



CES 2022 – HIGH TECH IN FILM: 007 AND THE CLOUD CONTINUUM TERESA TUNG AND BRIAN BEAL

VIDEO TRANSCRIPT

Teresa Tung: Thank you, and welcome to this session. We're going to be talking about High Tech in Film. And so, the real title I wanted to call this was Licensed to Thrill. So if anybody is a 007 James Bond fan, this talk is really talking about how all the gadgets that you see throughout his films that those all could be made real with the Cloud Continuum and specifically with edge computing. And so, this talk is using that License to Thrill to bring that to life. You should have your own License to Thrill with your products, your services and things for your partners.

So I'm so happy that you're joining myself and my co-presenters. So maybe, Brian, do you want to introduce yourself first?

Brian Beal: Yeah, absolutely. Thank you, Theresa, and hi, everybody. Sorry, I couldn't be there in person today, but still very excited to talk with you. And today, we're really going to be talking about a consumer's experience in the future through the lens of one of the most beloved film characters of all time. And I'm Brian Beal. I'm going to be leading this with you today, along with Teresa, my co-presenter. I lead our Edge Practice in North America here at Accenture. And I'm going to put my feet into the shoes of this beloved character. And you've probably seen this movie or seen similar films and wondered just how realistic is some of this technology or is this just far-fetched movie

magic? And we'll talk through that today.

And I'm joined here by Teresa, who you just met, who's Accenture's Cloud First Chief Technologist. And if you think about Q, Q is really the person that makes all this wild technology and then makes it real. And so, I'm going to talk about some of the kind of wild, fun, exciting ideas and art of the possible. And then Teresa is going to talk about really how we can make it real. And a lot of what we talk about today really is just that, it's real. It exists today. It's enabled by the Cloud Continuum, which is a pool of resources from the cloud to the edge and everything in between that we'll be sharing with you today.

All right. So with that, let's talk a little bit about James Bond and what James Bond does and what James Bond depends on to be effective in his work. And now, if you think about it, he really relies on a lot of the gadgets and advanced technologies, and some of these might seem kind of really far-fetched gadgets of the future. But really, if you think of the underpinning technology of what he's doing a lot of the time, he really needs a lot of real time decision making. He needs a lot of analytics. He needs connectivity, no matter where he's at, he needs things that'll run on really low power and even really low space, of course, as well.

And from the old days of a smartwatch, like if



you think about what we saw in *The Spy Who Loved Me*, it printed out these text messages on ticker tape, all the way up through some more modern devices. In the current films, the Bond franchise has always been really on the cutting edge. And what makes this technology available are things like I mentioned, the latency and space efficient. But also, Bond is going to rely on things that are very private, very highly secure, and like I said, always on, always available mission critical resources so that when Mr. Bond is out in a life or death scenario, he knows that his gadgets are always going to work. And then last but certainly not least, how do we optimize these resources to be the most cost effective?

So, of course, we can think of wild and crazy fantasy tech, but really, we need it to also be something that is cost effective for Mr. Bond and his bosses in Her Majesty's Secret Service.

And now I'm going to hand it over to Q, a.k.a., Teresa, who's going to tell you how we make it real.

Teresa: Yeah, so he needs the continuum, the Cloud Continuum. So this is two ways of interpreting Cloud Continuum. One, there's a new purpose of place. So the cloud is really famous for being able to have on demand commoditized compute that you can access whenever you need, you could scale up, you could scale down and that still exists. That's in our cloud core. And so, the resource availability in that purpose of place in that cloud core still exists. But now you have this new continuum and the continuum and purpose of place, that compute that you could put in the cloud core, you can now put anywhere, you could put within the network, you could put within your neighborhood, on site and on Mr. Bond and his gadgets themselves.

And as you get to these other locations and these new places, now we have much more localized resources. So that resource is close to the data. It's close to the point of action. And so, this really closes this experimental loop. So you have your sense, your analyze. And now with edge computing and these new locations, you can have the actuate. You could act right in the moment at that source of data. There's another

interpretation of the Cloud Continuum that makes Q's job pretty easy. It's about innovation and the ability to invent something, to try it because the cloud is always available. You don't have to worry about the plumbing. You build on top of these giants. You you're on the shoulders of giants. And so, from an innovation perspective, you could really focus on the use case. And so, Q doesn't have to actually start with the devices and the gadgets and the cloud in the compute and storage. He can start with or, in case, she is going to start with the application and really be able to dream up something that Bond needs in a weekend and roll it out because he's always getting himself in trouble for sure.

Brian: That's right, yeah, he's good at getting himself in trouble, that's very true. So, what's really important and what we want to talk about is how we can connect these two worlds and make them real. So how do we bring together the art of what we're doing in the digital world, what we're doing in the cloud with Mr. Bond's physical devices? So what we can start out is think about his car. You know, in every Bond movie, there's always the car. So let's think about really what a Bond car chase might look like and what kind of technology might be in this car. And we're going to think about it different than a traditional autonomous vehicle or smart car, but really take it beyond that into what Mr. Bond could use.

So here, what we're thinking about is really the melding, if you will, of man and machine and how we could get this car to be really smart, but more smart, but really actually thinking on its own. And so, that this human vehicle experience can leverage compute right there in the car to make really quick decisions. And we know that, for example, if we wanted to have a flexible dashboard that had all this real time information on it, it would need to be powered by something that still takes up a little space and little power and for it to fit in the car. So we could actually use that data to make those kinds of decisions. And other things the car could have is even smart materials. It could be self-cleaning. You could have seats that automatically clean-up for Mr. Bond, so his car always looks the best, voice recognition. Of course, we know Mr. Bond wants his car to reply or to respond to his voice and



make it as simple and fast as possible for him to interact with his machines.

And then, of course, the dashboard cameras, but that still preserve privacy because we can't let the enemy know what Mr. Bond is doing or where he's at. And then what if the car itself was actually using AI to optimize for cornering, for speed, for traction, for durability, things like that? And in order to do that, like Teresa mentioned, we need to start taking advantage of Cloud Continuum. But now we're moving out farther to the edge and again, in this case, the car itself. And one way we could do this, and you know, some futuristic technology coming down the pike is with things like neuromorphic compute. So we could do real time speech recognition with really low power. And, you know, maybe we aren't just self-cleaning, but even self-drying materials, things like that.

So when Mr. Bond, hopefully, he's not spilling his martini while he's driving, I guess that would be really bad, but maybe he's spilling his water bottle while he's driving and needs the materials to dry itself. So, some of these sound kind of common, some of these might sound a little crazy, but we'll hand it back over to Q to talk about how Accenture really does make pretty futuristic technology like this possible.

Teresa: Yeah, exactly. If you've been on the trade show, you've seen these cars, including in our own center, we have a lot of the technology that Brian just spoke about. And so, in fact, we work with the automotive manufacturer to create this not just a smart car, but a hyper personalized car where you were using edge technology for voice recognition. So the voice for Teresa to open the car versus for Brian to open the car or James to open the car, it's going to recognize and the AI model is going to be trained on each of our voices. So it's very hyper personalized for the user, and it might even be differentiated between the drivers, As the owner of the car might be able to do more things with the car versus my child who we definitely don't want him to do certain things.

And so, that ability to create that AI model is one of the ways to differentiate. We needed the cloud and the core cloud to be able to train the initial

model and get the algorithm to work and to govern that. And then to be able to push it all the way to the edge where that's going to be hyper-personalized and trained for each individual. And for privacy sake, you might never want that data to go back to the central cloud. We want to keep it on the device. And sometimes where Mr. Bond goes or when I'm parked in an airport somewhere, there's no network connectivity. And so, you don't want this voice activation to not work or your car battery when it's off because you haven't driven it for a long time. Again, you don't want it to not work and not be able to open your car, so you need this really low powered AI system.

And so, building on top of the Cloud Continuum, we're using both the core cloud to be able to create the initial model and then the edge to be able to really keep that data secure and keep it personalized. So one of the lessons learned here is the product itself, the car, in this case, it is something that becomes much more like software. With the Cloud Continuum, we can continue to adapt the product, so the product cycles of today are more waterfall, using traditional software definitions, it's longer cycles. You might wait for the next yearly release of the car to get the new features, With the software enablement and the edge, your car is dynamically updating. So the voice that is Teresa's voice, maybe the initial model didn't have that in mind. And so, my particular lilt as a woman, as an Asian woman, all of that is trained right at the edge. And having that capability creates not just a personalized experience for people of my demographic, but hyper-personalized for me.

And so, that new type of hyper-personalization of the product and that move from a waterfall cycle to a continuous innovation cycle with the mask, you can bet I sound much different. I sound super awesome without the mask. So, this is all something that is learned on the fly. That's what Edge can do.

Brian: That's right, yeah, that's right, thank you, Q. And as Mr. Bond moves beyond the vehicle. I also want to think about what happens when he gets into the bad guy's lair and what kind of technology will help keep Mr. Bond safe from



maybe enemies, toxic gas that might exist. You never know what's going to come up when you enter the evil lair, so to speak. So one of the things that would be awesome, would be this real time agent layer interaction that you see here. But really, if you think about this is how could we use augmented reality? And we could start to merge the idea of leveraging augmented reality with the digital twin that you see here as well. So think about Mr. Bond in the evil lair has a set of tools and analytics that's helping him navigate the lair. For example, a digital twin can tell him, hey, in three seconds or in three steps, make the turn on your right, there's a door, it's unlocked. And could also, of course, help with safety. It could notify Mr. Bond of an enemy even behind him. He could have eyes in the back of his head literally or in another room. It could detect sound and movement that Mr. Bond could detect, but high tech, high end sensors can. Computer vision and computer hearing can do a lot more than human vision and human hearing can do.

So by merging this augmented reality world with sensors and maybe some glasses on Mr. Bond with a digital twin of the evil lair, we can keep Mr. Bond safe and, again, effective and efficient as he's moving around this this complex.

And then there's the robot to edge interface that Mr. Bond could have robotics that's helping him out. He could have a little assistant that helps him navigate the evil lair. It seems kind of silly, but think about bomb detecting robots and things like that, that kind of exist in the real world. But if we can merge this augmented reality with the digital twin, with robotic interfaces, this is how we can start to get metadata delivered in real time, show Mr. Bond where he should go to complete his mission, what he should do next, and all of this ideally being done in real time without any worries about lag or network availability or downtime, things like that. But Mr. Bond needs to be effective wherever he's at, anywhere in the world, in real time, making these decisions.

So now we kind of moved from a product, Mr. Bond's car, which is famous and we all know very well, to now an environment that Mr. Bond has to navigate within. And I'd like to hear from

Teresa how we can kind of take this environment, make it more intelligent and keep Mr. Bond and others safe and effective.

Teresa: Yeah. Just like how the product itself is becoming more like a software product, it's a software enabled product. The environment is very much more like a digital environment. And so, your mission is to get to the market, to get groceries for a week and to come back and stay safe and get something delightful that you're going to look forward to and we face this mission all the time. And when we go to the market, it's hard to find a parking space. Even if you've done the online order, it takes a while before you say, I've checked in and then you wait for the person to come out. If you do go in, a lot of your time is probably going through the same path. I travel my markets the same way and often times I forget something or I buy the wrong thing, or I'm certainly not being delighted in this store. I'm not getting the offers that there's something nearby or a sale that I might be interested in, and I might get a notice later or get asked by my child, why did you forget my thing?

And so, in the digital space, it's not like this. So when you go online, they know who you are. They're recommending particular items for you, maybe even based off of your search history. They're going to recommend related items based off of what other people have seen. They might have an offer specific to you. And from the retailer perspective, they can track how people are responding to this and really customize and create better products and better offers. So it's a very different digital experience. It's better than the physical experience. And so, we're working with the retailer to make and bring that digital now into the environment. So it's working with not just one product, its cameras, it's signage, it's a self-checkout system, it's robotics that are going to come and scan through the store to check on the inventory and to see what needs to be re-shelved, or maybe if something needs to be cleaned and the spillage.

So it's making the store more efficient. And with that store, you might even redesign the store. You would have more of the store as a micro fulfillment. There are certain parts of the store I really love browsing. I like looking at produce. I



like looking at wine. I don't really like some of the more mundane things. So if you're going to redesign the store, and we're working with this retailer with that in mind, is that maybe the experiential side of it becomes much more of the interaction point. So you're going to try meals, you're going to try recipes. It knows that you have an allergy or you have preferences. And so, based off of that, that's what you're going to try.

And then if you like it, you say, I want that and let's get that fulfilled right to you and maybe scheduled it in an order or you're ready to pick it up if it's there. So this ability to take that digital to the physical, a lot of this is what again, the Cloud Continuum and specifically edge can do. You're going to do the analytics still core cloud, you're going to have all the offers and that figured out in the core cloud. But it's at the edge where a lot of that action, when it knows Teresa's come in the store, the environment that she needs to interact with, maybe some sort of automatic robotic system that needs to happen at the edge because it's so important it has to work.

Brian: That's right, thank you. And one thing that is really fascinating about that example Teresa just gave, to me especially, is how we're really taking the same types of things that might enable cool James Bond super futuristic technologies. It's a lot of the same underpinning technology that enables those cutting-edge experiences for consumers in the retail environment. So again, you know, it might seem futuristic and out there, but these are all things we're doing today to make, in this case, retail more exciting.

All right. So next up, I want to talk about an example that's more close to my heart because I've actually worked on a project very similar to this. And this is the idea of Mr. Bond can go anywhere in the world and needs to set up a secure communications network, so that he and his colleagues that are out there could be in the desert, could be in the middle of the ocean, could be in a city anywhere in the world, but they can all connect and communicate together effectively and securely. And what's really neat is the idea that we could kind of take 5G with us anywhere we go. That idea was really kind of

crazy several years ago, but you know, Mr. Bond and the Bond of the future will want that ability to have a pop-up 5G network anywhere in the world that can connect a lot of devices. Maybe Mr. Bond needs to send up a drone streaming high def, high res or even 4K video back to himself and his teammates, but maybe also back to HQ. There might be sensors and IoT devices that Mr. Bond is setting up or cameras out in the field. He'll need to have, of course, voice communication. So, you know, we need to support voice, video and then a lot of sensor data. And with a pop-up kind of anywhere 5G network, this is something that you can do.

I like to say is 5G in a backpack should be the goal or 5G in a Pelican case that's super portable and easy to get out into the field. And that is, of course, highly secure, highly containerized, highly reliable and very, of course, portable. Like I said, this is one that could really power a lot of different use cases. If you think of Mr. Bond's vehicle being always connected, but all the gadgets that Mr. Bond will need out there will need to be connected as well. And in the old days of 4G LTE networks, to go stand up his own little portable network out in the field could be pretty time consuming. It also could just be physically large. I've seen some portable 4G networks before that are in shipping containers, for example. That's the size.

Meanwhile, there are 5G portable networks right now that can be deployed really out of a backpack or a small Pelican case. And so, Mr. Bond needs to be able to land anywhere in the world, even in the middle of maybe an ocean or a deserted island somewhere to find the bad guys and communicate with all of his teammates, really, even if they are on a deserted island. And how can you do that? How can you power all these devices? And now Q's going to talk about how Accenture really does that for real customers today.

Teresa: Thanks. Thanks, Brian, or should I say James? So at an event like CES, typically, if you have a demo to run, oftentimes you find right when you have a really important client coming to see it, the network doesn't work. And clearly, here is one place where having that capability that Bond has would be great to be able to have



it within these sort of conference like environments to be able to stand that up. And so, we've also stood this up for oilfield services. So if you imagine an oil well, that is like a Bond villain's lair, when you always see those things. It's an offshore well. It's a well in an oil field somewhere that might at best have a satellite connection and you're getting to it over the air, you're literally going via helicopter. So this is not somewhere where you're going to have traditional network capability.

And so, being able to have these networks and to be able to take again this experience that we just described that you could have in a product, in an environment and now you could have it anywhere. So an example that brings this to life is we imagined this really seamless experience. So imagine you're watching this talk and you're at home and you're just super excited by what we're saying. You want to come here now? And so, you're going to hop into an Uber and you don't want to finish stopping the talk because it's so interesting. And so, you're going to come and you want that Uber to find the location closest to where we are, drop you off there and then you're directed to where we are here, all while still watching the talk. So that really seamless type experience as you go from home, to car, to the venue. Hopefully, you see this is very different than maybe how it works today. What it works today is you're going to get disconnected. You're going to need to switch Wi-Fi. It's definitely not seamless for sure, and you're not going to get that streaming experience that you see.

So, hopefully, we've given some examples and the whole point of this is taking everything you imagined about the digital and that you know about digital and now we're able to bring it to the physical, where the physical could be the product. It could be the environment, like a store, a hospital, a plant, and it could be just the world around you and having that seamless connectivity. And edge and the Cloud Continuum is really what's able to allow us to get this innovation to dream up an idea because we're using cloud services, they've done the hard work, they're working with telcos, they're working with the device manufacturers to make it easier for us to use. And we're really focused on the use case and the applications. So the

personalization of the experience, we know exactly who our customers are and what they need. It's this new way of interacting and engaging. So what is the right interface for that user?

So it could be this augmented reality type world. So if it's Teresa, I might care about cost at a particular time and I might care about sustainability at a particular time. That context in the hyper-personalization between that context and what I'm looking at, that's going to be useful. The any place being a point of purchase. And this is really towards that mission critical. When you're making that buy, you want to be able to buy it and just walk out. But to be able to do that, you really need to make sure that you have that connectivity at any time that you need.

It's really about humans and machines collaborating. So to be able to do that again for safety's sake, you don't necessarily want that control loop going all the way back to the cloud and then back to the site and then making a decision. That's not safe. So having that right on site is really important for both the safety as well as a responsiveness. And finally, the personal control and the privacy of security.

So it's about the data and sometimes it's about data sovereignty rules. The data can't move. And a lot of times it's about the gravity of data. Maybe it's the volume of data. So certain health scans will generate terabyte of data per scan per individual. So that's too much. You don't necessarily need that to be moved centrally. Let's keep it local. Let's do the processing. And it might also be better from a privacy and security perspective. So these are some of the tools that as Q I get to really work with. I'm going to hand it back to James to close. James, what do you think about these capabilities?

Brian: Yeah, that's great. That's great, Q. That's perfect. And you know, I think in summary, what's so important is that we can take these ideas, these concepts, these products that exist today and apply them to not just Mr. Bond's needs, but really the needs of any industry. Things like ultra low latency, real time decision making, personal privacy and security, hyper personalized experiences. These are relevant



really almost anywhere from a fast-food restaurant to a hospital to a manufacturing plant. They all have needs on real time decision making. It could be worker safety. It could be it could be giving that personalized offer. That's very specific and tailored to that individual. It could be keeping the robotics online, real time inventory. I love that there are just so many real world applications of the cool stuff Mr. Bond might need. We could apply it in a slightly different way to really any industry, and I think you've done a great job explaining that. So that's been that's been great.

So in conclusion, like to thank you all, of course, for listening. I believe we can have questions. Is that right, Teresa, are we able to take questions?

Teresa: I don't think we have -

Brian: Okay, well, no worries. Well, people can reach out, we have contact information available as well. So if anyone has more questions about the edge, or the use cases that we work on, of course, can reach out any time. We'd be happy to talk about it more.

Teresa: Thank you so much for joining.