INSIDE INNOVATION PODCAST EPISODE 4: IOT: A DIGITALLY CONNECTED FUTURE

AUDIO TRANSCRIPT

Hosts:

Steven Young, Technology Delivery Lead Associate Director
Lizzie Lucas, Security Consulting Consultant
Prasoon Jaiswal, Digital Technology Developer Manager

Steven Young [00:00:03]
Welcome back to Accenture's Inside Innovation podcast. And to our fourth and final episode in the current series. My name's Steve Young and I'm an associate director at Accenture. I'm here with my colleague Lizzie.

Lizzie Lucas [00:00:13]
Hi, everyone. My name is Lizzie Lucas. I'm a security consultant at Accenture.

Steven Young [00:00:18]
And also Prasoon.

Prasoon Jaiswal [00:00:19]
Hi everyone I'm Prasoon Jaiswal. I'm a digital technology developer manager at Accenture.

Steven Young [00:00:25]
We're rounding out the Inside Innovation series with a look at the Internet of Things and how smart and digitally enabled devices will change things for good. So let's start by, if we can briefly explain what we mean by, when we talk about the Internet of Things?

Lizzie Lucas [00:00:40]
And I'm going to go right back to basics and say it's things that are connected to the Internet, from a toothbrush to a car and things that talk to each other. And yeah — are connected.

Steven Young [00:00:49]
I read somewhere that Accenture did a report in 2020 around how many devices they expect to be connected to… How many IoT devices there are expected to be by 2024. And it's something in the region of 40 billion devices. Which is an enormous amount of things and obviously brings an enormous amount of opportunity and things to do with those connected devices. Prasoon, what are the cool things? What are the interesting things that are going on in the world of IoT?

Prasoon Jaiswal [00:01:18]
Well, based on my current projects and experiences — we are dealing with factory floors and the intention is to connect different devices. On a manufacturing line, for example, we actually created the sheltering of the factory along with all the lines, machines, sensors, and we then use, in my case, we use Microsoft Azure Digital Twins. Which essentially creates a graph database, and you create a graph of the entire factory, right from the factory floor to different lines itself and all the machines all the way to the sensors. And then we update all the sensor information. We do analytics on the data

and we derive KPIs and metrics. And we are also looking at doing predictive twins. So you can actually feed raw data to a predictive model and you can predict what will happen in half an hour, or one hour from now, depending on what your model says. So, yeah, there's tremendous opportunities.

Steven Young [00:02:26]
This stuff amazes me. I mean, the best thing for me about the Internet of Things is that it's just the convenience bit. And you talked about connecting bits of a factory and bits of a production line and then making it predictable. That allows all kinds of variance and use cases and all sorts of things from new product lines being created to, what if they change the configuration of the production line and put different things before… and also to deal with scale and demand. So there's a million and one opportunities on that side of things. Lizzie, you're in the security domain. What sort of things are you seeing the Internet of Things being used for?

Lizzie Lucas [00:03:10]
So I have been working in the healthcare space for the past year or so, and IoT is just absolutely transforming healthcare. I mean, you have your Fitbits, your Apple watches, which is kind of the norm now to track your temperature, track your heart rate. I think even now they do blood oxygen levels. But other things that have been quite cool is that they actually have started doing kind of ingestible sensors. So tracks what's going on in your tummy and then lets your doctor know. So they can have a look inside of you. You've got things like your automated insulin pumps, so that works alongside glucose monitors to monitor blood sugar levels and then will administer the right level of insulin, depending on your blood sugar levels. So it really is moving from the monitoring space into the actual more active role, which presents a whole new debate, really, because people are quite happy having their healthcare data monitored. But would you be happy putting kind of your life in the hands of tech?

Steven Young [00:04:16]
That's the convenience thing for me, everything to come back to is just convenience and ease of use. All right. We've got some really interesting work in the digital twin space and obviously the healthcare space. And Accenture have a smart factory in the UK with all of these sensors in there and things lighting up for real that you can show as prototypes. And obviously, our office in Dublin called The Dock, I heard when I was visiting there, there's more sensors per square foot in that building than there is in the rest of Dublin combined. Which is phenomenal, really. And it's a great way of demonstrating how the Internet of Things is used for a variety of reasons. And we talk about how it's going to change people's lives. And some of the use cases for those sensors in that building are purely around the eco-friendly elements of the building, from turning lights on when there's people arriving at the floor to turning lights off when there's not, and opening windows when it's warm or closing blinds when it's bright. They're relatively straightforward. But when you kind of scale those out to factories or to towns and cities and then to counties and countries, and there's so much potential with this stuff and it's all engineering at the end of the day, it's all what we do day in, day out. And I think there's many applications of it that are going to really change people's lives for the better. And that's not just getting up on a morning and having your coffee machine turn itself on because it knows you've woken up and you've checked the news for the day and your routine's kicked off. But that is a really good use case of just very straightforward, accessible Internet of Things. But if you kind of scale that up — and healthcare, edge computing, back to what you were saying Lizzie about devices actually start to make decisions rather than just collecting data. I think that gets really exciting.

Lizzie Lucas [00:06:05]
Exciting, but scary as well, at the same time. Definitely. And then it also presents a good privacy debate, going back to the healthcare example. People are quite happy to have

doctors and nurses know their healthcare data. But are they as happy to have the likes of Google and, say, Amazon, knowing the ins and outs of their healthcare data?

Steven Young [00:06:30]
And the devices themselves? So if you're attaching a sensor to yourself, and your watch is sort of less invasive, but those smart insulin pumps, if you think maybe I don't know if that's two years, five years, 10 years down the line, but it certainly doesn't feel too far off. The security of the device is really key and actually, the hardware itself. What sort of things are they doing in the healthcare space around that or what sort of problems have you seen or areas of concern?

Lizzie Lucas [00:06:57]
So I think one of the key problems is that the more IoT there are, the bigger the attack surface. So the more chances a cybercriminal has to infiltrate a hospital and attack a hospital. Also public education around cybersecurity issues with, say, a laptop or an iPad is getting a lot better, people are getting a lot more clued up around it, whereas things like medical IoT, people aren't seeing the cyber risk there, so they're not securing them as much as they would their laptop. They're not putting virus-ware on there or virus-ware is not available for that type of IoT. So that's a real concern. The same in people's houses, people are concerned about their laptops, we as Accenture employees have all the security controls in there, but actually I have a toothbrush which is IoT, and am I actually securing that connecting to my network? No, I'm not. So actually, that's a massive, massive security risk. And I think that's probably the same across a number of houses in the UK and the world, although not Prasoon's house.

Prasoon Jaiswal [00:08:00]
Yeah, I mean, fortunately, I've been very fortunate to work in IoT for quite a few years now in Accenture. And as Lizzie mentioned, is that the attack surface, the amount of data that you're actually storing in the cloud, it's not a question of if, it's a question of when. And if you have state actors involved, then it gets really, really hard. So my philosophy around IoT in general, at least at a personal level, is that I limit as much as I can. It's just that I just don't want to give away that information. If I can live my life comfortably. I mean, a very simple example would be, I have worked in mining sites before and production supervisors previously had no idea when a truck went down. So there was a delay between when the truck went down and when the call was made to the maintenance department. Now with IoT, they immediately see when a truck went down, so they immediately call up the maintenance department and say, hey, the truck went down in this particular location, can you please go and send a person to fix it? And by doing just that, they are able to save X percent of the money. And that's true value on the ground. So that's great. I mean, IoT has a huge potential.

Steven Young [00:09:30]
And it's hard to see where it'll stop. You take that example a bit further and, it's not too far fetched to think that actually that truck breaking down, and a sensor going off would trigger a drone being dispatched and landing and changing a part and then coming back. So it's kind of touchless completely end to end. I think for me that, obviously like you say Lizzie, it brings an element of security and trust and various other things into the mix. But underlying... come back to the underlying for me is just convenience and time and operational — mean time to recovery and mean time to resolution, in the true operations sense of the world. It's just improved so much by changing or accelerating where the decision's made, at what point. In terms of what some of the most exciting implementations of IoT, or some of the most interesting implementations of IoT for me are often the simplest. So stuff like the magic bands at Disney. Disney invested an enormous amount of money in IoT for convenience sake, right. To allow you to enter parks, to queue for rides, to book meals and restaurants and order food and pay for things, all through one device which was

connected to the park. And you can imagine how much data they're collecting about the park to allow them to build better pictures and predictive models and all the analytics that sits around it. So for me, the obvious things that you don't feel like it's IoT, you don't feel like it's technology being done to you, it's just something you pick up naturally. And what other, have either of you got a favourite or an interesting one that sticks out in your mind?

Prasoon Jaiswal [00:11:17]
There is one new one that is coming. That is the new kid on the block. Everybody has heard of machine learning right? But there is a new concept coming up, which is called machine teaching. And the way it works is that there's a project from Microsoft, a Microsoft Research Project called Project Bonsai. And what it allows us to do is have a low code approach to assimilations. So think of trying to — you have got multiple routes and you want to optimise your part. But in order to do that, you will have to have a lot of detail for you to generate a model. What project Bonsai allows you to do is build a simulation model which will generate the data for all those parts. And then with that generated data, you can go and build a machine learning model. So you're essentially, using simulation, trying to teach all the possible scenarios. And then build a final model which will deploy. The benefit of that approach is you are covering nearly every single scenario you can think of, which in real life may not even be possible. There could be X scenarios and then your model will fail. This is really, really cutting edge.

Steven Young [00:12:38]
And the bottleneck then becomes the amount of data you can transfer and the speed at which it can be transferred. So 5G is going to be huge in terms of the IoT use cases.

Prasoon Jaiswal [00:12:49]
Yes absolutely I mean, that's another thing that is coming into the picture, the 5G, especially when it comes to edge analytics. Let's say, for example, we have got a particular use case around safety when a particular person is in… Let's assume that you have an IoT device collecting vitals for particular personnel on a mining site, or even on a factory floor. When that person is in a hazardous zone, you want to immediately, within a few milliseconds, want to relay that information back to the controls department so that proper action can be taken. Otherwise that can be quite catastrophic from a health and safety point of view. This is one of the key things that we are seeing. There are other things around quality control, high speed manufacturing lines and all — yes the 5G brings an element of next generation reliable and ultra low latency communications to the picture.

Steven Young [00:13:54]
So in terms of privacy, you know the trend, if we get to 5G right Prasoon? And the devices are streaming more and more and bigger data and facial recognition on cameras, and decisions being made on edge devices because of the person they found, or the face matches, or the behaviour of the individual, or their facial recognition and speech to text type stuff: the tone of your voice and demeanour. What does it mean for data management? What does it mean for privacy?

Prasoon Jaiswal [00:14:23]
Ideally, in an ideal world, I would want all that information to reside on my machine so I can choose to make that decision. But that is unfortunately not the world we are living in. Hopefully with the likes of Apple making a decision to give the user more control on what kind of data they want to share is a good step in the right direction. That is my hope. How would Google, being an advertising company essentially, play ball with that or Microsoft is yet to be seen.

Steven Young [00:15:00]
So there's so much we could discuss about IoT. There's so many angles. We could have another whole series on it. If you'd like to know more there’s lots of content on our website, Accenture.com. And as always, you can keep

the conversation going over on our social media channels. But sadly, we've come to the end not only of our episode, but of the Inside Innovation podcast series. Thanks for listening and thanks to everyone who's contributed in our discussions. We hope you've enjoyed it as much as we have. If you've enjoyed this and the other episodes in the Inside Innovation series then check out our Powerful Minds podcast where we talk more about technology's power for social good. And if you've been inspired by some of the projects we've discussed or if you want to help us build a better tomorrow, head to our website, Accenture.com/careers to find out about how you can get involved in leading the IoT revolution.