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The Deloitte On Cloud Podcast

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Title: **re:Invent 2021: how AWS is making cloud better, starting now**

Description: AWS re:Invent was spectacular this year, focusing on making cloud simpler, better leveraging technology for more cloud impact, moving older apps to cloud, and building cloud sustainability programs. In this episode, Deloitte's David Linthicum and Tony Witherspoon talk all things re:Invent, from how AWS is helping organizations get to cloud faster—and integrate and operate better once they get there—to new product and service announcements that will make cloud better, starting now.

Duration: **00:30:48**

David Linthicum:
Welcome back to the On Cloud Podcast. Today on the show I'm joined by Tony Witherspoon, the US technical lead for Deloitte's AWS alliance. Tony is a next-generation and results-driven cloud leader with 20 years of technical and cross-industry expertise across both domestic and international organizations. He has real-world experience guiding, supporting, implementing, and operating cloud at enterprise scale for the Fortune 300 companies. How are you doing, Tony? You're at re:Invent, aren't you?

Tony Witherspoon:
Yeah, exactly, excited to be here. Thanks for having me, Dave.

David Linthicum:
So, first time back in your hotel room since you got there? I remember that the re:Invents that I went to were just kind of nonstop, either going to a meeting or going to a presentation, or going to the keynote, and just so much stuff going on that it's almost overwhelming. So, tell us a little bit about your conference and also your experience and history with re:Invent.

Tony Witherspoon:
Oh, it's exactly what you're talking about, David. Re:Invent, it's all week. I got in here Sunday, leaving tomorrow morning. It's a full-day affair. You're starting off with keynotes, a number of workshops and sessions and things like that, meeting clients and partnering up with Amazon on different sessions and things like that, and then you go into the evening where you're meeting more people. So, sometimes it's different happy hours, two or three hours, and you've really got to pace yourself because it's such an influx of information coming at you.

David Linthicum:
So, what were the keynotes like? Those are always the big reveals when they start talking about new announcements, always peppered in the conversation. I always thought they were clever at doing that.

Tony Witherspoon:
Oh, and so the interesting—I always look forward to Werner Vogels's keynote. I've been coming to re:Invent since the beginning. Oftentimes people ask me how many re:Invents I've been to, and I tell them all, because I've lost count. Like, right before our talk here I just tallied it up, and I've been to nine in-person re:Invents. There's been ten, but not counting last year. And I always look forward to Werner, love hearing him talk and his perspective and things like that, ever since back in 2012.

But this year I was actually looking forward to hearing from Adam Selipsky since—the new AWS CEO, just kind of get his perspective. And one of the interesting things is for—we had at the Partner Summit for Doug Yeum, who's head of AWS partner organizations. He actually did a fireside chat with Adam, and it kind of pulled me back to that very first re:Invent when they had Jeff Bezos and Werner Vogels do a fireside chat.

So, that was pretty interesting, new CEO for AWS, just to kind of get to know him, get the new perspective and all the challenges that are facing us as partners and for AWS as a cloud organization.

David Linthicum:
So, if there was a theme that you could assign to this re:Invent, and maybe there wasn't something, kind of a common pattern that you kept seeing over and over again, what do you think it would be? Like a few of them I went to, it seems like they were dealing with more database stuff. The other one, it was more about communications and networking. Other ones were blockchains and databases, things like that. What was kind of a common thread around the announcements or around the buzz there?

Tony Witherspoon:
Yeah, that's becoming increasingly harder, right? So, when AWS first launched, it was all about services, and there's probably, like cloud adoption, a lot of people worried about the cloud security and things like that. And you can kind of see like noticeable themes and things like that. Like, several years back it was all about analytics and the growth of data. And, so, things have gotten very, very broad with cloud, and so there's so many different problems that people are trying to solve, so you can't really pick one. But there's always maybe two or three underlying themes.

Some of the ones that I've kind of seen is definitely what you said, data and analytics. But then there's still the AI, ML how do we do more, provide more impact and benefits in leveraging the technology instead of the people side. Because at the end of the day, that's the most finite resource and it's becoming harder and harder to find the right people and technical skills. So, that's something that we're still trying to solve, but we're trying to augment that in having technology to do more of the heavy lifting for us.

David Linthicum:
So, what seems to be the underlying buzz there in terms of how people are leveraging the technology, where are we moving? Is it moving more vertically focused and down to the industry clouds, for example? Are we moving to basically build out more infrastructure? I'm looking at the announcements here; I see kind of a mix of things. So, what was the emphasis when you went to the presentations?

Tony Witherspoon:
I think the emphasis that I've noticed on different sessions and workshops is you build and you leveraging—you build what you need to do, and you leverage the tools that are already there. So, Werner was talking about in his keynote all the primitives and how you have to use those primitives to build complex systems. And you don't start with these complex systems, but you start with these simple objects.

And then—and just kind of leverage it. We had another announcement SageMaker Canvas, of how you can make complex things and make it simpler, so you can have different types of resources, different skill levels, and then still provide the same impact, the same for what they had for Amplify Studio, of how you can do front-end development for mobile and web applications. So, how do you do those things and not necessarily have to get deep down in the code? Where that is necessary for different situations, but for the things that you can make simple, definitely do that.

David Linthicum:
So, moving forward, it looks like in kind of reviewing some of the announcements—we'll go through a few select ones here. There's probably 100 here that they consider their top announcements, which is an amazing amount of work these guys do in just a given year. Ultimately, as folks are in their—in many instances—their tenth year with AWS, in other words, was there a common request or a common question that kept coming up over and over again? They want the technology to do this, or they're happy that the technology's doing this, but they want this additional capability in the future?

Tony Witherspoon:
I think that really depends on where that company or client or the industry is focused on, because—so I talked with one huge telecom company, and they've been in AWS for seven years. And, so, they're at the point where they have a number of applications already in the cloud, but they still have a number of things that are still in their datacenter, right? And, so, some of the questions are, "How do we move there faster," and things like that. They already have the initial landing zone, compliance, governance, and things like that, and so they're more around an iterative nature of those types of things. But now they're looking at, "How do I move my existing applications from my datacenter?" And then "What greenfield applications do we need to deploy?"

David Linthicum:
Yeah, I think it's the fact that the low-hanging fruit out there has already been migrated. In other words, we're hitting at about 30, 35 percent on average—some companies are 80 percent; some are no percent—as far as getting workloads and datasets that are migrated into the cloud. And now we're getting to the tougher things. We're getting into the mainframe-based systems. We're getting into the systems that probably weren't architected as well as they should, lots of things that we're going to have to eventually figure out.

If you think about it, we're at a point with the industry where this is already the way everybody's gone. So, in other words, we're already investing heavily in innovation around leveraging cloud computing, and not just the hyperscalers but pretty much out there—everybody's who's building software is moving in this direction. So, whether we like it or not, we're going to end up moving in this direction simply because that's where technology's going. We saw this before with the rise of the PC, distributed computing, all these sorts of things. And while that technology, the older stuff, will still be around and have a place, it'll be less and less a choice for where the applications and workloads are going to go. So, we've got to figure this out.

And, so, moving forward, this is about a few things. Number one, how do we get the tougher applications and datasets to move into the cloud? And how do we successfully operate them now? And, also, the big thing now is how do we do things that are going to be at less or at least equal cost as we had with the traditional systems? And that seems to be a larger question today. Anybody at the conference talking about the cost of cloud and managing the cost of cloud, FinOps systems, cloud governance, things like that? Is that coming up?

Tony Witherspoon:
I haven't seen it, but it's definitely something that is still talked about. None of the sessions or workshops that I have attended, but the interesting thing is I attended a session about where a company moved a massive on-premises system to the cloud. And this was done during COVID period, which everyone was remote in those challenges. And, so, I think the pandemic last year provided an accelerator for more companies to think about the cloud, and then to be able to do it remotely and things like that presented some challenges, but they were able to overcome it. And one of the questions was exactly that, David, was what were the cost savings?

And what they tried not to do, and they made it explicit, is that saving costs wasn't their main driver, right? So, they didn't want to put more investments in their datacenter. They wanted the ability to expand and provide new features and capabilities, and that's why they moved to the cloud. And there were definitely cost savings, and it was a reason, but it wasn't the priority reason.

And, so, I think that's where we're getting to. I think at the beginning of cloud, right, it was all about cost savings. "How do we do continuous integration or move our development environments into the cloud? How do we scale and make sure we can kind of watch costs and things like that?" Which is definitely a thing that you have to do. It's part of the Well-Architected Pillars for AWS, and cost-optimization, cost-efficiency is definitely one of them. But we are coming to the point where it's about the impact. It's about the services. It's about bringing capabilities of clients and customers as fast as possible, and that's where the focus is versus costs.

And, so, I guess one other interesting thing is I actually attended one of our Deloitte sessions about our use and support of the Port of Vancouver, where we were leveraging AWS Panorama computer vision. And they talked about how much cost it took to manage millions and millions of containers that go through the Port of Vancouver and how to do that in the most efficient manner. So, there's that cost in it.

David Linthicum:
Yeah, you're absolutely right. I mean, you have to look at the holistic costs and also the soft and the hard savings that you get from leveraging this technology, and that's always been the case. And I always thought the CapEx versus OpEx argument that we've heard since cloud started just was not an intelligent way to look at it. We're moving in this way because we're looking to leverage this technology as a force multiplier for our business, to innovate at speed and provide with go-to-market capabilities, and the big thing is, get out of the buying cycles and everything being delayed, because we have to sit and put hardware and software down to get things done. And that's been put away, but now we have all of this technology that's accessible to us on demand, and our ability to leverage that in the right way and use it for strategic purposes in the business really, to your point, is where we get the value from.

So, anyway, let's talk about a few specific announcements. I picked out a few, and—like Amazon Kinesis Data Streams on demand, streams data at scale without managing capacity. And the new capability mode eliminates the need for provisioning and managing the capacity for streaming data. Using Kinesis data streams on demand automatically scales the capability in response to varying data traffic. And I picked this out because this seems—we already talked about cost. In many instances, we're running into excessive costs because of inefficient use of the systems.

And if we're basically manually provisioning and deprovisioning things, that's where companies are getting in trouble, because they're leaving instances up, and Amazon's not clairvoyant. They don't know when you're going to stop needing that instance, and so they're going to bill you for that instance that's been provisioned. And we see more and more of this, and this is kind of based on the whole serverless philosophy, where it is automatically able to get to the resources that it needs and also scale up and scale back as it needs, and doesn't need, those resources. What's your comment on that?

Tony Witherspoon:
I think it was a number, actually—a number of serverless services that they did that. And I think that goes to the point of how are they making things simpler, right? And, so, at the very beginning, Amazon talked about the undifferentiated heavy lifting, so you were talking about Kinesis; they also have serverless on demand for Redshift, for EMR, for the managed Kafka service. Several years ago, they had serverless Aurora databases and things like that. And, so, then you can get to the pay-per-use model, but then you don't have to kind of program that in there, and then you have machine learning and AI

monitoring those resources for you, and then scaling them appropriately, so you only pay for what you actually use. And, so, I think the way they do it within AWS makes it extremely easier than if you had to do this on your own, within your own datacenter or something like that.

David Linthicum:
Yeah, absolutely. And I think the more of this kind of automation that's built into the systems, the easier it is for the cloud to be leveraged by all sorts of companies with all different skillsets, all different levels of resources. You've got to remember everybody's not a multibillion-dollar company that can afford to have lots of ops talent that's looking at this stuff, and so they need to kind of set of automation to assist companies that may not have the resources to leverage this stuff in the same sort of efficient way, the ability to kind of punch above their weight.

So, the other thing that I saw in the architecture announcements was a new sustainability pillar for AWS Well Architected Framework, and the sustainability pillar contains questions aimed at evaluating the design, architecture, and implementation of your workloads to reduce their energy consumption and improve their efficiency. I love this. We've been talking about sustainability and the ability to leverage cloud computing for sustainability features for quite some time, and we're just coming around to the fact that, even though we're pushing our workloads into cloud datacenters, it's really the sharing of the resources that are going to provide better sustainability moving forward.

And ultimately, it's not only sharing of resources as we're able to do in a public cloud, but the ability to build applications and workloads that are efficient in themselves. And, so, I always thought that parts of a DevOps tool chain—as well as performance testing and smoke testing and security testing and penetration testing and all the testing we do—test the thing for its ability to become efficient, because you can write very inefficient code and take up more compute power and take up more storage and therefore have an impact on the carbon that you're putting out. And, at the end of the day, we can save a whole lot of money and a whole lot of carbon just focused on that, and it looks like they're doing that here. What are your thoughts on this?

Tony Witherspoon:
One of the things that I thought for Adam as the new CEO, different challenges from what AWS was ten years ago, right? So, he has to worry about this, sustainability and the environment, the talent gap, and things like that. And, so, I was, “Where else are we going?” And then they talked about that—what you talked about, the Well Architected Sustainability Framework, and I'll give you kind of two different points.

I was talking with a colleague and we were talking about Gravitron chips and things like that, and that in using that type of chip set, the code—well, it was not the Gravitron. It was the Gravitron, and a programming language called Rust, and if you're developing your applications using Rust, that it actually makes it more environmentally efficient because of the way that the programming language works. So, there's that one.

And then the other thing was there was a—as part of Werner Vogels's keynote they were talking about Liberty Mutual, of how they moved from the cloud-formation templates that they had over to the Amazon CDK. And they moved from 15,000 lines of cloud formation to I think it was 14 lines of CDK. And, so, it goes to your point of the processing power of running those templates, from cloud-formation templates to the CDK, automatically brings more efficiency and helps with sustainability.

David Linthicum:
Yeah, and I think that's going to be a larger focus moving forward. Not only is it the ability to use more sustainable platforms, and that's why we're using the cloud in many instances, but the ability to write and deploy workloads that are going to be much more efficient at how they leverage those resources. And if you think about it, one of the things that's changed in the last couple of years is that sustainability used to never be on the priority list of IT. Now it's sometimes in the top five, and it's there with revenue and culture and things like that. It is going to become a larger priority moving forward, and things like this I think are important, that we're just kind of figuring out ahead of time. We're giving folks the tools and the capabilities to become more sustainable and write more sustainable code.

In other announcements, Amazon SageMaker Inference Recommender—this brand-new Amazon SageMaker Studio capability automates load testing and optimizes model performance across machine-learning instances. So, we're seeing a lot of this, where it's not only we're giving you the platform to do machine learning, which that was my first job out of college, but the ability to do so in a way where we're adding different capabilities to make it easier to leverage these systems, so we're not having to do everything ourselves. We're not trying to figure out how to leverage this technology. There're more tools, more functions, more base services in these machine learning platforms that we're able to leverage to build systems to help the business. Thoughts on this?

Tony Witherspoon:
Yeah, I think much of machine learning has been through assisted machine learning, where you have to bring in data scientists that know the data and you kind of assist the algorithm process and things like that. I think the more we can push towards unassisted machine learning where you just point it at the data and it can make inferences for you, it really accelerates the value you can get out of all the data. I was talking to a customer fairly recently and they told me that they generated more data this past year than all the other past years combined.

And, so, if you kind of think about that, the data is going to be continuing to be a problem just from scaling and storage and things like that, and so how do you have enough brainpower for just a person to look at all the datasets and things like that to help come up with these algorithms? So, we need to have technology to help leverage the processing power that it already has to come up with those inferences and things like that, to help us kind of understand more about our data and to make the right decisions based on that.

David Linthicum:
Yeah, and I think not every enterprise out there can afford or wants to deploy a group of knowledge engineers, which you need to leverage this stuff effectively, and the ability to have it point at—as the point you made—point at information and figure things out in terms of patterns of that information, without you having to tell it what those patterns are, and presenting those patterns to you as options to leverage the data much more efficiently really is going to be the way to go. And I think that the reality is that machine learning, part of AI, is the ability to leverage artificial intelligence in more tactical and useful ways, and we're going to see more sorts of features like this starting to come up in Amazon's products and their competitors' products as well.

I thought this was really kind of a cool announcement. New AWS Marketplace for Containers Anywhere lets you deploy your Kubernetes cluster in any environment. Wow, that's pretty new. A new set of capabilities allows customers to find, subscribe to, and deploy third-party Kubernetes applications from

AWS Marketplace on any Kubernetes cluster in any environment. This makes Database Marketplace more useful for customers who run containerized workloads.

So, we're really getting into the place where they're reaching out and providing people with more portability outside the AWS environment. In this case it's going to be within their ecosystem since it is leveraging AWS Marketplace. And this product Container Anywhere will allow you deploy clusters, but it's wherever you want. And, so, this is kind of new and exciting. So, in other words, we don't have to have these sanitized, containerized environments and these cluster managers, things like that, have to be configured in a perfect way. We can move them around within other environments, so that makes them more open. What are your thoughts on this? I'm more excited about this than probably any other announcements I saw.

Tony Witherspoon:
Yeah. I actually missed that, David, so I guess let's just talk about it a little bit. So, from your inference, that new announcement—so if I have a container and I want to deploy it to either my on-premises environment, or EKS in AWS, I'm allowed to do that?

David Linthicum:
Yeah, it looks like, based on the announcements. So, many customers that run Kubernetes applications, AWS, want to deploy them on premise due to constraints such as latency and data governance requirements. Also, they have deployed Kubernetes applications and need new additional tools to govern those applications, including license, tracking, billing, and upgrades. So, what I was saying is that, even though containers are being sold as having the ability to run anywhere, the reality is there's some limitations to that and there's a lot of work that has to occur. I always call it the container tax, that—to move them from place to place.

And I think what I'm seeing here is that Amazon is getting more open to deploying containers in other environments, including back on-premises. And that's going to be helpful, because in many instances people want to create these container-based applications and these even federated container environments. And the ability to run them on more environments and support them on more environments than just running them on the AWS platform, I think is something that the enterprises will embrace. Anyway, last thoughts on this.

Tony Witherspoon:
Yeah. So, one thing, David, on that is that one of the things that we're helping customers out—so I think this would be especially important for multinational companies, right? And, so, AWS has regions all over the world, but there are certain countries where it's a little bit more limited, right? So, if you're deploying—if you're a multinational company and you have customers or clients, say, in Russia, or in China and things like that, so having the option to deploy these containers and applications in environments where maybe they perhaps they don't have an AWS region is extremely important, especially as more countries have data localization and regulations and things like that where you have to keep that citizen data in country, and you don't have the ability to point to systems that are outside of, say, Russia or things like that. So, I think that I agree. This is definitely exciting.

David Linthicum:
Yeah. I think also, too, the criticism that many of the hyperscalers get is that they're running a walled garden and they want people to operate within their constraints, and I understand why. They're a business, those sorts of things. But I am starting to see the hyperscalers, and of course Amazon with this example would be included, where they're opening things up a bit. They understand that they're going to have to support other environments that are communicating with theirs. And while you could do it by hand-coding the systems, which I've done a ton of times in my career, to make it work, this thing, in essence, is purpose built for people to leverage other environments and then support other environments within the system. I think it's absolutely the way to go, and I think it's some good vibes coming out of AWS for this re:Invent.

Finally, last announcement—this is new. Amazon RDS Custom for SQL Server is generally available. This launch supports applications that have dependencies on specific configurations and third-party applications that require customizations and corporate ecommerce and content management systems such as Microsoft SharePoint. So, it looks like what we're doing here is allowing people who are leveraging RDS to do so in ways that are more compatible moving forward. So, I was just reading forward—today happy to announce general availability of this product, RDS Custom SQL Server to support applications, that have dependencies on specific configurations. With RDS Custom SQL Server, you can enable features that require elevate privileges like SQL command languages, runtime installs, specific drivers, enable heterogenous data links, or have more than 100 databases per instance.

So, ultimately, I think this is about compatibility, and, so, we're seeing a lot of this within AWS. And I kind of picked this out as not necessarily the most exciting announcement, but the fact that they're improving their existing products, and they're also improving products to become more compatible with other systems, and the ability to leverage ecommerce systems and content management systems and the ability to integrate with different environments. And, so, while it's a more tactical release, I think that people who are leveraging RDS right now are finding this hugely valuable because of some of the limitations and some of the integrations that they had to make, in essence through manual intervention, which is the toughest, most expensive way to do it. Now they'll have AWS who are building and supporting the system for us. Anyway, last thoughts on this?

Tony Witherspoon:
Yeah, I guess the other thing is maybe for some customers where RDS was not an option for them, right, now it can be. So, they had to manage their SQL Server and things like that on their own their instance, had to manage patching and updates and things like that. Again, one of the threads that we talked about before is how do you make it simpler for the customers and the clients to leverage AWS. And, so, having this custom ability where they didn't have it before, right, it just allows them to focus on their business, their strategy and processes, things like that, instead of this undifferentiated heavy lifting that they may have had before.

David Linthicum:
Yeah, absolutely. And again, these releases are out there on the Amazon website, Amazon Web Services website. I urge you to go look at them. And I think if Tony and I had to talk about each and every one of them, we'd be here for a couple of weeks. I mean, there's just a huge list of things, from very strategic things that we talked, for example the container stuff and the Marketplace stuff, to more tactical releases within the particular subsystems.

And, so, lots of excitement, lots of things occurring within the Amazon ecosystem, and those of you who use Amazon Web Services, which is most people in the cloud computing world, should be happy that they're putting a lot of investment and time and also bringing people together at re:Invent to celebrate some of the next generations of where the technology is going and figure out the vision of the company that's taking a lot of enterprises to the next level. So, last thoughts from you, Tony, and also where can we find you on the web, LinkedIn profile, things like that?

Tony Witherspoon:
Yeah, I'm on LinkedIn. I'm a bit old school. I don't have a lot of social media, Twitter, and things like that, but you can definitely find me on LinkedIn. I'm on that. So, thanks for having me, David. Very excited to talk about this topic, looking forward to the rest of re:Invent, going to attend some of the—the things that I'm working on like different workshops. I've been attending like AIM sessions, GraphQL , and things like that, things that I don't have a whole lot of time to do. So, re:Invent's definitely a good time for me to kind of like dig deep on the technology that I may not have time to do the rest of the year.

David Linthicum:
Yeah, I remember burning a lot of shoe leather at re:Invent. Walking at least three or four miles a day was kind of the norm. So, you do eat a lot, but you also burn a lot moving forward. Well, be safe out there and safe travels home.

Tony Witherspoon:
Right, thanks a lot.

David Linthicum:
All right. If you enjoyed this podcast, make sure to like and rate us and subscribe, and you can also check out our past episodes including those hosted by my good friend Mike Kavis. Find out more about Deloitte Cloud Podcasts at DeloitteCloudPodcast.com, all one word. And if you'd like to contact me directly, you can e-mail me at DLinthicum@Deloitte.com. That's L-I-N-T-H-I-C-U-M. So, until next time, best of luck with your cloud journey. Everybody stay safe. Have a good time. Safe travels, Tony.

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