YouTube link: https://www.youtube.com/watch?v=5YAyBFy9vhE



## (bright music)

>> Hey welcome back, everybody. Jeff Frick here with theCUBE We are high atop San Francisco in the Sales Force Tower in the new Accenture offices, it's really beautiful and as part of that, they have their San Francisco Innovation Hubs. So it's five floors of maker's labs, and 3D printing, and all kinds of test facilities and best practices, innovation theater, and this studio which is really fun to be at. So we're talking about hybrid cloud and the development of cloud and multi-cloud and continuing on this path. Not only are customers on this path, but everyone is kind of on this path as things kind of evolve and transform. We are excited to have a couple of experts in the field we've got Larry Socher, he's the Global Managing Director of Intelligent Cloud Infrastructure Services growth and strategy at Accenture. Larry, great to see you again.

>> Great to be here, Jeff. And Ajay Patel, he's the Senior Vice President and General Manager at Cloud Provider Software Business Unit at VMWare and a theCUBE alumni as well. >> Excited to be here, thank you for inviting me.

>> So, first off, how do you like the digs up here?

>> Beautiful place, and the fact we're part of the innovation team, thank you for that.

>> So let's just dive into it. So a lot of crazy stuff happening in the marketplace. Lot of conversations about hybrid cloud, multi-cloud, different cloud, public cloud, movement of back and forth from cloud. Just want to get your perspective today. You guys have been in the middle of this for a while. Where are we in this kind of evolution? Everybody's still kind of feeling themselves out, is it, we're kind of past the first inning so now things are settling down? How do you kind of view the evolution of this market?

>> Great question and I think Pat does a really nice job of defining the two definitions. What's hybrid versus multi? And simply put, we look at hybrid as when you have consistent infrastructure. It's the same infrastructure regardless of location. Multi is when you have disparate infrastructure, but are using them in a collective. So just from a from a level setting perspective, the taxonomy is starting to get standardized. Industry is starting to recognize hybrid is the reality. It's not a step in the long journey. It is an operating model that going to exist for a long time. So it's not about location. It's about how do you operate in a multi-cloud and a hybrid cloud world. And together at Accenture VMware have a unique opportunity. Also, the technology provider, Accenture, as a top leader in helping customers figure out where best to land their workload in this hybrid, multi-cloud world. Because workloads are driving decisions.

>> Jeff: Right.

>> We are going to be in this hybrid, multi-cloud world for many years to come.

>> Do I need another layer of abstraction? 'Cause I probably have some stuff that's in hybrid and I probably have some stuff in multi, right? 'Cause those are probably not mutually exclusive, either.

>> We talked a lot about this, Larry and I were chatting as well about this. And the reality is the reason you choose a specific cloud, is for those native differentiator capability. So abstraction should be just enough so you can make workloads portable. To be able to use the capability as natively as possible. And by fact that we now at VMware have a native VMware running on every major hyperscaler and on pram, gives you that flexibility you want of not having to abstract away the goodness of the cloud while having a common and consistent infrastructure while tapping into the innovations that the public cloud brings. So, it is the evolution of what we've been doing together from a private cloud perspective to extend that beyond the data center, to really make it an operating model that's independent of location.

>> Right, so Larry, I'm curious your perspective when you work with customers, how do you help them frame this? I mean I always feel so sorry for corporate CIAOs. I mean they got security going on like crazy, they go GDPR now I think, right? The California regs that'll probably go national. They have so many things to be worried about. They go to keep up on the latest technology, what's happening in containers. I thought it was doc, now you tell me it's Kubernetes. It's really tough. So how do you help them kind of, put a wrapper around it? >> It's got to start with the application. I mean you look at cloud, you look at infrastructure more broadly I mean. It's there to serve the applications and it's the applications that really drive business value. So I think the starting point has to be application led. So we start off, we have our intelligent engineering guys, our platform guys, who really come in and look and do an application modernization strategy. So they'll do an assessment, you know, most of our clients given their scale and complexity usually have from 500 to 20,000 applications. You know, very large estates. And you got to start to figure out okay what's my current applications? A lot of times they'll use the six Rs methodology and they say hey okay what is it? I'm going to retire this, I no longer need it. It no longer has business value. Or I'm going to replace this with SaaS. I move it to sales force for example, or service now, etcetera. Then they're going to start to look at their workloads and say okay, hey, do I need to re-fact of reformat this. Or re-host it. And one of the things obviously, VMware has done a fantastic job is allowing you to re-host it using their software to find data center, you know, in the hyperscaler's environment.

>> We call it just, you know, migrate and then modernize.

>> Yeah, exactly. But the modernized can't be missed. I think that's where a lot of times we see clients kind of get in the trap, hey, i'm just going to migrate and then figure it out. You need to start to have a modernization strategy and then, 'cause that's ultimately going to dictate your multi and your hybrid cloud approach, is how those apps evolve and you know the dispositions of those apps to figure out do they get replaced. What data sets need to be adjacent to each other?

>> Right, so Ajay, you know we were there when Pat was with Andy and talking about VMware on AWS. And then, you know, Sanjay is showing up at everybody else's conference. He's at Google Cloud talking about VMware on Google Cloud. I'm sure there was a Microsoft show I probably missed you guys were probably there, too. You know, it's kind of interesting, right, from the outside looking in, you guys are not a public cloud, per se, and yet you've come up with this great strategy to give customers the options to adopt VMware in a public cloud and then now we're seeing where even the public cloud providers are saying, "Here, stick this box in your data center". It's like this little piece of our cloud floating around in your data center. So talk about the evolution of the strategy, and kind of what you guys are thinking about 'cause you know you are clearly in a leadership position making a lot of interesting acquisitions. How are you guys see this evolving and how are you placing your bets?

>> You know Pat has been always consistent about this and any strategy. Whether it's any cloud or any device. Any workload, if you will, or application. And as we started to think about it, one of the big things we focused on was meeting the customer where he was at in his journey. Depending on the customer, they may simply be trying to figure out working out to get on a data center. All the way, to how to drive an individual transformation effort. And a partner like Accenture, who has the breadth and depth and sometimes the vertical expertise and the insight. That's what customers are looking for. Help me figure out in my journey, first tell me where I'm at, where am I going, and how I make that happen. And what we've done in a clever way in many ways is, we've created the market. We've demonstrated that VMware is the only, consistent infrastructure that you can bet on and leverage the benefits of the private or public cloud. And I often say hybrid's a two-way street now. Which is they are bringing more and more hybrid cloud services on pram. And where is the on pram? It's now the edge. I was talking to the Accenture folks and they were saying the metro edge, right? So you're starting to see the workloads And I think you said almost 40 plus percent of future workloads are now going to be in the central cloud.

>> Yeah, and actually there's an interesting stat out there. By 2022, seventy percent of data will be produced and processed outside the cloud. So I mean the edge is about to, as we are on the tipping point of IOT finally taking off beyond smart meters. We're going to see a huge amount of data proliferate out there. So the lines between between public and private have becoming so blurry. You can outpost, you look at, Antheos, Azure Stack for ages. And that's where I think VMware's strategy is coming to fruition. You know they've--

>> Sometimes it's great when you have a point of view and you stick with it against the conventional wisdom. And then all of a sudden everyone is following the herd and you are like, "This is great".

>> By the way, Anjay hit on a point about the verticalization. Every one of our clients, different industries have very different paths there. And to the meaning that the customer where they're on their journey. I mean if you talk to a pharmaceutical, you know, GXP compliance, big private cloud, starting to dip their toes into public. You go to Mians and they've been very aggressive public.

>> Or in manufacturing with Edge Cloud.

>> Exactly.

>> So it really varies by industry.

>> And that's a very interesting area. Like if you look at all the OT environments of the manufacturing. We start to see a lot of end of life of environments. So what's that next generation of control systems going to run on?

>> So that's interesting on the edge because and you've brought up networking a couple times while we've been talking as a potential gate, right, when one of them still in the gates, but we're seeing more and more. We were at a cool event, Churchill Club when they had psy links, micron, and arm talking about shifting more of the compute and store on these edge devices to accommodate, which you said, how much of that stuff can you do at the edge versus putting in? But what I think is interesting is, how are you going to manage that? There is a whole different level of management complexity when now you've got this different level of distributing computing. >> And security.

>> And security. Times many, many thousands of these devices all over the place.

>> You might have heard recent announcements from VMware around the Carbon Black acquisition.

>> Yeah.

>> That combined with our workspace one and the pulse IOT, we are now giving you the management framework whether it's for people, for things, or devices. And that consistent security on the client, tied with our network security with NSX all the way to the data center security. We're starting to look at what we call intrinsic security. How do we bake security into the platform and start solving these end to end? And have our partner, Accenture, help design these next generation application architectures, all distributed by design. Where do you put a fence? You could put a fence around your data center but your app is using service now and other SaaS services. So how do you set up an application boundary? And the security model around that? So it's really interesting times.

>> You hear a lot about our partnership around software defined data center, around networking. With Villo and NSX. But we've actually been spending a lot of time with the IOT team and really looking and a lot of our vision aligns. Actually looking at they've been working with similar age in technology with Liota where, ultimately the edge computing for IOT is going to have to be containerized. Because you're going to need multiple modalware stacks, supporting different vertical applications. We were actually working with one mind where we started off doing video analytics for predictive maintenance on tires for tractors which are really expensive the shovels, et cetera. We started off pushing the data stream, the video stream, up into Azure but the network became a bottleneck. We couldn't get the modality. So we got a process there. They're now looking into autonomous vehicles which need eight megabits load latency band width sitting at the edge. Those two applications will need to co-exist and while we may have Azure Edge running in a container down doing the video analytics, if Caterpillar chooses Green Grass or Jasper, that's going to have to co-exist. So you're going to see the whole containerization that we are starting to see in the data center, is going to push out there. And the other side, Pulse, the management of the Edge, is going to be very difficult.

>> I think the whole new frontier.

>> Yeah absolutely.

>> That's moving forward and with 5G IntelliCorp. They're trying to provide value added services. So what does that mean from an infrastructure perspective?

>> Right, right.

>> When do you stay on the 5G radio network versus jumping on a back line? When do you move data versus process on the edge? Those are all business decisions that need to be there into some framework.

>> So you guys are going, we can go and go and go. But I want to follow up on your segway on containers. 'Cause containers is such an important part of this story and an enabler to this story. And you guys made and aggressive move with Hep TO. We've had Craig McLuckie on when he was still at Google and Dan, great guys. But it's kind of funny right? 'Cause three years ago, everyone was going to DockerCon right? That was like, we're all about shows. That was the hot show. Now Docker's kind of faded and Kubernetes is really taking off. Why, for people that aren't familiar with Kubernetes, they probably hear it at cocktail parties if they live in the Bay

area. Why is containers such an important enabler and what's so special about Kubernetes specifically?

>> Do you want to go on the general or? >> Why don't your start off?

>> I brought my products stuff for sure.

>> If you look at the world its getting much more dynamic. Particularly as you start to get more digitally decoupled applications, you're starting, we've come from a world where a virtual machine might have been up for months or years to all the sudden you have containers that are much more dynamic, allowed to scale quickly, and then they need to be orchestrated. And that's essentially what Kubernetes does, is really start to orchestrate that. And as we get more distributed workloads, you need to coordinate them. You need to be able to scale up as you need for performance etcetera So Kubernetes is an incredible technology that allows you really to optimize the placement of that. So just like the virtual machine changed how we compute, containers now gives us a much more flexible, portable, you can run on any infrastructure at any location. Closer to the data etcetera to do that.

>> I think the bold move we made is, we finally, after working with customers and partners like Accenture, we have a very comprehensive strategy. We announced Project Tanzu at our last VM World. And Project Tanzu really focused on three aspects of containers, How do you build applications, which is what Pivotal and the acquisition of Pivotal was driven around. How do we run these on a robust enterprise class run time? And what if you could take every vSphere ESX out there and make it a container platform. Now we have half a million customers. 70 million VM's. All the sudden, that run time we are container enabling with a Project Pacific. So vSphere 7 becomes a common place for running containers and VMs. So that debate of VMs or containers? Done, gone. One place or just spend up containers and resources. And then the more important part is how do I manage this? As you have said. Becoming more of a platform, not just an orchestration technology. But a platform for how do I manage applications. Where I deploy them where it makes more sense. I've decoupled my application needs from the resources and Kubernetes is becoming that platform that allows me to portably. I'm the Java Weblogic guy, right? So this is like distributed Weblogic Java on steroids, running across clouds. So pretty exciting for a middleware guy, this is the next generation middleware.

>> And to what you just said, that's the enabling infrastructure that will allow it to roll into future things like edge devices.

>> Absolutely.

>> You can manage an Edge client. You can literally-- >> the edge, yeah. 'Cause now you've got that connection.

>> It's in the fabric that you are going to be able to connect. And networking becomes a key part.

>> And one of the key things, and this is going to be the hard part is optimization. So how do we optimize across particularly performance but even cost?

>> And security, rewiring security and availability.

>> So still I think my all time favorite business book is Clayton Christensen, "Innovator's Dilemma". One of the most important lessons in that book is what are you optimizing for? And by rule, you can't optimize for everything equally. You have to rank order. But what I find really interesting in this conversation and where we're going and the complexity of the size of the data,

the complexity of what am I optimizing for now just begs for plight AI. This is not a people problem to solve. This is AI moving fast. >> Smart infrastructure going to adapt.

>> Right, so as you look at that opportunity to now apply AI over the top of this thing, opens up tremendous opportunity.

>> Absolutely, I mean standardized infrastructure allows you, sorry, allows you to get more metrics. It allows you to build models to optimize infrastructure over time.

>> And humans just can't get their head around it. I mean because you do have to optimize across multiple dimensions as performance, as cost. But then that performance is compute, it's the network. In fact the network's always going to be the bottleneck. So you look at it, even with 5G which is an order magnitude more band width, the network will still lag. You go back to Moore's Law, right? It's a, even though it's extended to 24 months, price performance doubles, so the amount of data potentially can exponentially grow our networks don't keep pace. So that optimization is constantly going to have to be tuned as we get even with increases in network we're going to have to keep balancing that.

>> Right, but it's also the business optimization beyond the infrastructure optimization. For instance, if you are running a big power generation field of a bunch of turbines, right, you may want to optimize for maintenance 'cause things are running in some steady state but maybe there's an oil crisis or this or that, suddenly the price rises and you are like, forget the maintenance right now, we've got a revenue opportunity that we want to tweak.

>> You just talked about which is in a dynamic industry. How do I real time change the behavior? And more and more policy driven, where the infrastructure is smart enough to react, based on the policy change you made. That's the world we want to get to and we are far away from that right now.

>> I mean ultimately I think the Kubernetes controller gets an AI overlay and then operators of the future are tuning the AI engines that optimize it.

>> Right, right. And then we run into the whole thing which we talked about many times in this building with Dr. Rumman Chowdhury from Accenture. Then you got the whole ethics overlay on top of the business and the optimization and everything else. That's a whole different conversation for another day. So, before we wrap I just want to give you kind of last thoughts. As you know customers are in all different stages of their journey. Hopefully, most of them are at least off the first square I would imagine on the monopoly board. What does, you know, kind of just top level things that you would tell people that they really need just to keep always at the top as they're starting to make these considerations? Starting to make these investments? Starting to move workloads around that they should always have at the top of their mind?

>> For me it's very simple. It's really about focus on the business outcome. Leverage the best resource for the right need. And design architectures that are flexible that give you choice, you're not locked in. And look for strategic partners, whether it's technology partners or services partners that allow you to guide. Because if complexity is too high, the number of choices are too high, you need someone who has the breadth and depth to give you that platform which you can operate on. So we want to be the ubiquitous platform from a software perspective. Accenture wants to be that single partner who can help them guide on the journey. So, I think that would be my ask is start thinking about who are your strategic partners? What is your architecture and the choices you're making that give you the flexibility to evolve. Because this is a dynamic market. Once you make decisions today, may not be the ones you need in six months even.

>> And that dynanicism is accelerating. If you look at it, I mean, we've all seen change in the industry, of decades in the industry. But the rate of change now, the pace, things are moving so quickly.

>> And we need to respond to competitive or business oriented industry. Or any regulations. You have to be prepared for that.

>> Well gentleman, thanks for taking a few minutes and great conversation. Clearly you're in a very good space 'cause it's not getting any less complicated any time soon. >> Well, thank you again. And thank you.

>> All right, thanks. >> Thanks.

>> Larry and Ajay, I'm Jeff, you're watching theCUBE. We are top of San Francisco in the Sales Force Tower at the Accenture Innovation Hub. Thanks for watching. We'll see you next time.