the pandemic accelerated the urgency here?

Prof. Martin Curley, Director, Digital Transformation & Open Innovation, The Health Service Executive
Most definitely and I think we've all heard the expression necessity is the mother of invention. We have really changed our approach from a waterfall method of delivery to an agile iterative process. For example, in the very early days of COVID hitting our shores here in Ireland we quickly prototyped a solution that would allow us to remotely manage COVID-19 patients in their home and provide the same or equivalent service. Currently we have more patients being remotely monitored in homes than are in an acute hospital, so that was a really big success, and normally to deploy a solution like that would take two to three years based on previous projects which have been deployed. But we were able to go from concept to deployment across 30 acute centers in Ireland in just five weeks. So, agility was really enabled and specifically driven by the need, and I'll talk about the network impact in a second with another technology that we deployed, is a technology called virus sense. And this automatically wirelessly transmits the respiration rate of a patient who has COVID symptoms (inaudible) just general respiratory patients and we've deployed currently in 16 hospital settings, towards 25 In the next month or two, and Ireland will be the first country in the world which will deliver automated respiration rates and measurement as a standard of care. Currently, that is available ICU in most hospitals but not available in regular wards. So, we have to deploy this technology, we deployed a technology called BlueEye from RedZinc very quickly in the first weeks, of the technology, of the pandemic. And this is a secure video conferencing solution that uses text messages to distribute the

conference to the patient. The patient just clicks on the text message or pops a secure video conferencing service. We've been deploying technology vital signs automation, into our acute hospitals, we've been experimenting with autonomous robotics or robots that the sanitize and kill COVID in wards, and I could give you five or six other examples, but the output of this transformation is that we've got much better services. much more agile services. but we have completely new network requirements. So, we really believe now is the time to think about our network redesign. We can't just think about the 3,000 locations, be they hospitals or primary care centers, we have to think of everybody's home as being a hospital at home. So, for example, we have a virtual respiratory ward where we have 800 patients, even 50 patients with chronic respiratory conditions, being monitored from home, and they're getting equivalent services if they were in a hospital. So, this changes the way the healthcare system works. It would also have a significant impact on how the network is managed and there is the opportunity to look at a redesign and transformation using SD-WAN.

Scott Raynovich, Founder and Principal Analyst, Futuriom
Oh, that's great. I have some questions about the security aspect but we'll come back to that because I know healthcare has specific security requirements, really interesting stuff and fits into the trends I talked about. Mark, VMware has an interesting perspective because you work closely with both enterprises and service providers, so tell us what you've been seeing and your strategy and how you're responding to end user demand.

Mark Vondemkamp, VP of Product in the Service Provider and Edge Business Unit, VMware
Yeah, so like Cisco we had technology that lent itself to this work from anywhere, work from home trend. We've been selling solutions, for example to insurance agents where you basically have an office of one and work from home is basically turned into that. So, we have introduced a new offering, we have some new subscription-based offerings that from a price performance point make it much more appealing. We've had to go back and look at hardware and software features in our roadmap, clearly work from home has a unique requirement, especially with respect to privacy. We've accelerated the offerings in our secure SASE strategy and our secure access solution basically provides another on ramp to the network. We've offered a new cloud web security solution to help protect our users from threats on the internet, help protect enterprises from the misappropriation of data. We take in a solution that we call our enterprise network intelligence, which was the result of an acquisition we did back in January last year, accelerated that integration into our platform, and that solution actually gives us really good insight, into the home. There are two types of connectivity that you really care about, there's obviously that connection to the internet, but there's also the Wi Fi connection so we can help enterprises deliver better services to their end users by giving them that type of insight. And then lastly I would say, as a company, we've taken parts of our portfolio, and brought them together as a solution. So, this year we announced our anywhere workspace solution which is a combination of our Carbon Black EDR solution, our workspace one endpoint management solution and then obviously our SD-WAN SASE platform, so yeah, the pandemic has definitely impacted our strategy and we've done some different things to react to that.

Scott Raynovich, Founder and Principal Analyst, Futuriom
Excellent. Yeah, certainly as an analyst I hear about SASE everyday now as well as zero trust network access, and just a shameless plug we happen to be coming out with our zero-trust network access report end of this month, and thank you Mark because VMware is a sponsor of that. But, on to the next question. Let's talk about some of the drivers that we discussed. I think Martin went over a bunch of them which is great because he reinforced the things we hear from the end users in our surveys. Things like agility, being able to manage multiple branches with software, possibly not dealing with CLS anymore, agility, ability to respond to your constituents needs quickly. But tell us, did I miss any drivers or what are the themes you hear the most about in the market? I'll start with Martin and then go to the Mark and Archana next.

Prof. Martin Curley, Director, Digital Transformation & Open Innovation, The Health Service Executive
Yeah, Scott, I think you've summarized them quite well. It's about agility, it's about cost, it's about performance, and it's about security and, arguably when you line them all up you have kind of a perfect storm. I think it is always challenged with transforming itself but never actually really delivers. You've heard the expression the cobbler's children have the worst shoes and I think it does promise much. In terms of transforming, the business world is quite slowly transforming itself and the other transition to SD-WAN would be a visible manifestation of that so I think just the increasing demands and for us in the HSE and in Ireland, the potential that every citizen in Ireland could be attached to our network is a real driver so you know volume and variety. We've deployed a living lab methodology in Ireland and we have about 40 living labs where we're testing new technologies in-situ. The projects that we're looking at is we're taking one of the islands off the west coast of Ireland called Claire Island, and we want to make it a digital health Island, and we want to be able to proactively monitor every island so that they have actually the best health possible and we change the orientation of the system from being reactive and you're trying to fix, make sick people well, to actually keeping people well. And we're going to have a lot more monitoring, a lot more devices involved so we do this proof of concept on a small scale. And if it's successful, then we will try and start scaling it across the country and this will change the characteristics of our network so we could have 5 million citizens being part of our network as well as the 3,000 different buildings as well as lots of service providers and so on. So, I think there's a seismic change coming, and as well as the traditional things that we discuss about actually volume of connections. I think there's going to be an important variable.

Scott Raynovich, Founder and Principal Analyst, Futuriom
Excellent. Mark, let's hear from you, additional inputs from both the enterprise and the service providers side, what are the top drivers here?

Mark Vondemkamp, VP of Product in the Service Provider and Edge Business Unit, VMware
Yeah, so definitely agree with the drivers that that you mentioned earlier. COVID has definitely caused our customers and our partners to look at the way they're delivering services to their end users, I would say, one of the things that we have learned is that customers definitely start from different origins. They have different solutions in place so as they look at transformation they're not wanting to necessarily rip and replace. They basically need a platform that gives them a roadmap to evolve over time that may

be simply by staying with some of the vendors that they have already. It may be looking at services that can be offered in a more tightly integrated fashion, but the net is you know, customers want a platform and they want that ability to roll out our roadmap. Customers are also telling us, hey I need the same services in the home that I'm able to offer in the office, I need to be able to leverage, you mentioned earlier, those zero trust principles in the home so you know, what's the identity? What context can I collect about that device, that end user, the way that they're accessing applications on the internet, how do I give them risk-based access, as an example, so seeing a lot of interest in zero trust principles and how our solution holds to those. How do I easy easily connect to two different clouds, you know, I want automation. I need security, I need the intelligence to do this efficiently? That's another big topic area, and then from a service provider standpoint with again this transformation that's taking place, ultimately, they're coming back to us and asking us, you help me offer more value to my customers in your platform so you make it easier for me to roll out and expand with my install base of customers and bring them more of this value that helps those customers transform.

Scott Raynovich, Founder and Principal Analyst, Futuriom
Excellent. That's a good overview. Archana, let's hear from you what you've seen at Cisco.

Archana Khetan, Head of Product, Enterprise Routing, Cisco
Yeah, certainly Scott, I think you captured most of the value drivers that we have seen in the market. There is one area I would highlight which is also growing up in voices from both enterprise and SP customers as an emerging need and that is an ask around better visibility and observability of the environment. So, if you look at the networks of today Cloud is the new data center, your internet is a new network, your applications are consumed as a service across one of multiple cloud providers so they are data centers. And then your edge is anywhere, employees. So, as you can imagine if you're an IT ops person you are challenged to deliver not only a consistent, reliable user experience, but you lack the necessary tools to quickly isolate a problem and really be able to work across these different boundaries of different players into the connectivity space to be able to provide value to your user. So, one consistent, as we do see from all the segments, is the need for observability of the environment, both from the network perspective and the application perspective and be able to provide that view across the different facets of the entire technology stack. So, some of you may be familiar that we had acquired 1,000 Eyes last year, and one consistent, asking every VC, every customer has been wellness. 1,000 is getting integrated to get us the tools that we really need. And I would say we announced the integration of the key capability which gives customers a very important piece of the equation right now. So that is something we see a lot. And I think from an SP perspective I would emphasize 5G continues to be an important point for them in terms of growing the value prop within the enterprise or customer environments, and all the benefits of 5G from ultra-low speed, ultra-latency, high bandwidth. But the most fundamentally 5G has the same constructs as SPM in terms of separation of data and control plane. We have already embarked on a 5G journey as a result, offering last mile solutions that leveraging 5G and this allows SD-WAN solutions to use 5G as a primary link or a backup link depending upon the customer environment. So, I do think that is an important passing point for the SPS as well.

Scott Raynovich, Founder and Principal Analyst, Futuriom
Excellent. So yeah, one more question and then we'll wrap it up and then we'll go to the media questions. But if we go to the next question for the discussion. Really, what do you think's going to happen with the SASE thing? I hear about it every day and as an analyst we have to grapple with these marketing buzzwords, but as we defined SASE it's really a collection of security functions at the edge, that are going to be, in many cases, integrated with SD-WAN platforms, are delivered as part of them. Do you see them as different markets, the same markets? Let's talk, we'll start with Mark because I know VMware has a lot of products in this space. So, how do you define these markets? Are they just different tools, are they the same group? You sell them as the same market?

Mark Vondemkamp, VP of Product in the Service Provider and Edge Business Unit, VMware
Yeah, So, we look at data. I'm sure like everybody else from multiple sources, I think everybody pretty much believes SASE and that the different components of SASE are growing. So when we look at SASE I think right now we're primarily looking at SD-WAN, we're looking at ZTA. We're looking at next gen swig. And then we also are looking at Cloud firewall. So, we think those are the foundational components of SASE. In our strategy we are also looking at extending our platform to deliver other high value services like edge compute, are trying to talk about 5G. Those are certainly elements that we will extend off of our SASE platform over time so, I think the market is merging although we'll look at each component probably separately. Each one of these components are growing pretty significantly. I mean all you got to do is really look at the value on some of the public companies in this space and you can see the multiples that are being put on these types of solutions. So, definitely emerging market and growing.

Scott Raynovich, Founder and Principal Analyst, Futuriom
Excellent. Well, Martin. What about your perspective of the new end users? IT directors get hammered with these marketing buzzwords and magic quadrants, does that mean anything to you are you just looking for specific functionality?

Prof. Martin Curley, Director, Digital Transformation & Open Innovation, The Health Service Executive
Yeah, I remember that when I was at Intel we emitted more hype than Hollywood. So, there is a lot of new terminology and buzzwords. I think the end user isn't looking for two separate products, I think ideally we'd very much want SASE as an integrated part so we don't have to do two separate procurements and I think the more integrated security is into the SD one, the veteran. Couple that with zero trust and I think you probably get the best of both worlds. So, less hype, more delivery I think would be the message from the end users and showing proven implementations with proven business cases obviously, the promise for SD-WAN is actually we could do a lot better in terms of improved performance and improved security without significantly less cost. So, replacing those very expensive leased lines with cheap Internet access to remote sites really creates the opportunity for reduction in costs. So potentially this transition could actually be self-funding, and even more than self-funding, we may be able to deliver a lot more for a lot less and that's the promise but it doesn't make sense to have kind of separate security on SD-WAN architectures or SASE has to be an integrated part of SD-WAN.

Scott Raynovich, Founder and Principal Analyst, Futuriom
Okay, that's really interesting. Archana, is Cisco going to integrate your products, not whenever it hits on Cisco as they buy hundreds of companies, but you know the integration sometimes doesn't go as fast as the end users would like.

Archana Khetan, Head of Product, Enterprise Routing, Cisco
Yeah, so I will give two views, one addressing Martin's need and while addressing needs some other customer segments as well. So, we certainly see the promise of SASE and the required desire for tighter integration between the network and security realms. And as you know, Cisco has invested in both the SQL and security space for a number of years both organically and with acquisitions. And earlier this year we did make an announcement, Martin, for customers, the ability to purchase the entire Cisco portfolio across SD Wan networking both Meraki and Viptela across cloud security with our umbrella solution and all its pieces and the roadmap which we are building upon. Further, as well as the zero-trust network access with our Elio solution, so for a customer who is interested in a one stop shop, then we do have that offer today for the market. But we do also have pockets of customers who have deployed their own security solutions in the past, or they may have deployed network solutions in the past, although less so. And they want to have an integration across multiple vendors. So, we also have a lot of deployments with third party solutions like Z Scalar. We also have API level integration with our solutions. Our customers do want to have the seamless experience but across multiple vendors. And then I think from an IT perspective of the emerging trends, we do see the tighter integration of NETOPS and SEC ops. And I think with that view, whether customer chooses the one stop shop that Cisco has, which we of course would prefer, or if you're in the other camp where you do want to have your existing vendors working with Cisco solutions, we are working towards both of those angles right now.

Scott Raynovich, Founder and Principal Analyst, Futuriom
Excellent. So, everybody just give like a two second wrap so we have more time for media questions. Maybe I'll start with Martin, and then go to Mark and then Archana. Just give a two second wrap of the value of SD-WAN and where you think it's gonna go.

Prof. Martin Curley, Director, Digital Transformation & Open Innovation, The Health Service Executive
I think our world has changed and COVID has changed so many aspects of our society and in general work from anywhere. But, you know, specifically in digital health yield the potential is there that you're going to the hospital at home, delivering the same service, better quality of life, lower cost. You'll serve in a person's home and that fundamentally transforms how we look at health networks and as Victor Hugo used to say there's nothing as powerful as an idea whose time has come, and I think we're really on the cusp of something significant with SD-WAN, and it will allow us to re architect our networks and hopefully, optimize costs, performance, security and under geology. So, I think an overnight success takes on average 10 years and I think SD-WAN is quite close to a tipping point so I think it'll be very exciting over the next couple of years.

Scott Raynovich, Founder and Principal Analyst, Futuriom
That's very interesting. I just like to interject real quickly, that's why I like to focus on talking to the end users because if you talk to the vendor community exclusively a lot of them will tell you, oh SD-WAN, it's been done, now we're moving on to SASE or whatever the next big thing is. But to Martin's point sometimes these big technology transformations are painful and take a lot of work and a lot of time and you can't just say, oh, two years, the market that we finished, I mean it's, I think, SD-WAN is probably in the middle of the transformation here as a lot a lot of legs going forward. But that's just an analyst opinion. Mark, what do you think? Let's hear your summary of where it's all going.

Mark Vondemkamp, VP of Product in the Service Provider and Edge Business Unit, VMware
Yeah, I think the next three to five years are going to be really interesting for customers and providers in the market. I think customers really need to drill in to today's zero day one, day two sort of capabilities in the product. I think those sorts of capabilities will help differentiate the types of solutions and the level of integration in those solutions. Vendors are going to have to be at the top of their game. It's a big market, it's a growing market, really big players. We all want a piece of that pie and the only way that we'll be able to really get that is by delivering that value. So, from a VMware perspective it's really about delivering value to our customers, solving problems and making sure that we have happy customers.

Scott Raynovich, Founder and Principal Analyst, Futuriom
Excellent. Archana, your final thoughts and where this market is going.

Archana Khetan, Head of Product, Enterprise Routing, Cisco
Yes, I will go back to the fundamentals, which is where the applications are heading and where are the users heading. And so, based on that, how should SQL and SASE head? If I look at the application perspective we know that a lot of new cloud native apps are coming around because of digitalization initiatives, and of course many of the current software providers such as Microsoft are also moving to SaaS and cloud native apps, but that doesn't mean the entire customer business application landscape is changing. So, if you're talking next two to five years hybrid workloads are here to stay. And similarly, when we look at the users the hybrid workforce is going to stay. Hybrid being a big combination of work from anywhere, as part of the work from home and work from office. So, I think if you look at these constructs the two things that jumped to me are agility, in fact three things, integrity, visibility and doing things at scale with simplicity. So, I think I agree with you, SQL market is still in a transition phase, just as cloud is in a transition phase. And we will continue to see growth and momentum there. And you know the security paradigms are going to transform. And there is going to be tighter integration between network and security but not just network and security in fact I will say tighter integration with the application itself. So that can the applications share intent about how they want their experience and sharing their requirements with the network, I think that is going to be the next holy grail after this. But irrespective exciting times ahead for all of us vendors and hopefully we will have some exciting solutions for Martin and our customers in the coming years.

Scott Raynovich, Founder and Principal Analyst, Futuriom
That's all good stuff. So, thanks a lot for that discussion, and at this point I'm going to hand it back over to George to take the media Q&A so we can have more discussion and the media can send us their questions.

George Rickman, NetEvents
Thank you, Scott. So I just like to remind any of the media listening in, that they can either raise their hand and I can unmute them. I see that Rik Turner's actually emailed me a question in advance and I can see Rik, in the list of people attending so I can unmute your microphone in a second. And then if you want to ask questions, but not verbally, then feel free to type into the Q&A feature, and we will answer your question online live. So, without further ado, Rik, if you're there I'm going to unmute your microphone if you don't mind, I'm sorry to jump on you but if you don't mind I'm going to see if you want to ask your question live, no problem. Go ahead, Rik.

Rik Turner Omdia
Thanks everybody. Yeah mine was slightly, not quite a facetious question, but there was a kind of a wry smile when I formulated it. Should we think of SASE as SD-WAN 2.0? By which I mean that to me SASE was a great way for SD-WAN vendors to broaden their marketing appeal and offering and basically bundle SD-WAN with a bunch of other things network security, (inaudible), as Gartner calls it, and an underlying network, and offer an even bigger service bundle with SD-WAN very much at the heart of it. So, it does feel to me like I don't know whether it's SD-WAN 2.0 or SASE is where SD-WAN needs to go, but that's certainly how I've been interpreting it since I've been looking at SASE as a sort of growing cacophony of noise, for the last year and a half or so?

Scott Raynovich, Founder and Principal Analyst, Futuriom
Glad to hear Rik it's not just me that's hearing, and thinking about this but let's hear from the panelists, jump in as you think.

Mark Vondemkamp, VP of Product in the Service Provider and Edge Business Unit, VMware
Yeah, I can jump in real quick. I definitely think that SASE has caused SD-WAN to evolve. I think the 2.0 reference could be very appropriate. When you start looking at the traffic patterns of SD-WAN with, and maybe the 1.0 version versus the traffic patterns that you're going to see in the 2.0, they're definitely different. The ability to basically decrypt once, inspect encrypt in an efficient manner is driving basically our implementations. They have to be tightly integrated. The way that we expose our services through our management console there are different personas that are now involved in the solution, and we need to make sure that that we're meeting the needs of those personas, so I definitely believe that SD-WAN is evolving with SASE and that tight integration is going to be really important to both partners and customers.

Archana Khetan, Head of Product, Enterprise Routing, Cisco
Yeah, I would add to the view that as the network perimeter evolves the security paradigms, again have to evolve, and in today's world security is far more entrenched than it was in the prior world. So,

from that perspective. Does SD-WAN 2.0 evolve in some form or fashion to some sub segment of the market to just be. What we do is what Gartner and other analysts are calling says the absolutely. But I would also say that market, we tend to sometimes simplify the market with one view, and what we find is that in our customers journey different customers or different phase of the journey, both from a networking perspective as well as security perspective. So, in the years to come, I think you will see a lot of different types of SD-WAN, and cloud managed or cloud hosted security options with at least as seen the marketing umbrella. What defines SASE intent as a state to the purest viewer with the way it was intended to name originally I think remains to be seen, but one fact that does remain is that security has to be far more entrenched as part of SD-WAN offer. And if that's what you're defining SASE, then yes, that will be converting.

George Rickman, NetEvents
Excellent, thank you everyone, and thank you Rik. The next question we have David Heath, who's a contributing editor at ITwire. His question actually follows on quite well from Rik's question which is, what is the limit of SD-WAN? At some point hardware has to get involved?

Archana Khetan, Head of Product, Enterprise Routing, Cisco
I'm happy to take this one, I think we have sometimes oversimplified the market by making an assumption that SD-WAN doesn't have a hardware dependency in here. Because at the end of the day, what is fundamentally forwarding packets, and providing the scale at which services or network constructs have to be offered is the hardware platform. I do feel that networking for a very long time was focused overly on hardware and software but more around the capabilities from a protocol and connectivity perspective, that a lot of the new requirements which were needed very much needed in the industry. Allow the cloud constructs like agility constructs like automation constructs like policy to be able to convey intent, they were all lacking in many of the older networking solutions in general. So, the SD-WAN definition in some ways over pivoted on the software element. And that pivot was the right pivot, but again if I think of software defined piece of, and really as ability to bring to value, the much needed manageability and automation that was lacking. Will there be an environment where software will run on air? Probably not, it will still have to run on some other general purpose compute, if not optimized compute. And as we have seen in the past to maximize on the optimal performance. The, the purpose will compute based upon which many of the traditional routing has been working does, give us the better price performance that is needed. So does hardware continue to evolve, I would say yes, and the software continue to evolve, I would say very much, and they both have to keep in pace with the needs of the industry, and today the bigger gap has been in software that's why the focus on software defined, and the software elements right now.

Mark Vondemkamp, VP of Product in the Service Provider and Edge Business Unit, VMware
Yeah, I also agree with Archana, and one of the things that we're seeing with SD-WAN and SASE is this change in the stack at the premise, at the branch office as an example, in the past it's been a thick edge with a full set of capabilities and now what we're seeing is this transformation of those services that used to run on that device, now moving to the cloud, so I think that footprint. There will be dynamics that drive the capabilities in that footprint. Earlier we talked about work from home, work from

anywhere, and we all know how important not only the connectivity is to the internet but what Wi Fi is providing to the devices on that home network. So I think hardware is going to evolve, there's going to be capabilities in that hardware that are really important, but as Archana correctly pointed out, the agility that you get out of the software in the solution is really where I think most of the value is that.

George Rickman, NetEvents
Thank you. So, I've a follow up question from David is, putting your futurist hats on where will SD-WAN be in 5 years, 10 years from now? Scott You can jump in on this one as well if you like.

Scott Raynovich, Founder and Principal Analyst, Futuriom
Oh dear, 5, 10 years from now. Well. I do see SASE and SD-WAN continuing to converge. If you listen to what our panelists have been saying it's really taking these discrete functions, the functions of the same, a secure web gateway or Caz B or C TNA. The question is how are they managed hosted and distributed, right. So, we're definitely seeing more of these applications, move to a cloud consumption model, great example is, firewall of a serve firewall as a service. Mark referred to the market cap of some of these new players like Z Scalar which are off the charts. So, clearly there's demand for consuming these functions from the cloud. And I think that that does benefit the end user. And some of the key benefits of SD-WAN are really as a management platform, having this platform whether it's hosted by a service provider or enterprise themselves, where they can go into this portal and select the network where it is, how it's delivered, and then select this additional functionality for SASE or security and zero-trust. So, I think SD-WAN will grow as a platform, I don't think it's gonna go away at all, just because everybody's making a lot of noise about SASE right now, I don't think SD-WAN is going to go away because it's got fundamental management, value. And by the way, get on my analyst soapbox, a lot of the hardware vendors forgot about management for a while, and network management hasn't been cool in a long time. But I think from the end user perspective, what Martin said on this, network management is crucial. Right. You don't want a gazillion engineers running around doing truck rolls embedded in COI scripts in the close. You want to be able to orchestrate and manage the stuff from afar with sophisticated software tools, correct me if I'm wrong, Martin, but I think this is where the market is going.

Prof. Martin Curley, Director, Digital Transformation & Open Innovation, The Health Service Executive
Yeah, Scott, I think what we want to do is kind of get all simple. Simplify and automate and orchestrate from the cloud rather than individual configuration of different routers by network engineers. I think you'll find 10 years on, I think SD-WAN will be ubiquitous, so the design of core corporate networks we will have had that sort of full transition, right now we're in the middle of it, arguably, you're looking at Geoffrey Moore's Diffusion of Innovations car where we're still somewhere between the early majority and the late majority adoption and it's going to take five, and some industries, to 10 years to actually fully implement SD-WAN so I think it will be ubiquitous and in 5 to 10 years and we'll be looking for the next paradigm, beyond that, to start experiment and deploy with.

Archana Khetan, Head of Product, Enterprise Routing, Cisco
I will not even venture to make a remark about 10 years, the rate at which technology is evolving. But I would say if you're talking about a 5 year term, a little bit more nearer term the one evolution I do expect to see is, if you look at the application landscape, it is changing dramatically. And today, the policy starting point of an STL infrastructure is still a net op sort of, if you make a net ops and say cops combined somebody in there, putting together a policy. I do expect that a time will be there when applications will share the application policy intent directly. And that's how the SD-WAN networks operate and take it to the next level of agility and automation, which will which the industry by then is going to demand, because we know many of these cloud native applications are very distributed in nature, and they are becoming even more ephemeral in nature, and it's going to be really hard to get expensive. Going back to the question about hardware value and expensive processing power and things like deep packet inspection to try to infer the application intent when they, when rather than influence it could be a much more directive communication between the applications and the network so I think that would be a step in the right direction for the industry and the attorney is gonna have to see you with, where the industry was.

Mark Vondemkamp, VP of Product in the Service Provider and Edge Business Unit, VMware
I guess, just to briefly kind of close this question up. Yeah, there will definitely be more automation, there'll be better security, there'll be more intelligence in the sky and I think you'll see it, you'll start to see that intelligence, driving additional automation to parts of the network that maybe aren't performing in the way that they should. So, I think, AI ops will become a big part of SD-WAN, moving forward, SD-WAN and the integration between the other components are going to be certainly key and that I think you know adjacent trends and technologies like edge computing and 5G are definitely going to change the landscape and drive new use cases so I expect to see, you know the edge computing and 5G in particular, help drive the drive the market and SD-WAN as a solution in the market.

George Rickman, NetEvents
Okay, thank you. The next question I have here is from Steve Broadhead, who's a writer for Computer Weekly. It's quite a long one so I hope I do it justice. So, we have the discussion of what the "next-generation" SD-WAN comprises while, at the same time we have those who are saying "SD-WAN is dead" and the rest of us still trying to work out what the real differences between the artist formerly known as WanOp and SD-WAN are anyway. The point is, it has all got very confusing at a time when businesses have been struggling to adapt their IT infrastructure to the enforced workplace/workforce changes – or even simply stay in business – and need simple advice. Isn't it about time, therefore, we finally stopped talking about island of IT tech and instead about solutions, regardless of the nomenclature? IBM seemed to do quite well out of this approach in the 60s thru' 80s.

Archana Khetan, Head of Product, Enterprise Routing, Cisco
I can make a very bold statement here. If the answer is, don't give me individual products and don't give me different marketing brands, which by the way we don't control, we let the animals like Scott named them, named his movements. I think the user asked if I'm understanding through the long question is, just give him a service I can consume versus technology pieces for me to assemble together

and use. And I think that is a question that I would say yes, that that is a very logical piece for vision for the future in terms of how the vendors have to transform their offering in the market and Cisco did make some announcements on this, as part of Cisco Live earlier this year. And, time permitting, we can definitely do a separate briefing on that.

Scott Raynovich, Founder and Principal Analyst, Futuriom
Maybe I'll chime in after all. Go ahead, Mark first.

Mark Vondemkamp, VP of Product in the Service Provider and Edge Business Unit, VMware
I was just gonna say I think the solution aspect of this is extremely important in that by definition we are now basically bringing together multiple components and SASE so bringing solutions to bear will be important for customers. And then I truly believe that you have to give customers the ability to have a roadmap. You can't assume rip and replace. So, partners are going to be really important for each vendor in the space, because each one of these partners have a foothold, and in some cases they're not going to let go of that foothold so solutions are not only going to be important from the vendor but solutions across vendors will also be important.

Scott Raynovich, Founder and Principal Analyst, Futuriom
Yeah, to that point what I was gonna say is, it's not necessarily incumbent upon one vendor to provide the full solution, everything. What's important is that they provide avenues for an open ecosystem. I mean if you look at the way the cloud was built and why innovation is happening so fast it's things like API's and cross platform, infrastructure as code if you will, and allowing products to work together, using API's and not being able to tie together best of breed products. So, to create a solution having an open ecosystem is very important to that. Martin would you agree?

Prof. Martin Curley, Director, Digital Transformation & Open Innovation, The Health Service Executive
Yeah, don't really have too much to add to that, I just concur with the comments that were made by the other panelists.

George Rickman, NetEvents
Oh, great. I've got one final question from an Editor of AI Business. He says, analytics feel like one of the keys to a successful enterprise networking strategy. How does SD-WAN improve analytical capabilities?

Mark Vondemkamp, VP of Product in the Service Provider and Edge Business Unit, VMware
So, I'll take a stab at that. I think in the visibility that you have with your SD-WAN solution can drive better application performance, it can drive better performance in the network. So, at VMware we believe it's extremely important, here again I mentioned earlier on, we had this technology called enterprise network intelligence, it's an AI ops technology. It's all about collecting context from the land all the way to the application and then helping our customers make better decisions on how that connectivity, how that application performs, so extremely critical component of SD-WAN, I think. And, you know a lot a lot of vendors recognize that.

Prof. Martin Curley, Director, Digital Transformation & Open Innovation, The Health Service Executive
I think, analytics obviously is critically important in terms of actually continuously proving the value of SD-WAN and you're managing performance. Andy Grove of Intel he says if you can't measure it, you can't manage it. Because SD-WAN is arguably a more complex architecture than traditional MPLS networks you actually need a broader set of analytics to holistically optimize, and we can all be joined cost, performance and security and so on. So, I think we need almost an order of magnitude increase in the network analytics that are available, so that we continuously can fine tune and evolve SD-WAN implementations.

Archana Khetan, Head of Product, Enterprise Routing, Cisco
Yeah. And just to add to that, I mean we touched upon the need for observability and service assurance as a key component and expectation from SD-WAN. Whether we look at visibility analytics, or predictive analytics which AI solutions provide, they are fundamental to providing enhanced user experience as Mark already outlined. So definitely, like other vendors in the market, we are going down that journey and it's certainly part of an SD-WAN strategy for us as well.

George Rickman, NetEvents
Great, thank you. I'll hand back over to Scott.

Scott Raynovich, Founder and Principal Analyst, Futuriom
Thanks. Well I just wrap it up. It was a great panel, lots of input, very fortunate to have Martin, the end user perspective, to the insightful commentary from Archana and Mark as well, so thank you to all the panelists for participating. As a reminder, there's a section where you can gain access materials from this event, including our full SD-WAN Growth Report offered free to customers. So check it out, working more in this space, like I said, and zero-trust this month, multi cloud networking in September and SASE in October so the full plate of buzzwords coming your way, and we try to make sense of all of this, and I look forward to joining future NetEvents panels as well. George and Mark, thank you.

Mark Fox, CEO, NetEvents
Thanks very much, Scott, and thanks to the panel. For our press audience as many of you know you could record your own transcript, for those that didn't we'll send through a full transcript tomorrow to everybody that attended. Helen has also provided a link to the bios, photos, media kits, etc. On the NetEvents website in the media area. As Scott mentioned his presentation is also available in that area and we will be producing a podcast and webcast so when you write up your stories, you're very welcome to link to that content as well. So, thanks very much for your time today and we look forward to seeing you towards the end of this month for our cloud native networking session. Thanks very much, everybody. Thank you.