Deloitte.

For Cloud Professionals
December 2019

For Cloud Professionals, part of the On Cloud Podcast

David Linthicum, Managing Director, Chief Cloud Strategy Officer, Deloitte Consulting LLP

Title: **The state of cloud: a 2019 recap and 2020 predictions**

Description: Cloud has always been a rapidly-changing space that defies expectations. 2019 was no exception, and 2020 promises to bring even more changes and complexity. In this episode of the podcast, David Linthicum and Mike Kavis tag team to review a hectic 2019 and put events into perspective. According to Dave and Mike, 2019 was the year of AI, Kubernetes and cloud complexity. Their prediction for 2020? Next year will see the continued maturity of AI and ML, as well as more, and different, complexity issues caused by increased adoption of multi and hybrid cloud strategies. Dave and Mike also give their advice on how organizations can prepare, especially from an operational and people standpoint, to meet the challenges ahead in the new year.

Duration: **00:23:26**

Operator:
Welcome to On Cloud, the podcast for cloud professionals, where we break down the state of cloud computing today and how you can unleash the power of cloud for your enterprise. Now here is your host David Linthicum.

David Linthicum:
So welcome back to the On Cloud Podcast, your one place to find out how to make cloud computing work for your enterprise. This is an objective discussion with industry thought leaders who provide their own unique perspective around the pragmatic use of cloud-based technology. Today on the show I'm very excited – I'm going to have Mike Kavis, my good friend and colleague, and we'll close out the year with a discussion on cloud computing, what happened this year and what we can look forward into the next. How are you doing, Mike?

Mike Kavis
Doing pretty good, Dave. That year just blew right by, didn't it?

David Linthicum:
Yeah, sure did. Why don't you tell the audience where you are right now?

Mike Kavis
I am in India, in Bangalore, ten and a half hours ahead of you. And the fun part when I come here is I get to work eight to ten hours on India stuff, and then I go to my hotel and work eight to ten hours on the US stuff, so it's awesome.

David Linthicum:
Yeah, we were just at re:Invent last week, and I'll tell you what, I've never had an intense week like that. It was 15-hour days and no breaks, and it was even tough to grab a sandwich at certain times. I don't know what kind of schedule you had, but absolutely pretty intense.

Mike Kavis
Pretty similar, pretty similar. I felt like it was a week of appetizers.

David Linthicum:
Yes, it was, probably a week of gaining five to ten pounds. So anyway, we're going to talk about 2019, close out the year and what we saw this year and give our own perspectives. We're going to talk about what to look forward to next year. And also we're going to talk about things that enterprises should consider in how to prepare for upcoming changes of technology.

So, Mike, I'll go first. I think what 2019 was in the world of cloud computing was a couple of things. I think it was the year of Kubernetes and I think it was the year of cloud-based AI. And so going forward, our ability to in essence build systems that are smart, as well as systems that'll scale, really was the direction. And so while there was a lot of talk about IoT and edge-based systems and things like that, at least the focus of development and the focus of tooling for development was on the AI side. And on the infrastructure side, people are in love with Kubernetes, its ability to create portable containers that provide scalability, and the ability to architect applications for containers, and the ability to run these things on any kind of cloud providers, and the ability for this platform to abstract the differences between the different cloud-native features, between the cloud providers. Enterprises are really seeing the benefit of that. What are your thoughts?

Mike Kavis
I agree, and the one thing I would add – I think it was the year that the public cloud providers acknowledged hybrid and started creating hybrid offerings. So, if you look at Google Anthos, announcements came out early in the year, and just off of AWS more of their hybrid solution. But I just think there's more –Amazon used to not even be able to whisper the word, right, on-prem or hybrid, and you're starting to see more functionality from the public cloud providers providing those capabilities.

David Linthicum:
Yeah, Amazon's selling hybrid cloud now, proprietary to them. But if you look at Outposts, that's what it is. It's a paired private and public cloud. So, I think also if you look at 2019 it was the growth of the multicloud. It really kind of continued the growth in the multicloud. I really kind of consider 2016 through 2018 the rise of the multicloud, and I think people are really kind of considering that that's their primary environment, that they're not going to have homogenous public cloud environments. They're going to have heterogeneous public clouds, and they might as well retool to manage them correct. And I think you pointed out correctly that products like Google Anthos – here it is created by a public cloud provider that actually accepts and is able to manage orchestration between different brands of public cloud. It really is the direction. We just don't seem to see that from the other providers. Why do you think that is?

Mike Kavis
Yeah, I think a big part of that is the guts of the Google's solution is Kubernetes which is kind of an opensource product that is endpoint agnostic. So their hybrid strategy was anywhere, where the other vendors' hybrid strategy is your private or our cloud. So I think they were the first ones to come out that way. I would expect that if it's successful you'll see the other ones kind of reach out to the other public cloud endpoints in the future.

David Linthicum:
Yeah, I was expecting to see some multicloud management announcements at re:Invent next week. I mean, I wasn't surprised not to see it, but it seems to me that if they're starting to move in that direction that they should have the ability to manage other cloud brands.

So looking forward to 2020, how do you think they're going to support the multicloud movement, the cloud providers specifically?

Mike Kavis
Yeah, and that's a question I have because, although they're all releasing all this stuff, I've yet to see broad adoption of all this stuff. So, usually when I see hybrid, it's still some VMware-based solution with the public cloud provider. Not that it isn't happening, but these are new solutions. So I haven't seen a mass adoption of that, and usually it's mass adoption that drives the requirements and the features to do the multicloud management. So if you look at – like Amazon was kind of one of the later ones to the game to do the blockchain solution last year, and their thing was, well, demand isn't high enough. And then finally in 2018 it got high enough, and they released blockchain as a service type capabilities. So I think that next there'll be a lot of heavy POCs and usage of these kind of public-private hybrid solutions, and I think that will drive the requirements for multicloud management.

I'm still struggling with that because the one thing that's not agnostic is the IAM capabilities for each cloud provider. And it's hard to manage from one place if you have to go off that. So an example is if I'm on Amazon, I use IAM, every API I use on Amazon inherits that IAM. If we get to a point where IAM is done outside of the cloud provider, you lose a lot of inheritance. So I'm still not sold on that direction yet, but we'll see.

David Linthicum:
So what happened with DevOps in 2019? Do you think it continued to grow? Do you think it was plateauing? Do you think we went off in different directions? I know you've been working on some stuff where you tie it into ops model changes and things like that. Are we focused on cultural changes? What's your opinion?

Mike Kavis
Yeah, so we rebranded a lot of things as DevSecOps and AIOps and SRE, but at the end of the day it's all still the same endgame, and that is better collaboration, delivering faster, shifting stuff left. So I see much more adoption of DevOps, and I use that term loosely because it's starting to include all those other buzzwords I just mentioned. And there's a lot of acquisitions in that space, companies buying like CloudBees and all those other things, so I've still yet to see a broad adoption of DevOps as a service type solution. I still see people cobbling together open source projects and putting that together. But I was at the DevOps Summit a few months ago, and just every year the stories you're hearing from everyday enterprises making monumental shifts in thinking on the way they deliver software and removing waste from the system, client system thinking – and it's not widescale, but I see much more adoption of kind of the concepts and people realizing that speed to market is a competitive advantage and moving in that direction.

David Linthicum:
Yeah, and it doesn't really make sense for you to put together a good, solid cloud infrastructure that's able to deploy systems and provision on demand and things like that if you don't have the ability to leverage that infrastructure. So it's value to value. If you have just value on the cloud side, it's not going to make much of a difference if you have no development streamlining, no agile capabilities of getting things fixed, or am I smoking something?

Mike Kavis
Yeah, yeah. I mean, a lot of the companies who first went to the cloud were treating the cloud like a datacenter. So it was just another IAS solution, and they weren't really getting agility. And the companies that went in there and started adopting these DevOps principles started gaining some agility and also started moving up the stack more. They started to realize that, hey, if I go use this managed Kubernetes or this managed database-as-a-service, I don't need these hundred VMs anymore and have to manage those and patch those. So it's a combination of those two things, I think is where people started getting the agility. But a lot of times you have to go take your lumps moving to the cloud and learning these things before you realize that, hey, this is more than just an IAS platform, and if I can't have an automated build process, it's still going to take me a long time to deliver software.

David Linthicum:
So looking forward to 2020, what do you think the key cloud themes are going to be for next year?

Mike Kavis
Well, I think some of the things we saw this year, right? The emergence of a lot more AI and ML functionality. I think just from the work that I'm doing, much more work on the analytics side but more from the business context. So typically, hey, big data, we're going to throw everything in a data lake, and then we're going to go look for a hammer for that nail, right, or the other way around, we've got the hammer and we're looking for nails. I think what I'm seeing now, at least from the projects coming our way, is we're getting business problems to go solve these, and we're solving those with a lot of data and analytics and machine learning things. So I'm hoping to see this trend continue where instead of IT building these things for the sake of IT and then going and trying to find a business partner to use it, the business is coming and saying, "I need it to do these things." And that's going to drive a lot more of these capabilities.

David Linthicum:
So from a technology perspective do you think we're going to focus on Kubernetes? And do you think that, like, the emergence of federated Kubernetes and the ability to kind of leverage a multicloud through these very deep transactional abstraction layers that federated Kubernetes is able to provide is going to start showing up as use cases?

Mike Kavis
Yeah, that's a good question. Again, there's a lot of companies that have the mindset that I don't want to be locked it; therefore I'm going to be agnostic, and Kubernetes is the answer to that. And a lot of them are spending a lot of time doing a lot of plumbing. And, the big thing for me in 2020 is how many of them are going to adopt managed Kubernetes, whether that's managed by the cloud provider they're using or managed from third party solutions. That's what I think the battle's going to be. I think a lot of companies are all into Kubernetes, kind of like when everyone was all in on private cloud, and then 18 months later they come up and say, "I didn't produce a lot of value there. Let me start investing in public cloud." I think we're going to see the same thing in Kubernetes, is that a lot of people are going to spend a lot of time building their own Kubernetes platforms, and they're going to come out of that 18 months later and say, "I should've just bought a pass," or, "I should've just used the managed Kubernetes my cloud providers provided me."

David Linthicum:
So you're kind of skeptical on the fact that since it is kind of an opensource, DIY thing at the end of the day, that a lot of organizations are basically going to have the same issues they had with OpenStack a few years ago, that it's too complex to knit together yourself, and this is something you should probably get on demand through a particular cloud provider and something that should be managed for you and the complexity is going to kill you? Is that what we're thinking?

Mike Kavis
I believe that's true, but I'll caveat that with there are some companies that will basically, right or wrong, refuse to be locked into a vendor and their constraints that they put on themselves will require them to do everything agnostic in Kubernetes. And those companies will roll their own and they'll go down that path. Others that aren't so constrained will realize after doing a lot of work that I'm not adding a lot of value because I'm always patching this, I'm always managing it, I'm always running this; I can get this as a service. So there'll be some companies that'll always roll their own and they just have that mindset that they'd rather be locked into themselves than locked into any of the cloud providers, but I think there's going to be others that are going to spend a lot of time and money, just like they did with OpenStack and other things, and say, "You know, I can get this managed for me."

And there's this myth on lock in. In the old days if we built something, locked into a mainframe or locked into Oracle, the effort to make that – to take that out and put it into something else was monumental. In the age of the cloud where almost all the infrastructure's abstracted and everything's an API, it doesn't take –if I say I'm going to use managed Kubernetes on AWS, and then I go to Google and use managed Kubernetes there, the effort to switch from one set of APIs to the other isn't as monumental as we've seen throughout our careers. It's not an 18-month thing if you're writing (Inaudible) services and stuff. I'm kind of rambling here, but I just think at some point enough people are going to scratch their head and say, "Why am I doing this work when I can get this as a service?"

David Linthicum:
Yeah, it's the reason we're dealing with cloud, is we're trying to push as much responsibility for managing infrastructure and application platforms out to other people who probably know how to do it better than we do within the enterprise. And so ultimately, my advice to clients is that this is something you should really consider about not doing yourself and ultimately taking the leap. I understand there's a certain amount of lock-in involved, maybe some risk in making that happen, but I think there's a lot more risk in you trying to operationalize something that's new, you're not necessarily skilled to take care of. And that's the other thing I see. We're going to see next year a lot of enterprises, but they're in the minority – are going to hit the 50 percent mark in terms of application workloads that are moved in, and I'm including SaaS in that as well –SaaS and infrastructure as a service and platform as a service. And we're going to see a lot of operational challenges because of the complexity, because of the security issues, because of the heterogeneity, but mostly it's because we're lacking the skills on the operations side to operate cloud effectively. So what do you think the solution's going to be to that problem next year?

Mike Kavis
Yeah, I'm glad you bring that up because –we go way back. We've been in the cloud for a very long time. The last 18 months I've probably spent most of my time on the people and process side of it, the operating model, the rethinking, redesigning software development processes. And I think the way to solve some of that complexity and the way to scale is to kind of rethink how you deliver software, right? Most of our processes were built when we were in the datacenter and built with an expectation that we would deliver two, three times a year. And now we're moving to this world of cloud where our infrastructure's immutable. If done right, we could deploy daily. But we're still using our same tools from the datacenter. We're still using our same processes. We still have to go through 12 CAB review boards. And those are huge bottlenecks, and I think the way forward is to really stop and think about and look at a group's role today and map it to what the role will be like tomorrow. And you have retrain, you have to redesign processes, you have to rethink the enterprise.

I mean, this is an organizational change. This isn't just technology. And I think some companies, they'll have a pocket of success. They'll have their dot-com is a bunch of real go-getter, cloud-native people. They do a great job. How can I replicate that through the company? Well, it's a great job because these people are smart and heroic and they've done this, but how do you scale that? You can't scale that. You have to retrain a lot of people. You have to rethink the whole operating model. So that's where a lot of my work is today, and enough companies have been in the cloud long enough where they're pretty good at building but they're not really good at running, and that's because they're trying to run things the old way.

David Linthicum:
Yeah, and I think they're not good at running because we're building things through very decoupled sprints that are not necessarily leveraging common systems. So there's no common security layer, common governance layer, common management and monitoring layer, and therefore the complexity becomes so overwhelming that when you turn it into operations, they really aren't staffed and skilled to operate these things that are praying to different cloud computing gods. They may have a multicloud, they may have different security systems, different governance systems. And we're building these things with the battle cry of best of breed, which I get. I like using the best tools, certainly the ones that are focused on the requirements that I have. But in doing so, I think we're painting ourselves into a complexity corner.

So getting to the three things that enterprises can do now to prepare, I'll go ahead and provide my three, and you just kind of hit upon it. I think the skilling – the ability to retool the humans in your organizations is probably going to be something that's on the critical path, on the ops side on the dev side, on the architecture side, and getting people prepared for the fact that cloud is going to be a systemic change in how we deal with IT, and also cloud is going to be a systemic change in how we deal with security and how we deal with governance, and all those things are going to change. It doesn't mean that you're necessarily going to get into something that's harder – it should be easier – but you're going to have to have the skills, the tactical and strategic skills to make that happen.

The other preparatory thing would be look at doing wonderful things with your data. Now, that in many instances, we have access to information and the ability to combine information we couldn't do five years ago—the ability to weaponize that for the business, the ability to use it as a force multiplier so you can disrupt the markets that you're in. I think that most enterprises and certainly in the marketplaces don't have a good handle on how to leverage data that's within their firewall, or within their cloud. And the ability to kind of look toward that strategically is going to be a fundamental, critical path to success. And I think that many enterprises are so focused on moving apps and data into the cloud, they're not looking at utilizing cloud. And so we have AI-based systems, we have the ability to leverage data in training AI models and things like that. Well, let's go ahead and do it. Let's go ahead and even do some prototyping to see what we can get with our data.

Finally I think it's the ability to think through the needs in dealing with operations. And I think that we're going to deal with a fight on complexity coming forward. We have cloud complexity management, which is kind of a term we coined at Deloitte, but the ability to leverage key tools, automation abstraction, you mentioned AIOps tools, the ability to leverage those as force multipliers, and the ability to put automation and abstraction layers so actual human beings can monitor and manage these systems without many breaches and many failures. So what three do you have, Mike?

Mike Kavis
Well, the first one is one you mentioned and it's the training. So invest in training. Invest in helping your people get certified in whichever cloud or solutions you're using. But along with that, once you train them, once they get certified, you'd better figure out how you can keep them, right? Because that's what everyone's looking for, is those certified people So train your people but also look at incentive programs. Look at how to recruit and retain and maintain people. So that's a big one. People's a big one.

The other thing is realizing that the role of IT now is more product-focused. So you're going to be building cloud platform. You're going to put your guardrails on top of the clouds that you choose. And you're no longer, here's the network domain, here's the disk domain, here's the security domain. It's like you're an internal cloud provider, right? And I always say, "What would Jassy do?" WWJD, what would Jassy do, right? Well, what does Jassy do? Amazon. They put people out in the field who evangelize and who help teams build and architect, and they also get feedback on what services they need or what additional features and they bring that back and then you release that with a platform. But this is now a product mindset and your customer is the developers. So you have to think differently. This is no more the office of, "No, I control everything." It's how can I enable, empower developers with tools and keep them safe at the same time? So that's the whole op model, new way of doing operations, all that stuff, is you need to think differently about it.

And then the last one you kind of also touched on, the proof of concepts. I'll change that a little to let's think about proof of value. So I have this team called the Cloud Garage, and what we do is we build proof of concepts that align with what our customers want. So if a customer's thinking about AR-type functionality, then we'll go do a proof of concept of AR to their use case, because too often what happens is we go do a proof of concept and we have no need on the other end, and we've proved that we know how to do this IoT thing, or this big data thing; then it goes nowhere. So start looking at business opportunities that you leverage these new technologies, whether it's machine learning, AI, and do a quick proof of value of that. Here's a proof of concept for your use case. And I think freeing up some talent to be able to address these emerging technologies and align them with business is something a lot of companies should consider doing.

David Linthicum:
Yeah, absolutely. I think you just nailed it, and we're going to go ahead and stop there. I think that's great advice. Specifically, anticipate what's going to happen in one year to two years. I think that's what the focus needs to be. And how are you going to retool? How are you going to get the different skilling to make cloud or any other technology work for you? So anyway, great year and looking forward to 2020 with you, Mike.

So if you enjoyed this podcast, make sure to like and subscribe on iTunes or wherever you get your podcasts. Also check out past episodes, including On Cloud Podcast hosted by Mike, Mike Kavis and his show Architecting the Cloud, and buy his book by the same name up on Amazon. If you'd like to learn more about Deloitte's cloud capabilities, check out DeloitteCloudPocast.com. And if you'd like to contact me directly, you can reach me at DLinthicum@deloitte.com. And Mike – you can reach Mike at MKavis@deloitte.com or on Twitter. Mike, you go ahead and tell me what your Twitter name is.

Mike Kavis
@MadGreek65.

David Linthicum:
Follow Mike's stuff – he's a smart guy – and read his books. They really kind of explain how to do this stuff and in terms that I think human beings can understand, and I think that's important. So until next time, best of luck with your cloud computing projects. We'll talk to you guys in about a week. Take good care.

Operator:
Thank you for listening to On Cloud for Cloud Professionals with David Linthicum. Connect with David on Twitter and LinkedIn and visit the Deloitte On Cloud blog at www.deloitte.com/us/deloitte-on-cloud-blog. Be sure to rate and review the show on your favorite podcast app.

Visit the On Cloud library

www.deloitte.com/us/cloud-podcast