Episode 46 Amy Zwarico, AT&T
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DR (00:01):

I'm Danielle Royston and this is Telco in 20.

DR (00:14):

If I had a dollar for every time a telco exec said, "You can't use a public cloud because it's not secure," I'd be recording this podcast from a yacht. But seriously, for telcos, the public cloud represents the first time they haven't had everything under their roof and under their control. That's new and it's scary. Security is one of the first things they bring up when they talk public cloud.

DR (00:37):

In my travels around the world, I found that most telco execs don't know a lot about this topic, so I hook them up with the guys over at AWS or Azure, and in about 30 minutes, the hyperscalers have convinced them that the public cloud is secure. That's because once you understand it, you'll realize it's more secure than the way you're doing it now, but it will require changes to how you operate and secure your workloads.

DR (01:01):

Today, we have a legit security expert on the podcast to talk about this topic, Amy Zwarico. She's director of cybersecurity at AT&T, one of the world's largest and oldest telcos. Are you ready to talk security? I am. Let's take 20.

Amy Zwarico is the director of cybersecurity at AT&T. Hi, Amy. Welcome to Telco in 20.

Amy (01:26):

Thanks, DR. It's great to be here.

DR (01:28):

I'm so psyched. I think this is going to be amazing. Small fact, you're our first female guest, so excited to have you on the podcast and chat it up and learn more about cybersecurity. I think to start, you have a PhD in computer science, which is amazing and impressive, and you've also been in telco for a super long time. What is your role at AT&T as the director of cybersecurity?

Amy (01:54):

My team focuses on new product, end-to-end security, software, supply chain, security, 5G and other industry standards, and also developing security patterns for mobility network function deployments in the cloud, so we're kind of all over the place.

DR (02:10):

Yeah, but you're right in the heart of it. One of the first questions people ask about the public cloud is, "Is it secure?" I find there's a lot of, obviously, fear and trepidation about the hyperscalers and there's also a lot of misunderstanding about their security models and if telco can use it. One of the reasons I really wanted to talk to you and have you on the podcast is AT&T had a really big, amazing transaction that occurred in the middle of last year, 2021. You guys sold your network cloud to Azure, one of the big

hyperscalers, and so this is one of the biggest, most well-known telcos in the world deciding to go big on the public cloud. I'm sure you guys had a lot of questions, had to kick the tires. What convinced AT&T that Azure and the public cloud in general was good enough for you guys to start using, that it was at least telco-grade to some extent that you could start to move workloads over to their cloud?

Amy (03:06):

Well, number one, we were already a very large user of Azure and public cloud. We've got at least a thousand apps running over there. Also, like you said, we sold network cloud, which is something we built from the ground up, to Azure.

Amy (03:21):

That said, there was a lot of work that went into it. We really spent months working with Microsoft just on the security of the platform. At the same time, we were working through that shared responsibility model: Who was responsible for what in our mobility network deployments?

Amy (03:41):

Then finally, the third thing, again, all going on simultaneously, but we spent months and months defining the secure network function deployment patterns that meet both AT&T security requirements, but also will work with Microsoft's operational practices.

DR (03:59):

Yeah. I think this is so interesting because it's so real, right? It really brings it to the forefront of, it is possible, but it's not necessarily easy. There are a lot of things you have to figure out. I always encourage people that once you start moving workloads, the questions start to bubble up, and then you got to answer it. It sounds like you guys have worked through that and it's a partnership, like you said, it's not just AT&T alone, it's in concert with Microsoft to work through those things.

Amy (04:27):

Yeah, it's very much of a partnership. It's sitting down and building those relationships, sitting down, and really hammering through all of the nitty-gritty details on how you're going to do what and what does that mean and what's the implication and who gets called and all of those things. That's kind of in telco's blood to do is to plan it to death before you ever pull the trigger.

DR (04:46):

No, totally. I always tell people one of the biggest mistakes you can do in moving workloads to the public cloud is trying to run them the exact way they used to run on-premise. I would imagine that as you guys have been working like this, it's not just whose neck is on the line when something goes wrong, but I'm sure you're changing out your processes, your operational model, your tools. Was it easy? Was it hard? How long did it take to work out the kinks and the change in the operational model of running workloads in the public cloud versus the way you used to run them on-premise?

Amy (05:18):

I want to start by just saying the obvious, change is hard, it just is because the cloud is a new technology platform that we're adopting. The first realization, and this was probably the biggest one, is that the

security tools are going to be different, they're not going to be the tools necessarily that the operations people have been using for the last, who knows how many years?

DR (05:40):

Yeah, decades.

Amy (05:41):

Decades in some cases, so that's a change, there'll be a learning curve. I think another big change is that if we do it right, and this corresponds with what's happening with our network function vendors, everything is going to look like an application now. It's really not going to look like a server anymore and that's a big change.

DR (06:00):

Yeah, it's a lot more of a software experience.

Amy (06:03):

It's very much of a software experience. You have ephemeral processes running on somebody else's hardware. I think that one of the things that really is a big culture change is just the way you're going to do ongoing maintenance of these applications running in the cloud. We're very used to going in there on something that's running, patching it, twiddling this a bit, changing this configuration, maybe loading something. That culture has to change. Yeah. You really need to be going back to, "Let me rebuild the resource completely, run my scripts, get a new process up and running and decommission the old one." I put that into a four-word sound bite, which is: Don't patch, build new.

DR (06:47):

Yeah. It's interesting because I think again, as being on the vendor side of supporting a telco, they're so used to having these versions that are tested 10 ways to Sunday, scalability, Chaos Monkey, and then once you deploy it, it kind of just sits there, and you don't really go through an upgrade, so what's interesting about the cloud is a little bit different from patching because continuous integration and continuous development, which is so far from what Telco is used to. Are you guys starting to see that kind of experience in AT&T, where you're starting to adopt CICD pipelines with your software because things are being lifted much more from hardened package that's been tested to being able to change it more easily, more frequently?

Amy (07:34):

We're certainly moving to CICD pipelines. That's been happening over the last probably 10 years, maybe longer. We've always done a lot of automated software pushes, but it's really accelerating.

DR (07:46):

Yeah, the cloud really enables that, and it's got to be a little bit scary, especially as SAS software starts to come into the picture in telco where you're not necessarily in control of the push changes.I think telco has been so used to managing the entire end-to-end, and obviously, there's certain end-to-end processes that maybe are going to still be protected, but then there's some other things like on the IT side where telco is going to learn how to let go of that. That's going to be really interesting how that

evolves, I think, over the next 10 years, in giving up that control, but in exchange, getting agility and speed on the marketing side and on the business side, so I think that's really cool.

Amy (08:22):

Absolutely.

DR (08:23):

Yeah. As you look forward, and you've been working on this for several years now, and you've gone through those changes, what's your advice for teams starting to move workloads to the public cloud? If you could go back and tell yourself some advice five years ago, what would you tell yourself about moving workloads to the public cloud?

Amy (08:39):

Yeah. With the risk of repeating myself, the first thing is you just simply have to understand a shared responsibility model. You got to understand who's responsible for what. It just makes life easier.

Amy (08:50):

The second thing, and I think we discovered this early, when you move to a public cloud, when you move to a hyperscaler, encrypt everything that's at rest and in transit. Clouds make that actually pretty easy. We've shown over time that the overhead associated with encryption is really very low. There's only a handful of workloads that it really would adversely affect.

Amy (09:10):

Now, another thing I think that we've really gone back and learned, and I would really tell people, "Hey, concentrate on this piece," develop your security patterns ahead of time, because what you really want to make sure is that when you're securing your applications, you're using things that are repeatable. You're not reinventing security for every single application that you put out.

DR (09:32):

You're doing it differently in different parts of the org.

Amy (09:34):

The repeatability is absolutely critical.

DR (09:37):

Yeah. Did Microsoft help you develop some of those?

Amy (09:40):

It was a partnership. We did work carefully with them because they brought the expertise of how Microsoft did things. But we also brought a good bit of expertise in that we knew what our requirements were around running workloads. There were a lot of things about connectivity back to our own data centers that would really be outside of the scope of Microsoft expertise, so it was very much of a partnership.

DR (10:04):

That's awesome. I hear that around the world. I hear when people are doing these big projects and really moving workloads to the public cloud, and all three vendors, whether it's Microsoft or AWS or Google, people talk about how strong the teams are on the hyperscaler side and how they're really authentically maybe even leaning over backwards to really understand what's different about telco and how to make it secure and how to address the specific needs of the telecom industry, so that's awesome.

Amy (10:33):

Absolutely.

DR (10:34):

You have a very interesting perspective on the public cloud, you come from this security standpoint. Even though you've had to change your operational model, learn new tools, shared responsibility patterns that have changed the way you guys work, are you still seeing some benefits of the public cloud that I talk about, speed to market agility, softwarization of the telco industry, cost reduction? Even though the security has changed, the change has been worth it, it's been worth this big effort to move to the public cloud?

Amy (11:03):

Well, I want to start by saying, I think that the move to public cloud was inevitable. That's where the technology got pushed. It just makes more sense from a business standpoint. Hardware is cloud hardware these days, it's no longer Linux servers, or Unix servers, and I go back way to PDP servers that were sitting under lab benches. It is the current technology, so the move there was inedible, in my mind.

Amy (11:27):

I think the benefit is what comes anytime you have new technology come in place, there will be a migration. There's stuff that has to go onto the new hardware platform, as it were, but what that gives the enterprise, and especially with cloud, it gave us the opportunity to really go in and look at our processes, look at how it made sense to do these migrations. Don't just pick up code and slap it onto a VM. From a security standpoint, understand how you're going to secure things in the cloud, develop these security patterns, and then to develop a new type of discipline around upgrading your workloads. That really comes back to the CICD. You just got to embrace the CICD you've got to embrace that everything is going to be treated as software. Do your work ahead of time, write good scripts, test them to death. Then when it comes time to actually deploy to production, you hit a button, and it works.

DR (12:24):

Yeah. Well, I think one of the mistakes that people make in any industry, not necessarily in telco, but just in general, is when they take an on-premise workload and move it to the public cloud, and they treat the public cloud data center as just another data center, and they're like, "Yeah, we're in the cloud. We just moved it." I mean, if you're going to do that, it's probably cheaper to run it on-premise. By moving the public cloud, you're deciding to change, like you said, almost everything.

DR (12:51):

I agree with you, the public cloud is inevitable. It's this new technology, but you really have to understand it, not as the different data center or a mega data center, but rather there are tools there, there are different databases. There are different software packages that you can buy by the use, by the API call, and it just brings so much more, keep saying agility to the telco. Telco kind of stands on stage all the time and says, "Oh, we're slow. We move slow," and I'm like, "But what if there was a telco in the world that figured out how to not be slow and to be really fast?" I think the public cloud is that enabling technology that allows you to do that, and I think it may be a game-changer. It may really bring that amazing subscriber experience that has been maybe elusive to date for telco. Maybe we had it decades ago, and it's kind of gone away, but it's time for that to return, and I think the public cloud really does that.

Amy (13:46):

Yeah, I think there's really good things about it. I've been very excited about the fact that telco is really moving to software. That's big. That's something that I've seen in the last five-plus years and it's huge for our industry.

DR (14:01):

Yeah. It's awesome.

Amy (14:02):

I don't have to worry so much about, "It's got to get burned into silicon."

DR (14:05):

Yeah, or again, me as a vendor in software, we were shipping hardware to customer sites around the world. At a previous company I was running, we would send servers to Germany to get loaded with software and tested in Germany, and then shipped to Africa. That's so much time to clear customs in two or three different countries. It's just impossible, and so I'm like, "Can I just send this to you over the internet?" and so I am excited about the change that's coming to telco.

DR (14:35):

Just shifting a little bit, obviously PhD in computer science, I have a bachelor's in computer science, and as a female in the industry, there's not a lot of women in this industry. We have a lot of telco execs listening who have daughters. They listen to our podcast. Personally, I have a 14-year-old daughter, and I'm always looking for ways to encourage her and other young women to come into technology. I know you've done a lot of work with STEM and mentoring, so as a technical leader, what's your advice to parents of young girls on how to foster and encourage a future in STEM?

Amy (15:12):

I'm asked questions like this a lot and I'm kind of reaching this point of saying it's really a question of normalizing STEM and STEM careers. It's a really fundamental and huge part of the modern economy. It's got great jobs, great pay, great career paths. I don't think that is something that... Most people hear around the house, you're hearing, "You could be a doctor, you can be a lawyer, you can be an accountant." I grew up in a house where it was just assumed everybody was interested in science. This kind of mindset with both my parents, I think, made it very natural for me to choose a technology career,

so I do think that's the key. You've got to normalize. It's just a normal job that you would take. It doesn't require some superhuman abilities, some special mindset. I think you just need to normalize it.

DR (16:04):

Yeah. What I did with my daughter was I didn't really force her, I signed her up for a coding class when she was like maybe seven or eight years old. She was crying. She was like, "There's all boys. I'm not going to fit in," and so I pick her up at the end of the day, and she's like, "Mom, it was so fun, and I totally think I could be a software engineer." I was like, "One day of camp? Weren't you crying in the morning?" Right, so, it is a little bit intimidating, but I think when you start them really young, it's a little bit easier to get them into the field.

Amy (16:37):

Yeah, and I think it just makes it a normal part of life.

DR (16:39):

Yeah. One other interesting thing that's really awesome about you is your passion is classical music singing. My passion, I think everyone knows, is tennis. What can you tell us about your classical music background and what you've been doing in your city?

Amy (16:55):

Sure. Both my husband and I have a very strong background in classical music training. Both of us are instrumentalists, but we both sing with the symphony chorus, so every year, we get to do Messiah, except the years when there's COVID, but it's been really fun for both of us because it's something we both really enjoy doing. The symphony here in Birmingham is top-notch. Great conductors, so can't really say enough that's fun about it.

DR (17:20):

Yeah, that's awesome. I am super impressed. I cannot sing. One time on the podcast I rapped and it was terrible, but I think that is so awesome. I'm sure it sounds beautiful. Amy, I want to thank you for coming on the podcast today. I think we learned a lot from a security standpoint about moving to the public cloud, so thanks so much.

Amy (17:39):

Thank you.

DR (17:40):

Awesome. Stick around because we're ending each podcast with a Telco in 20 takeaway. I have 20 seconds to tell you something you need to know.

DR (17:50):

I've said it once and I'll say it again. Software eats hardware. It's only going to accelerate over the next 10 years. This is a really good trend that telcos around the world need to sprint towards. Using software instead of hardware not only lowers your cost dramatically, it massively increases your speed to market. That's why you should do it. The telcos that figure out how to roll out functionality in days versus years

will crush their competitors and subscribers will be flocking towards these telcos because they will provide the best subscriber experience. The CSPs that figure out how to build with the public cloud will be the big winners in this industry. Go software, go public cloud, whoo-hoo!

DR (18:33):

To celebrate having our first female podcast guest, like Amy, I'm a big fan of women pursuing STEM careers, heck, I'm one of them, so for every podcast listen in the next 30 days, I'll donate a dollar to the Girls Who Code chapter at my alma mater, El Paso High School. Go Tigers!

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Later, nerds!