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Architecting the Cloud, part of the On Cloud Podcast

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Episode Title:	**Factors leading to the rise in hybrid cloud adoption**
Description:	To be sure, cloud-native development is surging. However, many companies have legacy applications that aren't ready—and may never be ready—for deployment to the cloud. As an alternative, many organizations are turning to hybrid cloud models. Going hybrid provides many cloud benefits—centralized, management, security, orchestration and automation—without having to move all applications to the cloud. And, with hybrid-cloud models, companies can also effectively leverage IOT and edge computing. In this episode, Mike Kavis and guests, Deloitte's Bob Black and Luis Benavides, discuss the rise in hybrid clouds and how they're helping companies realize the benefits of operating in the cloud while enabling them to build flexible architectures that suit their needs now, and in the future.
	As referenced in this podcast, Amazon refers to Amazon Web Services and Google refers to Google Cloud

Platform

Operator:
Welcome to Architecting the Cloud, part of the On Cloud Podcast, where we get real about Cloud Technology what works, what doesn't and why. Now here is your host Mike Kavis.

Mike Kavis:
Hey, everyone. Welcome to Architecting the Cloud podcast, where we get real about cloud technology. We will discuss what's new in cloud, how to use it and why with people in the field who've done the work. I'm your host Mike Kavis, your host, Chief Cloud Architect over at Deloitte, and today I am joined with a couple colleagues from Deloitte, Bob Black and Luis Benavides. Bob is Deloitte's Chief Network Architect and leads the firm's hybrid multi-cloud network modernization practice, and Luis is a VP in Cloud Development and brings extensive experience that he'll talk about in a second. So, first, Bob, please – welcome to the show – introduce yourself and then, Luis, you can jump in.

Bob Black:
Sounds good, Mike. Thanks a lot for having us. I think you did a great job introducing. So, again, my name's Bob Black. I'm out of our Charlotte, North Carolina, office, and as you mentioned, I lead up our hybrid cloud, multi-cloud and network modernization practice.

Luis Benavides:
Mike and Bob, thanks. This is Luis Benavides. Been with the firm for a couple years and focusing now most recently in hybrid cloud and building out our practice capabilities, but came in through an acquisition of a company called Day1 Solutions, where I was CEO and founder, and Mike, similar to your background as well, we were an Amazon consulting firm, so coming into the company here provided kind of an accelerator as far as Deloitte's entry into the market. Some years I spent at Amazon, and prior to that even as an OEM, so I've had a chance to see this cloud landscape change for quite some time.

Mike Kavis:
Yeah, so a lot of cloud shops on this podcast, so let's dive right into it. You both recently attended Dell Tech World [Dell Technologies World 2019]. What were some of your key takeaways from the show? We'll start with you, Bob.

Bob Black:
Sure. I think the main takeaway – and that's not to say it's the only one, I think the one big announcement that they made was the availability of VMC on Azure. We've seen a lot of clients asking us about VMC and AWS and how it helps accelerate adoption of cloud but would also like to get access to other public cloud vendors, specifically Azure. And, so, I think the announcement there was a key milestone for Dell and a pretty good offering that's going to be available for our clients going forward.

Luis Benavides:
Yeah, I'll add to that. I think it's really interesting to see VMware strategy change over the years where they've been making the shift as well as kind of others in the industry of really embracing the public cloud and figuring out, instead of competing, how to really go to market with them and create new business models. VMC, VM cloud on these public cloud providers is an aspect of that, but they've been making investments into being a broker across multi-cloud. They've been continuing to make acquisitions that are more cloud-friendly and cloud-native, and obviously just in general software defined in a very (Inaudible) to virtualization. So, it's interesting to see that evolution and continue to expand now beyond just AWS to Azure, but I'll add even, on the Dell EMC side, they made an announcement around data center as a service, where they're trying to provide infrastructure in a similar way as far as how you would buy on-demand, or in this case, subscriptions for consuming IT.

Mike Kavis:
Yeah, and it was interesting when they first announced their partnership with Amazon, a lot of people were like, why are they doing this? This is going to move all their workloads to Amazon, and what we're seeing now is that was just the first of many partnerships with many clouds. And I think the other thing is, I'm pretty sure most new development's going to the cloud, but that's still only 5 to 10 percent of all the workloads that are out there, so there's still a need for a lot of on-prem, hybrid stuff. And they've kind of owned on-prem for a while, so what do you guys think about that?

Bob Black:
Yeah, I think you said it right there. I think any net new application development is happening, whether it be through a PaaS system or natively

in the cloud, but there are obviously new application architectures that are being taken advantage of the cloud capabilities. But most of our clients have hundreds, thousands, and in some cases, tens of thousands of applications and workloads that weren't developed anytime in the recent past. So, companies are struggling with, for whatever reason – physics, laws, or skill sets – on how to provide cloudlike capabilities for those legacy applications and how do they integrate them with the new stuff, when they can't move to – the old stuff can't move to cloud. So, this idea of hybrid cloud and revamping the data center as a cloudlike environment, and as Luis said, offering that to clients in a consumption model is really generating a lot of interest within our client set. Not to mention also that a lot of our clients are asking us how they extend those capabilities out to the edge. There are some applications that are best run, especially for manufacturing companies, best run at the edge, so how do they provide the same level of cloudlike capabilities, management, security, orchestration and automation and at the same time provide that flexible consumption model at the edge. So, I think their announcements were spot on and are really going to generate a lot of interest from the rest of the market.

Luis Benavides:

And I think from moving to the cloud, sometimes we look at this too much as a binary decision of, either going all in to the cloud or staying fully on premises. It is six Rs for a reason, to be able to look at where are these workloads best suited for, and how to move them, but also, as Bob mentioned, integrating these environments together so that data and applications are seamless across. And I think that's where refactoring applications, re-platforming them to move to the cloud is one aspect of that, but the rehosting piece where, if you look at this from just efficiency of the apps within even just server compute instances that are available, you know, VMware is the one that's been doing virtualization of these machines for 15-plus years, and they're very efficient in that sense, and we're finding a lot of gains that they're providing around that kind of cloud adoption model and moving those workloads into the AWS cloud that isn't really as obvious, I guess. So, we're seeing a lot of that from our client satisfaction.

Mike Kavis:

Yeah, so the next question – we'll stick with you, Luis, because you mentioned it. Data center as a service, explain what that offering is.

Luis Benavides:

So basically, a modular way to order infrastructure equipment that would go on-premises but then commit to a subscription model so that you can have this in a not exactly on-demand, but in a flexible consumption model. That's really the premise of that, and that means for modular systems, so we talk about hybrid converge type infrastructure from small footprint to larger footprint. But the scenarios we're seeing this, if it's existing on the edge, or if it's remote offices, I think it's going to fit and be more suitable for those type of environments than, say, persistent workloads where you kind of know what the commit's going to be and you may lay out a CapEx in a traditional model. So, again, I think in that sense, you have the IT vendors – traditional IT vendors that are listening to their clients and trying to provide more cloudlike models of adopting physical infrastructure.

Mike Kavis:

Cool. So, the next thing we're going to talk about – I have some strong opinions on this, but I want to get yours. So, there's a lot of buzz about the rise of hybrid cloud. I have an opinion on why I think it's rising so much, but I wanted to get your opinions. We'll start with Bob. What do you think is the major factor or factors that's driving the rise in hybrid cloud?

Bob Black:

Yeah, I mean, I think it goes back to what I was saying earlier, Mike, was I think it's this realization that we're not going to be able to move everything into the public cloud. As Luis said, it's not a binary decision. Unless you're going to – what we find a lot of times is, unless the application – and the applications sort of really drive the decision on where they should reside, whether it's on-prem, in the public cloud, or coexisting across both. When you look at the applications, though, unless you're willing to refactor an application in most cases to take advantage of public cloud capabilities, which in many cases can cost significant amounts of money, or take up too many cycles that a company doesn't have, or an organization doesn't have, what we see is I want to be able to get the capabilities of both on-prem and cloud. So, I really think that that's – as organizations come to the realization that they're not going to be able to go there but they want to be able to have a consistent operating plane, a consistent security environment, a single management plane, I think that's what's really going to be driving the adoption of hybrid cloud.

Luis Benavides:

Yeah, I think that's the – that's probably more of the key are some of those more businesslike factors, rather than maybe some technical reasons. Yes, you might have some compliance and legal around GDPR, or other reasons for that as well, but I think when you look at operating model, existing skill sets, ability to go not just bring in cloud talent and retention of talent, these are operating and organizational changes that have to happen, and I think that's just one aspect. And you add those all up together, our clients aren't able to move to the cloud fast enough, but it's far more than just technical reasons.

Mike Kavis:

My take on this – and you know, I read a lot from people labeled as analysts, and a lot of the talk is, yeah, see, public cloud isn't all that, so

people are moving workloads back to the private cloud. There's so much chatter about moving back, and I don't see a lot of that, and when I do, it's typically more about people not doing a good job of governance on the cloud. But, I work a lot with highly-regulated companies, whether that's fin tech or health or insurance, and what I'm seeing is they all started with the private cloud three, four years ago because they – all the fears and myths of cloud security, and then as time went by and companies started paving the way, everyone started following, and now public cloud is more of a viable option. So, to me, the growth in hybrid is more about the adoption of public, not the other way around. That's just kind of how I see the world.

Bob Black:

I would agree with you, but again, I think a lot of people move directly to the public cloud because I think they get caught up in what we call management by in-flight magazine. This is the next big shiny thing and we've got to do this. I actually had a customer one time, she got mad at me because she told us she had to move all her storage to AWS in this case. And I asked her what problem she was trying to solve, and she said, "Well, nothing really. I'm just doing it because everybody else is doing it. I assume I have to do the same." And, so, it really struck me as – and there's nothing wrong with moving to the public cloud. It's you want to do it that satisfies an application or a business need. But, what we find a lot of times is when we talked about the repatriation, a lot of times when clients shift these applications out there, these are applications that were not designed for cloud.

And what we find is they're put on an instance in either AWS or Azure or GCP that really needs to handle peak performance, but most of the time they're not at peak performance, and, so, what we're finding, as Luis mentioned earlier, VMware has been able to oversubscribe and automatically handle that oversubscription on-prem for the last 20 years. In AWS, for example, if I had that instance, I'm paying for that instance whether I'm using it or not. And, so, I think you're absolutely right, but to Luis's point, when the operational model and the management hasn't been figured out, and I've had not only the sprawl, but I've had this overprovisioning out in the cloud because the application wasn't refactored, We're finding that for some clients, it's costing them a lot more than had they just kept their application on-premise. And that's what we think is driving some of the repatriation. Let's take a step back, reevaluate some things and make some decisions now that are probably much more informed.

Luis Benavides:

I do agree with you. Public cloud is the driver where you had – so there's more maturity in public cloud adoption, which is making this change. Where you had a lot of workload migration approaches as far as getting to the cloud but then you started creating those siloed models around operating environments and, as Bob said, taking a step back, you're really trying to figure out what's the best way to operate all of IT? How do we operate more in a cloud fashion versus traditional fashion? And I think that's where it's introducing more of these types of concepts around brokering, multi-cloud. These are all kind of aspects of what hybrid cloud is.

Mike Kavis:

Keeping on the theme of organizational change and operating models, I had a guest on a few weeks back, Simon Crosby, and he had a great quote. I don't remember the exact number, but a huge percentage of the public cloud builds, are servers waiting for work. So, the on-demand model is great, but if you take your same practices and bring it to the cloud and you're sitting there with idle machines, you're not really getting the advantage of cloud. So, that was a very interesting comment. I wish I had the exact percentage number.

Bob Black:

I believe it, though.

Mike Kavis:

Yeah, that's a lot of the lift and shift, or I have this three-tier app that's not really scaling, it's not really elastic. Can I move it to the cloud? Well, you're paying for that for the rest of your life. So, a lot of it is, you know, use the right tool for the right job type thing.

Bob Black:

And you know what's funny, Mike, too is I've actually seen – there's one client, won't mention the name, but it's a high tech client and they have two groups. One group is all in on AWS and the other group is all in on Azure, and I won't say which one was better, but one group drastically reduced the amount of operating costs they had for their applications by going to one of the clouds, because they really figured out the operational model, refactored some of their applications, made the changes that were required. The other one didn't. As you pointed out, they just moved everything out there and had servers waiting to be deployed, and it was costing them something like three to four times more expensive had they just kept it on premise or adopted what the other group was doing. I think they couldn't even get aligned internally within the company, so that caused a lot of problems as well.

Luis Benavides:

Yeah, definitely ideal to start with one cloud provider first and figure that out and gain those efficiencies. A lot of times that's why we recommend our clients start with minimum viable cloud so that you can go through the experience. But there's other factors I think that are forcing some of the hybrid cloud adoption. A lot of the companies that we deal with also go through M&A exercises – or not exercises, but M&A acquisitions. At least on the acquisition side, some of these companies that they're acquiring are cloud-born, cloud-native companies and they have a cloud provider of choice that they've gone with, so now you quickly introduce multi-cloud into the environment even though the IT board might be centralized on one cloud provider. So, you quickly have to go figure out how are you going to get your arms around this and also push those policies down to different environments and everything their governance and security. There's also that from just an overall maturity of the market and those changes. And then on the asset side, if you're making a divestiture in M&A, moving those systems to the cloud or better integrating also makes it much easier to divest those data center assets, and IT assets in general. So, again, I think it's just – you know, they just have a lot more public cloud adoption that is, to your point, driving that.

Mike Kavis:

Yeah, and we talk about multi-cloud and what's your multi-cloud strategy. Most of the time, it's not a strategy, it's a reality. You just inherit and then you've got to come up with a strategy, so usually it's not a strategy first. It's like, holy cow, I'm all over the place. Now I need a strategy. So, last question. This should be a good topic as well, and I'll start with Bob because I wrote this question because I think of you, Bob, but we're in our leadership meetings and we go through and each person talks about their area and it's public cloud, public cloud, public cloud and this and that and all the different ones, and then Bob will get up and say, "This is all great, guys, but there's a lot of stuff going on in the data center and there's a lot of workloads in the data center and there's a lot of investments needed in modernizing the data center." And then we kind of go down that path and talk about it. And I just thought that would be a great conversation today, why don't you kind of crack that nut open and let's talk about that.

Bob Black:

Yeah. I mean, what we typically see – I mean, look, one of the reasons why public cloud became so viable for a lot of organizations is because, while compute and storage kind of surpassed the networking group in the sense that the technologies – I could turn up a VM in a few minutes, but the network, because of the architectures we've been relying on for the last 20 or 30 years, those protocols and standards that the three-tier data center architecture weren't really conducive for handling, to quickly deploy things, or handle the way we're writing applications today. For example, microservices, right. It's generating a lot of east-west traffic within the data center. So, while we're telling clients absolutely you want to move to public cloud and adopt that as much as possible, the on-premise's infrastructure needs to be taken a look at to re-architect that so that it's a much more collapsed infrastructure, it's much more automated, it's much more secure, we can handle those east-west traffic flows.

What we find is a lot of clients are adopting technologies that kind of fake out that three-tiered architecture, if you will, but we find a lot of times there's problems with scalability and stability, so we do typically recommend a transformation. But I also think we should note too that as part of the messaging, when we talk about public cloud, I think we have to go beyond the data center. We have to talk about how end users access the public cloud, how do we re-architect the WAN to get users closer to the public cloud, how do we secure that access, how do we adopt new technologies to support scalability? So, I think regardless of what cloud architecture our clients want to talk about, there's a broader conversation that needs to be had because, I just think the adoption of cloud has a huge impact on the rest of IT.

Luis Benavides:

Yeah, I think the networking aspect definitely tends to get overlooked, and if that's either public cloud adoption at scale, perhaps low latency if you're working in a hybrid architecture model, or frankly, if you're looking to also have those cloudlike applications within your data center, maybe you use from a Dell Suite, something like Pivotal as far as doing application development across environments that are kind of built the same. But, then, if you're going to support newer generation of applications in the cloud and you're doing this also on-premises, then your network architecture also has to change and support those to new applications, and I think that's where, again, probably take a look as you're looking at a public cloud adoption strategy, what are you doing to modernize your entire IT strategy on-premises and thus creating also those opportunities for hybrid models.

Mike Kavis:

Yeah, and from the application side, working with a lot of clients, some of the areas that are emerging in companies, especially companies trying to get digital, whatever that means, there's a lot of IOT, there's a lot of data analytics, and what I'm seeing is the amount of traffic is going up hockey stick size. I mean, it's just what we used to have to ingest, versus what we're ingesting now and what we're going to ingest in five years, is just amazing. Disc is cheap, and getting even cheaper every day, so how are companies getting their data centers prepared to handle all this?

Bob Black:

Yeah, it's absolutely through that transformation. I mean, obviously public cloud helps to offload a lot of that, but until it can be fully

adopted and adopted in a much better fashion than what we're doing today, like I said earlier, they really need to transform the data center. I talked to a client not long ago, and he didn't believe me that he needed things like spine leaf architectures and, software-defined networking and automation. He told me he could turn up a VM in a few minutes and his network team was right behind that. And I said I guarantee it takes them at least 16 weeks' worth of time – and it's maybe not just 16 weeks full of work, but you figure with the design, the configuration, the change controls, dealing with security, re-cabling and stuff. So, I told him it took 16 weeks and he didn't believe me, but he said he'd go back and check with his team, and he was right. I was wrong, it wasn't 16 weeks; it was 24 weeks. And I tell clients that. I go, imagine that, you're in a competitive industry and it takes you half a year to make network changes to get compute and storage up. So, that's where we like to talk about using technology as a competitive advantage. If I can reduce that 24 weeks, do a transformation and get that ability to get things up in a matter of minutes, that's a six months' head start for, as you mentioned, a healthcare company to get R&D up and running over the competitors. So, I think most companies – and this is every one of our clients. Every single one of them is in this boat. I think they all need to take a look at their data center infrastructure as well as outside the data center.

Luis Benavides:

Yeah, and I think the edge is really going to be an interesting space to watch develop, you know, mentioning IOT and frankly more smart enabled type devices. It's going to increase the need for if it takes CI or data center for service, but more compute at the edge. And you see the public cloud providers starting to make offerings there, kind of Azure Stack, you have the AWS Outpost, you have Google's offering as well, and even Dell announced even their own not just data center as a service, but even VMware cloud on Dell EMC. So, you have more and more of this race to the edge in that capacity, and I think when you have the introduction of 5G, sure it may initially solve things like bandwidth and more abundance of pipe to the edge and back and forth, but people are going to find a way to fill that up. The data creation's only going to increase more and more, so not only do we get distributed computing on the edge, but it's – we're going to find new ways of adopting and creating new solutions that are existing further out. So, it's just interesting to see that emergence coming here pretty soon.

Mike Kavis:

Yeah, I think the impact of 5G is underestimated. When we first moved to the cloud, we always used to do TCO comparisons. This is what I run here, this is what I run there, and it never matched because when people got to the cloud and it was easier to consume, they consumed more. And I think we're going to see the same thing with 5G. I think we're (Inaudible) data coming in that we've never seen before and we probably won't be ready.

Luis Benavides:

Agreed.

Bob Black:

Yeah, and like I said earlier, that's what's going to drive a lot of these new network architectures outside of the data center, outside the cloud. How do I adopt 5G with hybrid-win SD-win. How do I bring in cloud-based security? How do I move those users closer to the cloud or my data center to enhance their capabilities? So, Mike, that's absolutely well-said.

Luis Benavides:

Yeah, those networking infrastructure resources are going to have to handle a lot more. So, not just the capacity of it, but like you said, the architecture design. There's just so much more that's going to impact all the way through. And you add in the cloud component there, that hybrid conversation for modernization is only going to increase.

Mike Kavis:

Yeah, we never get a chance to rest in the world of IT. We never get to tackle just one thing and the next thing's right behind it. So, interesting world we live in.

Luis Benavides:

Never a dull moment.

Mike Kavis:

Yeah, that's why we never get bored. So, gentlemen, we could talk all day, and maybe next time I see you in person we will, but that'll do it for today's episode of Architecting the Cloud. Thank you, Bob and Luis. You can learn more about Deloitte or read today's show notes. Head over to www.deloittecloudpodcast.com. You can find more podcasts by myself and my colleague, Dave Linthicum, by searching for Deloitte On Cloud Podcast on iTunes or wherever you get your podcasts. I'm your host, Mike Kavis. You can find me on Twitter @madgreek65, and you can always reach me at my e-mail, mkavis, K-A-V-I-S, @deloitte.com. Thanks for listening and we'll see you next time on Architecting the Cloud.

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