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The Deloitte On Cloud Podcast

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Title: **Cloud and AI: their future is bright, but complexity management is crucial**

Description: Cloud—despite some recent challenges—is the future of IT. That future is also increasingly intertwined with artificial intelligence (AI). In this episode, David Linthicum sits down with eWeek's James Maguire to discuss the future of cloud and AI. According to James, cloud and AI will grow to be symbiotic and eventually merge, but that will only add to the complexity management challenge. In the future, superclouds will help mitigate complexity, and AI will be their engine for success.

Duration: **00:25:25**

David Linthicum:
Welcome back to the On Cloud podcast. Today on the show I'm joined by James Maguire, editor-in-chief at eWeek. How're you doing, James?

James Maguire:
I'm good, Dave, how're you doing today?

David Linthicum:
This is going to be an interesting podcast because I think we, I deal with a lot of journalists and analysts and people throughout the years. It's funny how I go from company to company, had a long career, but typically run into the same people who are the primary innovators in terms of content and what people are following out there, and how the tech trends are being translated into ways in which things that are consumable to people that are leveraging the technology. So, how long have you been in the tech content business?

James Maguire:
Yeah, longer than I want to admit, Dave. I actually, I began as an editor of Datamation in the year 2006. I've actually been covering cloud since 2007, 2008. I was at the Interop conference in, I think it was 2008 in New York City, and I saw this small booth by this company called Amazon Web Services. So, I've been covering cloud really pretty much from the beginning and so, eWeek covers cloud along with data analytics, artificial intelligence, internet of things, digital transformation, pretty much all the technologies that move the enterprise forward.

David Linthicum:
So, what do you think changed the most, say since you've been covering this space? What are some of the things that you, just maybe have surprised you and some things that didn't surprise you in terms of how we're dealing with technology moving forward?

James Maguire:
Yeah. A couple of things. One is, I'm amazed by the level of complexity. IT has always been complex, but I think in the last maybe three to five years – and I've heard this from a number of professionals – the level of complexity in enterprise IT has taken this hockey stick move up and to the right. It's like obviously there's multi-cloud, there's artificial intelligence. Data has become ever more central. IOT, should be computing. Kubernetes—it's really—things are way, way more complex than they used to be. The other thing is the nature of cloud itself, when I first started covering the cloud way back when, I looked a decade out in the future and everyone was like, "Oh yeah, cloud is going to really take over everything. Cloud is going to kill the data center." As it turns out, that was really wrong. The data center is still very much alive these days and, in fact, we're still trying to figure out cloud. So, go figure.

David Linthicum:
Yeah, and even moving stuff back to the data center, that seems to be a trend.

James Maguire:
I find that move, that the idea of repatriation, I find that really shocking. The idea is that people are actually migrating from the cloud back to the data centers. I never thought that would happen.

David Linthicum:
I anticipated this a while ago, because if you think about it, we moved to the cloud for some operational efficiencies and the cost efficiencies. And I think once we get certain things in the cloud, if we're dealing with very simplistic things like mass storage, we're just storing video files, for example, or audio files for example, and then we have this huge cloud bill that comes every month because we're doing it on the cloud and we can do it at, say, 20 percent of the cost with some of the on-premise systems, we're going to move it to where we're going to have the best cost advantage. And, so, cloud, if you're able to weaponize agility, unless the ability to self-provision and the ability to get into these innovative states, things like that, that's where the value of cloud really is.

But lots of companies, including other cloud providers, may not want to leverage those particular services. They don't need agility. They need a repeatable service that's fairly simplistic, that they can pay the least amount of money for, and so that's why ultimately there's some repatriation going on because they started in the cloud, did so because they couldn't afford the infrastructure. It takes a million dollars at least to get a data center in place and get the servers bolted into the racks and get everything up and running. I've done that as a CTO before. And, so, they couldn't afford it, so they bought it as a service and then once they reached a certain revenue goal, they realized it was probably more economical for them to repatriate in the data centers. What are your thoughts on that?

James Maguire:
I think in some ways really the real value of the cloud is not necessarily storage, but it's the tool set there. It's this enormous tool set where you log on and the cornucopia of tools is really amazing. So, it really turns the enterprise into this highly, highly functional thing that was far more functional than ever before. It's storage, it's compute, it's really, it's the tools out there that makes the cloud so special in my view.

David Linthicum:
Yeah. Yeah. Like I said, it's 90 percent of what we do is going to benefit from the cloud because of the innovation that occurs. It's going to have the most innovative systems that are there, because that's where the investment is being made and the technology community, it's just not there. It's not there for everything. And to your point you made at the beginning of the discussion that traditional data centers don't necessarily explode, but they don't necessarily go away. There's lots of reasons why we're going to maintain traditional data centers and certainly the commoditization of the hardware and the cost of hard drives just crashing over the last ten years is going to stop some things from migrating and cause some things to migrate back. That doesn't mean that the majority of enterprises won't gain a tremendous amount of value of leveraging public clouds. They certainly will. That trend will continue, but not necessarily going to decouple from these data centers anytime soon.

James Maguire:
Totally agree on that, actually, surprisingly. But that, I think that is very much the reality these days.

David Linthicum:
Yeah. And the thing about it, it's not a good, if you're an architect, you don't sell anything. You're not enamored with cloud computing or data centers or anything out there. You're, in essence, trying to back the right solution into the right requirements. And, so, everything has to be on the table, and you have to keep an open mind. And, so, that's something I've made a philosophy of my career, so I never show up with an idea that's preloaded into what kind of technology I'm going to leverage because anything could come up based on the requirements we were looking for. Speaking of cloud—cloud and AI—which is going to be our core discussion here is an interesting topic because really, you think about the resurgence of AI.

I'm 60 years old and I worked on AI systems back when I was 19. I built LISP systems. And it was un-economically viable to do anything with that. So, in other words, okay, big deal. I could do AI, but there weren't many business applications that could afford moving their systems in AI. And also, the AI capabilities weren't really there compared to where they are today. So, cloud changed all that. In other words, it made AI technologies affordable and the ability for small businesses, the medium size businesses, typically you couldn't afford the millions of dollars of infrastructure it took to build these artificially intelligent systems, to weaponize these things, to leverage them as a true force multiplier, to leverage them with their existing data to get to another state.

And we're seeing innovative instances of this right now. The rideshare, big rideshare technologies and dwelling-sharing technologies, all this stuff that is dependent on AI capabilities, and if it wasn't for the cloud's ability to provide those capabilities, make them affordable and make them easier to use, they probably wouldn't have been around. And, so, ultimately, the two categories feed off each other, and I think that AI would not be where it is today, were it not cloud, and I think cloud may not be today, were it not AI, based on the fact that they're interdependent. What are your thoughts?

James Maguire:
I really see that. I think cloud and artificial intelligence have very much of a symbiotic relationship. Kind of interesting to look at where they are with each other. They're obviously in very different places in terms of their overall growth curve. Cloud, and I think you talked about this, has a shorter history than artificial intelligence, which goes way back. But cloud is, of course, further along in terms of enterprise adoption. Cloud, of course, as we know, it's really foundational in the enterprise while AI is pretty much closer to the exciting new arrival. The one thing I think is really interesting, though, is that while they're at different levels, they do have something very much in common.

I think both cloud and AI have both created some very serious frustration in the enterprise. I think it's worth mentioning, to talk about a little bit and to understand where they are with each other. So, if you look at cloud, a lot of companies have moved to the cloud without fully planning partially because we're still in the first generation of cloud use. There isn't a long legacy experience with cloud. At this point, but there wasn't that same rush to plan with the cloud. I think that was really the problem. So, I think what I hear a lot of these days is there's a frustration around the sense of complexity around the cloud. Multi-cloud means working with different providers, different tool sets, different capabilities, different pricing structures.

So, I think that companies are in many ways not totally happy all the time with cloud, and that's cloud. When I look at artificial intelligence, I see an even higher level of frustration. The hype is deafening. Companies know they need to get on board, but a lot of times they're confused. I think companies have made initial AI deployments. There have been some successes, but I think there's plenty of expensive science experiments too. I think I've heard frankly from executives that in many ways AI is not quite ready for prime time.

David Linthicum:
Yeah. You said something very profound, and I think just digging into a bit I'll give you my take on what I see the big problems to be is the fact that it's being applied in areas where it shouldn't be applied. And, so, in other words, AI technology always had a certain amount of use cases that it was open to, and they're fairly narrow depending on the larger business use cases out there. So, in other words, you can do some business analytics with it and things like that, but it doesn't make sense to always have AI capabilities mesh with business analytics depending on what you're doing. It doesn't always make sense to mesh AI with business processes and business process re-engineering kinds of things. And I think we're kind of causing a forced marriage in those areas. And, so, we have this cool new toy, and we want to use it.

It's like we have a new tool in the tool shed and we want to use it to do some stuff, but we can do some tremendously creative things and some valuable things, but we can also do a lot of damage as well. And I think that really, they're not necessarily getting to understanding what the technology is, how to leverage it correctly, and the proper use cases, understanding the solutions that they need to leverage. And, so, using it in areas where it's not going to be successful, that seems to be the biggest faux pas I think that's going on with AI and cloud. So, in other words, cloud is making it cheap. I can use it just with a few bucks, get my credit card out, start doing, have massive amounts of learning data, train an AI model. But I never ask myself, and I think we should ask ourselves, should we do this? In other words, is this technology appropriate for solving this problem? And I think you hit the nail in the head that's what we're running into right now.

James Maguire:
And I think, you're talking about the cloud-AI relationship, part of the problem is that AI itself is so challenging. I think that not all members of the C-Suite truly understand it. It is a very complex technology. Deep learning, neural networks, algorithms. I think there's a sense that AI is a magic potion. You sprinkle it on software and the software does amazing things. The other thing that's really confusing about AI is that companies in the market for an AI solution selecting among the various vendors have no clear way to kick the tires and do a comparison. Is one vendor's AI better or the other? It's all very black box. But the one thing I think is worth making a point about AI is that it really is like no other technology that has come before. It really is a radical break from the past because of one key fact. An AI deployment can actually grow and improve by itself without additional input. An AI algorithm can digest more and more data and be more powerful next month than it is today. No other technology can do that. Kubernetes, microservices, multi-cloud, they don't improve without human input, but AI can do that because of that one fundamental fact, I believe that AI will change everything. But here's still the point is that artificial intelligence will need cloud to reach its highest potential. There's a very powerful symbiotic relationship there.

David Linthicum:
It has to be because you can't afford it, otherwise. You're not going to be able to set up the multimillion-dollar hardware in your data and buy data center space to run these things. It's just uneconomically viable. When you think about it, we are getting some pretty nifty use cases around AI. You look at AIOps, for example. And, so, in other words, you talked about complexity in terms of the fact we're managing these very complex environments with lots of endpoints and lots of services under management, and really kind of getting out of the bounds of what humans can actually deal with.

And, so, if we're going to manage that complexity, you do a couple of things. Number one, we can hook it up and do everything manually and have lots of skill sets around and deal with the heterogeneity in terms of the complexity and the amount of different platforms that are around and do our best in making that happen, or start automating these things, leveraging AIOps as kind of a key technology, not that that's anything earth-shattering. It's going to have some growing to do moving forward, but the capability of abstracting the complexity from you.

And, so, in other words, to your point, we're creating a thinking system that we're not only just setting up to solve the problems and instances, but it gets better as it starts to go and it starts to solve problems very much like a human. So, it knows that I can restart that cloud server remotely to self-heal the issue without bothering a human being to make it happen. And if I'm doing that, I get this much advantage in the performance and these things start working better, and those things start to think about that unto themselves. So, we don't have to think about that on behalf as a human being. We turn the thinking over to something that's more operationally focused, but it's a very tactical use of AI, machine learning, things like that. I think that's where the future is. We're not necessarily solving these big science fiction problems like we thought. It's going to have use cases that are more pragmatic in the marketplace, and I think that's what we're finding right now. And, so, people who are leveraging it to solve particular business problems, typical tactical problems, are finding that there's instances where it makes complete sense that the learning aspects of AI, the ability to keep up and evolve thinking without human beings involved is really the way forward. What are your thoughts on that?

James Maguire:
There's no doubt that it's true. You mentioned something about AIOps. I want to touch on that before we move forward. It's really interesting in that we know AIOps is artificial intelligence to run IT operations, which of course includes cloud operations. But the thing that I find almost humorous about that, or ironic certainly is that humans have created these enterprise IT systems that are now so complex, we can hardly manage them by ourselves. Part of that is due to multi-cloud, which is so challenging to manage. So, to help us in our confusion, we've created AIOps, an AI system that helps us manage it. The problem of course, is that AIOps is itself quite complex.

There's a lot of moving parts there. No one ever said that AI is simple. What we've done, in essence, is we've created a second complex system, AIOps, to help us manage the first complex system, enterprise IT, and multi-cloud. It's like complexity managing complexity. Sometimes I wonder, where does the complexity end? It's a subject for another day. But I wonder like, what about those poor enterprise IT managers out there dealing with all that complexity? Will they be able to keep up?

David Linthicum:
Yeah, and we get asked the question too if we are building complexity and we're doing that on purpose. And, so, in other words, we're moving into multi-cloud or going from 1,000 cloud services under management to 5,000 cloud services under management. Now we're starting to brainstorm ways in which we can solve the complexity problem, supercloud, meta-cloud. We just talked about AIOps, all these systems, which sets another set of complexity on top of the existing systems, which has to be managed unto itself. So, in other words, we end up managing the supercloud and meta-cloud through some sort of a system. I think the idea here though, is that we have two choices. Number one, we can limit complexity.

It's optional. We can limit complexity by not leveraging complex cloud architecture. So, we limit to a single cloud provider, and we use only the native tools on that cloud provider. Make it simplistic as we can. The problem with that, when you get into the value of cloud computing, is the ability to leverage best of breed technology that's going to be innovated by different cloud providers. And therefore, if you're limiting use to a single cloud provider, a single walled garden, you're not providing access to these best of breed solutions, which should serve solution providers and builders better. And, so, that's where the tradeoff comes in, and I think we're dealing with that right now, and it truly is a tradeoff.

There're CIOs out there that are stopping movement to cloud or freezing it because they understand the complexity wall is about to be hit, and they can't afford the operational challenges and the heterogeneity and the complexity in managing those things and taking things to the next level. But they also understand that there's value in having the ability to leverage cloud computing in terms of its innovation values, a force multiplier for the business where they can build key business differentiators using this technology. So, it's a trade off, and I think that's, we're kind of at the crossroads right now, don't you think?

James Maguire:
We really are. And I think to that best of read question, I think when you go higher up the enterprise ladder, like companies with a larger budget, larger companies, they really want to, they're looking for that best of breed solution. Whereas you go more into the SMB market, they're willing to say, find a one size fits all. But the idea that best of breed does create this serious level of complexity with tools layered on tools. Sometimes the tools don't inter-operate with each other. Sometimes the tools are semi-competitive with each other. So, I think the companies are feeling their way. I don't think, I think it's hard for them to see a few years out, given the level of complexity they're dealing with. It's like we're handling this now, but will we be able to handle this in the future?

David Linthicum:
Yeah. And that becomes an issue that we're dealing with right now. So, in other words, if we're growing the complexity because of the capabilities where the complexity is providing us, there's a trade-off in making that happen, and how are we going to grow this into the future and become a business three or five years from now? And is the amount of innovation that we're leveraging through the use of best of breed technology going to justify the additional operational expense and managing the C word, the complexity stuff? So, moving forward, back to cloud and AI, how is it going to change the enterprise and the business as a whole? Moving forward what are we looking at into the future and our ability to weaponize AI for business?

James Maguire:

Yeah, I think one of the big results of the cloud AI combination is the democratization of technology will go to an entirely higher level as it affects business. Say even a fledgling business leveraging the cloud with a menu of powerful AI-enhanced tools can potentially have huge market power without vast funding. Cloud itself has always been a great democratizing force, but it's let the small fry play up with the big dog vendors, but AI adds an exponentially greater democratizing effect to the cloud.

David Linthicum:

Yeah. You think about it, RPA and some of the process automation, things like that, leveraging AI technology, that is a game changer because not only can I leverage AI, but I can do so through low code and no code kind of solutions where I'm able to create this configuration, where I'm able to automate certain aspects of my task and job and even abstract that up into larger areas of task. So, it will become, if you think about it, the democratization maybe where AI is probably underperforming right now, but really needs to be overperforming because if people not necessarily become AI engineers unto themselves, but they're leveraging tools and technology, low code and no code would be the instance of that where it's very little skill sets, very little barriers to entry can start automating things that people really don't understand can be automated these days.

Core business processes, making decisions, doing automated credit checks and do things in repeatable ways are going to be much more reliable than if we build everything from scratch. And I think that really hasn't been scratched the surface yet. It's funny though, democratization is something I've been hearing about all the time at Cobalt. It was actually built for executives, remember? And, so, moving forward, we have to look at the pragmatic aspects of democratization, but I think we're at the point where the technology is viable enough that it really can happen. So, do you see this taking off in the next few years?

James Maguire:

To tell you the truth I see the democratization effect enabling some of the smaller players to play up with the larger players. But I also see, in terms of cloud and AI, kind of the other side of the coin when it comes to this powerful combination of AI and cloud. Look for example at the small and midsize retailers and how they've used cloud to build great success. Some small timers, but they still haven't surpassed the big box retailers. So, the point being that, while the cloud AI combination will allow underfunded players to have a major tool set, the most advanced forms of cloud and AI will be really expensive, and I think it might even exacerbate the gulf between the large affluent companies and the smaller, less funded companies.

David Linthicum:

Yeah, I think so. At the end of the day, I think the cleverest solutions are the ones who create the value. And, so, if those happen to be the rich people now, ultimately, they just build upon their wealth. But I also see the fact that a lot of startups and new innovations in the area, where value is being created out of nothing, I see that a huge amount going on. I think that's still going to be the issue as well. So, people are going to leverage it as a true, innovative force multiplier to take their business to the next level, to create some innovative technology that didn't exist before that they're able to change the game in terms of, you think about, it's lots of instances of that occurred over the last 20 years. And, so, I think we're going to see more of that probably accelerating in the next ten years. So, let's go forward in our fictitious time machine and say go forward five years. What's the future relationship between cloud and AI?

James Maguire:

Yeah, so I think it's going to be interesting. I think there's a sense that, as I see it, cloud and AI will essentially emerge into one entity at some level. All cloud-based processes will be supported by or offer AI. I If I look out on the horizon, I certainly see the growth of supercloud, which as we know in an abstraction layer over all of enterprise IT, multi-cloud, data centers, edge computing. I think that the all-encompassing nature of supercloud will necessarily require AI. In fact, I'd say that AI will be the very engine of supercloud because AI will be needed for management duties.

Cloud-based AI automation will zoom ahead in the coming years, I think driving all enterprise IT elements. The other thing I see further out as I see it, I think that AI is probably on a far more rapid growth curve than cloud. If you think about, say, seven to ten years from now for AI versus seven to ten years out for cloud, AI is on a path to radically reshape almost all aspects of the enterprise, not to mention culture and society, but cloud will be there as a necessary enabling platform for AI. So, ultimately, my guess is AI will do far more to shape the cloud than cloud does to shape AI, but they will support each other, and I think they will have a symbiotic relationship that really is a powerful tool.

David Linthicum:

Yeah, I think eventually too, we're going to quit talking about cloud. It's just going to be the platforms that we leverage. We know that it's going to be consumed on demand, and AI is really going to be more important in the way in which we do the consumption. You think about it, cloud computing, been around for a long time, different way of consuming technology. And, so, we still call it in the cloud, but the end of the day we're focused on the technology that's in the cloud, and also the pervasiveness of the technology that doesn't necessarily have to run in the cloud anymore. It can run on edge-based systems and mobile computing and edge clouds that are starting to build up, all kinds of different platforms that are rising today. So, I think it is going to be focused, you're absolutely right, focused on the technology and how it provides value to the business, and I think that's a step in the right direction.

So, where can we find you on the web?

James Maguire:

So, I'm there at eWeek.com. You'll see me all the articles. I also write articles. Also, I interview two major thought leaders every Friday. So, the videos and podcasts of that are placed on eWeek. Please look up eweek.com. I invite your feedback.

David Linthicum:

Yeah, I urge you guys to check it out. It's probably one place to go where you can learn a lot about enterprise technology, not only the good aspects about it, but the realistic aspects of it that very much reflect on the podcast, what works, what doesn't, what you need to look out for. And I think it's okay to be complimentary but also critical when you need to be on some of this stuff. And I think that's ultimately how you're going to win the game. So, if you enjoyed

this podcast, make sure to like us, rate us, and subscribe. You can also check out our past episodes, including those hosted by my good friend Mike Kavis. Find out more at deloittecloudpodcast.com. All one word. If you'd like to contact me directly, you can email me at DLinthicum@deloitte.com. So until next time, best of luck with your cloud journey. Everybody stay safe. Cheers.

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