

Sara Armstrong ([00:04](#)):

Hello and welcome to this episode of the AWS podcast series Innovation Ambassadors. I'm Sara Armstrong, your host and head of innovation and transformation programs at AWS. Along with my co-hosts from around the world, we'll act as your ambassadors to some of the most interesting prototyping and innovation engagements with our AWS customers. We provide you with a roadmap to innovation and cloud technology solutions. We're so glad you joined us on this journey.

([00:37](#)):

Welcome to this special episode of Innovation Ambassadors. Today we're taking a field trip. We focus our regular episodes on the how and the what and the why of prototyping in our customers' innovations journeys. Today, we're exploring the where. Specifically, we're at the grand opening of our Santa Clara Prototyping and Innovation Lab, and we're going to give you a virtual tour. And first, I'd like to welcome to our podcast our special guest, Vice President of AWS Worldwide Specialist Organization, Brian Taptich, also known as Tap. Tap, thanks so much for being here with us today.

Brian Taptich ([01:12](#)):

Oh, thanks for having me.

Sara Armstrong ([01:14](#)):

Tap, can you share with our listeners a little bit about what the AWS Worldwide Specialist Organization is?

Brian Taptich ([01:20](#)):

Absolutely. The Worldwide Specialist Organization's mission is really important for AWS customers. Our team builds and executes go-to-market strategies, which help turn AWS ideas and services into billion-dollar businesses. Our team is comprised of go-to-market specialists, sales specialists. And about half of our organization are really technical, our solutions architects, who help define and execute these go-to-market strategies for new and emerging services and solutions worldwide. In a little more detail, our team works across a ton of different businesses within AWS, whether it's marketing or ProServe or field sales organizations, to accelerate customers' journey to the cloud. We work really closely across all of our services to identify customer needs, provide the support they need, whether it's on services like our database services, our analytics services, our AI/ML services, and help get customers to the cloud as easily as possible.

Sara Armstrong ([02:18](#)):

Fantastic. And how does that mission relate to the concept behind these physical prototyping and innovation labs?

Brian Taptich ([02:27](#)):

Since the beginning of the specialist organization, a very big part of the specialist organization is prototyping and innovation. At Amazon, one of our core principles is to work backwards from our customers. The working-backwards process really defines who we are, and we're always innovating to try and delight those customers. One of my favorite stats is actually 90% of AWS features across all of our services come from direct customer feedback through a bunch of different mechanisms we have. And about 10% of our innovations come from looking around corners and responding to that customer feedback.

[\(03:01\)](#):

Prototyping started in WWSO with our business development teams. This function was brought to life because customers asked us to go beyond just whiteboarding or slideware or canned demos to really gain a deeper understanding of how and when to use AWS to solve their business's challenges through innovation. So we meet with customers often. Customers wanted a place to host these engagements, learn about our business and services, and do so in a builder-ready environment. So because of these needs, we conceived of the prototyping lab concept four years ago, or more accurately, Sara, I should say, you conceived with a prototyping lab concept four years ago. And we've seen that collaborating with other internal teams and customers, we can extend and diversify the portfolio of offerings that we have for customers to a broader range within the prototyping environment.

Sara Armstrong [\(03:47\)](#):

Thanks, Tap. That expansion into other areas reminds me so much of what we hear from customers all the time about their innovation and transformation journeys, that they continuously iterate and evolve from those core foundational concepts. Can you give us an example of that broader range of offerings that we're thinking about in these labs?

Brian Taptich [\(04:07\)](#):

Oh, sure. As some of our listeners certainly know, we have what we call Executive Briefing Centers, or EBCs, at AWS, and these are spaces where customers and executives like myself get to meet one-on-one, talk through their business challenges and ways that AWS can help. I really see these prototyping and innovation labs as immersive, tactile EBCs, really an extension of what we're trying to do there by being able to conduct meetings where you can have a conversation, but also marry the briefing by getting hands-on and actually having immersive experiences with the technology. We're really trying to drive the customer experience in a positive way. The labs, of course, are still prototyping focused, but we see this evolving into innovation labs, where we can think big together with customers in a risk-free environment. We've received great feedback so far. They're really excited that they can come in, see the space, work with our technologies to help them make data-driven and informed business decisions about which services they should use, products to use, and which partners, in some cases, to engage as well.

Sara Armstrong [\(05:06\)](#):

And this isn't the only space that we have, is it, Tap?

Brian Taptich [\(05:09\)](#):

No, not at all. Well, in fact, we've invested in a global network of customer spaces. So beyond this new lab in Santa Clara, we've also opened labs in Luxembourg and Sao Paulo, and we have openings later this year in New York and Melbourne. And depending on the traction that we see and the enthusiasm that we receive, we may look at opening additional labs worldwide.

Sara Armstrong [\(05:30\)](#):

Fantastic. And our goal here is to really create that exciting environment for customers.

Brian Taptich [\(05:34\)](#):

Yeah. It's where customers can come in and meet with us, build, innovate, and ultimately fall in love with the potential that AWS has to offer. So we're really excited. We're really excited to be here and tour this space as well as to celebrate the culture of innovation and invention for our customers.

Sara Armstrong ([05:50](#)):

Well, we are thrilled to take you and our listeners on this tour. Shall we go have a look at the lab and meet some of our team and partners?

Brian Taptich ([05:58](#)):

Absolutely. Let's go.

Sara Armstrong ([06:04](#)):

All right. Well, we are greeted by Kandha Sankarapandian, engineering leader for our North American prototyping team and host of our Santa Clara Prototyping and Innovation Labs. Hey, Kandha, thanks for showing us around.

Kandha Sankarapandian ([06:16](#)):

Hey, Sara. Hey, Tap. Welcome to the lab. It's my pleasure to host you today.

Sara Armstrong ([06:20](#)):

Can you describe the space a little bit for us, Kandha?

Kandha Sankarapandian ([06:23](#)):

Gladly. The lab has five functional areas: the showroom, the co-development rooms, the server room, and the workshop. And we also have some storage room. The lab, as you can see, follows an open floor plan concept with floor-to-ceiling glass windows that lets in the California sunshine. We use a modular design that allows us to use the space for our different engagement styles, including tours like this one that we are on, executed briefings, working-backward sessions led by our innovation and transformation team, and my personal favorite, rapid prototyping and co-development with our customers and partners. Let's start with the showroom, where we have interactive and tactile demonstrators built for our customers, often in collaboration with AWS APN partners.

Brian Taptich ([07:06](#)):

Oh, this is a cool space. It really is wide open and the opportunity to do some really interesting collaboration.

Sara Armstrong ([07:12](#)):

Thanks, Kandha, we'll have a look around. Hey, Jeremy. Tap, let me introduce you to Jeremy Dahan, Senior Automotive Compute Go-to-Market Specialist.

Brian Taptich ([07:22](#)):

Hey, Jeremy.

Jeremy Dahan ([07:23](#)):

Hey, Tap.

Sara Armstrong ([07:24](#)):

Jeremy, you've worked a lot with our automotive customers and partners to build this immersive automotive space.

Jeremy Dahan ([07:31](#)):

It is my pleasure to show you all the partner demonstrations that we have here, spanning from data acquisition for ADAS, Advanced Driver Assistance Systems, and AV, autonomous vehicles, all the way to development of infotainment system.

Sara Armstrong ([07:45](#)):

Tell us a little bit about what else you've done.

Jeremy Dahan ([07:47](#)):

For example, here I'm with a partner at dSPACE with Thorsten. So we're doing data acquisition from the different sensors that we have on our vehicles. So that can be camera, radar, LiDAR data, and also CAN. And please, Thorsten, can you explain us a bit more about that solution?

Thorsten Oppermann ([08:03](#)):

Absolutely, Jeremy. Thanks for having us. Hi, Sara. My name is Thorsten Oppermann, I'm with dSPACE. We are a leading global provider of simulation validation solutions for connected, automated, and electrically powered vehicles. So the AUTERA data logging system is one of our solutions that we have for the ADAS and AD space to actually lock sensor data. Typically, as you just said, there's a ton of sensors on your vehicle. There's cameras, LiDARs, radar sensors, and you also want to tap into vehicle communication systems like CAN or automotive ethernet. And the AUTERA system is a flexible data logging platform that allows you to interface with all sorts of sensor types that you have in your vehicle, and it also gives you the bandwidth that you need to record all that sensor data that's coming in and store that and load it back up to your AWS cloud, for example.

Jeremy Dahan ([08:58](#)):

Thorsten, your AUTERA platform allows for different types of activities. Can you elaborate more on that please?

Thorsten Oppermann ([09:04](#)):

Absolutely. So the AUTERA system itself is a data logging platform. However, it's an open platform, so we are running a Linux on there, and we can also utilize it for prototyping applications. So you can, for instance, add a hardware accelerator for prototyping of perception algorithms or even adding intelligence to selectively record data to reduce the amount of data that you're recording. And at the same time, in terms of being an open system, we allow the integration of third-party components, just like, for example, Seagate, if you need a larger storage capacity. And I think we're going to hear about that in a second.

Jeremy Dahan ([09:42](#)):

Thorsten, I know that your log is awesome for collecting all of the data, but are there any ways to select just the data that I want to have?

Thorsten Oppermann ([09:51](#)):

Sure, good question. The logging system itself is an open system. We run RTMaps on it to interface with all the sensor types. There is also a possibility to integrate other partner softwares, for instance, FleetWise, that allows you to connect to the vehicle and start a data collection campaign. At the same time, we are also open to interfacing with third-party storage components, like Seagate.

Jeremy Dahan ([10:15](#)):

Hey, Iman, very nice meeting you. Just Thorsten told us about the fact that you can log the data from the dSPACE logger onto your Seagate solution. Can you tell us more about it?

Iman Anvari ([10:23](#)):

Of course. Thanks, Jeremy. Let me start with a little bit of introduction. I'm Iman Anvari from Seagate. I'm the director of product management for our vertical markets, and I'm very excited to be here and show you the end-to-end flow. Seagate has been in the data storage industry for about 40 years. And as you know, we have stored exabytes of data over the years, but nowadays, we want to focus on data mobility. And this product that you see here is part of our Lyve systems and Lyve platforms. The idea behind it is that the user should be easily able to move the data from the car to any location they would need.

([11:00](#)):

In this scenario, what we're showcasing is our Lyve mobile platform that is connected to the dSPACE data logger. The data is loaded on the Lyve platform, and then we can easily remove it from the car and then carry it with us into a data center or into an ingest station. From there, we have multiple modular products and services that is available to the customer and the user based on their needs. So they can really design their data flow and figure out what's right for them using these different pieces and easily move the data into cloud or any place they need.

Jeremy Dahan ([11:33](#)):

Awesome, Iman, thank you very much. And I cannot wait to also see the part that is on-prem that we have in our lab that actually are your upload stations and your local storage.

Iman Anvari ([11:44](#)):

Yeah, absolutely. When you get on-prem, most users want to ingest this data and do something useful with it. That's where our Rackmount receivers and the rest of the portfolio comes in. And some users want to locally develop this data further, filter it, add some metadata to it, and that's where our Exos X systems, which is part of our larger family of product portfolio, comes into play. We have it in the lab, as you can see, and you can easily offload the data locally on a storage that gives you multiple petabytes of storage. The storage we have here is about one and a half petabytes. We can go up to almost two and a half petabytes today. So it's almost limitless for use cases like this. And the end user or the partner can easily load the data here, ingest it, do some data processing, and then, of course, push it to the cloud.

Brian Taptich ([12:34](#)):

Man, what an amazing-looking space. And I can only imagine the amount of data that's getting ported up to S3 right now.

Sara Armstrong ([12:41](#)):

Hey, Mike, nice to meet you.

Mike Mogadam ([12:42](#)):

Nice to meet you too. My name is Mike Mogadam. I'm in the global business development at Equinix. I focus on joint solutions with AWS, and very excited today to talk about our joint solution with AWS around autonomous vehicles and ADAS testing.

Brian Taptich ([12:58](#)):

Hey, Mike, can you tell me a little bit more about Equinix's involvement in the lab?

Mike Mogadam ([13:03](#)):

Basically, Equinix is a data center company, and this is where automotive companies can actually upload the data that they collect in testing directly to the cloud. Equinix is facilitated with AWS Direct Connect that can push that data up at a hundred gigabytes per second, basically increase the speed to market, accelerate the speed to market for ADAS testing. One of the things that we really value in terms of having a lab is that we can show the art of the possible to our customers. And as companies' technology leaders, like Equinix and AWS, engage and embrace sophisticated use cases in IoT and automotive, autonomous vehicles and computer vision, it's imperative that we not only just provide building blocks and tools and reference architectures, but we actually handhold the customer through the journey, and we bring developers, partners and solution providers together to actually integrate hardware, devices, and infrastructure to the cloud to build new solutions.

Brian Taptich ([14:08](#)):

Hey, so what is this weather map about?

Timo Korpela ([14:10](#)):

Hello, my name is Timo Korpela from Vaisala Xweather. I'm running the automotive partnerships here in North America. And what we do at Vaisala is that, first of all, we are not exactly a startup. We are an 80-plus-year-old company from Finland. We have been providing environmental systems for decades, and now we are providing data, not just out of those systems that we have delivered to various clients, but also from other sources. And that's why we are here, to show what this data can do in automotive especially.

Brian Taptich ([14:42](#)):

Really interesting. Is there any other application for such data?

Timo Korpela ([14:45](#)):

Oh, yeah. So when I talk about environmental data, number one, we're talking about weather, which is, by default, big data, which makes this partnership with Amazon very natural for us. But the data that can be collected from these different sources can be utilized for different use cases, whether that is air

quality data or lightning data or road weather surface data. There are lots of application areas for that type of information.

Brian Taptich ([15:11](#)):

Great.

Sara Armstrong ([15:13](#)):

Can you tell us a little bit more about how that system can interact with our autonomous driving system?

Timo Korpela ([15:19](#)):

Absolutely. So all of us have weather in the car. Most of the infotainment systems have that, but what we do is a lot further in terms of applications. And I'll give you a couple of examples. One of those examples is ADAS system integration, where the weather information regarding the surfaces of the road can be used to optimize and really control the availability of those systems. The other very kind of simple application is an EV range calculation, where weather actually plays a major part of making those estimates as accurate as possible. And we already have these both systems in production with various OEMs around the world.

Sara Armstrong ([16:02](#)):

Hi. Can you tell us a little bit about your system?

Arnaud Dupuis ([16:05](#)):

Hi, yes. I'm Arnaud Dupuis, the CEO of Genymotion. Genymotion is an Android virtual solution to execute and test Android solutions in the cloud running on AWS. And now we have Android Automotive, the automotive version that's going to be shortly available on the marketplace.

Sara Armstrong ([16:25](#)):

Oh, wonderful. Can you tell us a little bit about that automotive solution?

Arnaud Dupuis ([16:28](#)):

Yes, of course. The idea is that to bring all of our expertise of Android, the smartphone and tablet operating system, to the automotive industry with all the control, all the automation, and all the sugar for CI/CD continuous integration, and on top of that, integrate with the standards, like the Vector SIL IT's toolkit and stuff like that.

Sara Armstrong ([16:55](#)):

Oh, fantastic. Making it easier to develop applications and-

Arnaud Dupuis ([16:55](#)):

Absolutely.

Sara Armstrong ([16:55](#)):

... deploy them?

Arnaud Dupuis ([17:01](#)):

Exactly. Yeah. And develop, deploy, monitor, and do all the... Basically, manage all the workflow of development.

Sara Armstrong ([17:09](#)):

Wonderful. Well, thanks for being with us today.

Arnaud Dupuis ([17:11](#)):

Of course. Thanks for having me.

Sara Armstrong ([17:13](#)):

Hey, Jeff, so great to see you here.

Jeff ([17:16](#)):

Hi, Sara. Wonderful to reconnect.

Sara Armstrong ([17:17](#)):

Well, here's your demonstrator that you talked about in the last podcast that we did.

Jeff ([17:22](#)):

Live and in person.

Sara Armstrong ([17:23](#)):

It's amazing.

Jeff ([17:23](#)):

It is amazing, isn't it? It's so good to be here. What we have here is a conveyor belt, a miniature conveyor belt, probably the smallest conveyor belt you'll ever see. But in larger scale, this is what's used in lots of logistics and distribution centers. And this is where our cloud solution really comes to life. We have cameras monitoring both the belt itself and the motors and bearings that move the belt. And what we're showing is that when a package gets stuck or when a bearing has an issue or a motor overheats, our cloud solution, built in AWS, is able to notify the customer, create an automatic alert, generate an automatic work order, and fix the problem before it takes down an entire facility.

Sara Armstrong ([18:03](#)):

Yeah, definitely. Well, it's so exciting to see you here, Jeff, at our grand opening and to showcase the work that you did with our prototyping team.

Jeff ([18:11](#)):

Well, we wouldn't be here and we wouldn't be successful without AWS and the prototyping team, which allowed us to make our product more economical, more effective, better latency, better resiliency, and now we're seeing it right here in person.

Sara Armstrong ([18:22](#)):

Awesome. Thanks, Jeff.

Jeff ([18:23](#)):

You're welcome. Great to see you, Sara.

Brian Taptich ([18:26](#)):

So, what's so special about this cluster and infotainment system?

Nate Sladek ([18:30](#)):

Sure. So first off, quick intro. I'm Nate Sladek. I lead strategy and product management within Marelli's electronics division. Marelli is a global, Tier 1 automotive supplier. We serve a variety of different customers in basically every region around the world. What's unique about our cluster product that we have here is we are replicating both the software and hardware on that product in a virtual environment in the cloud in collaboration with AWS. And the advantage that this brings is it allows a variety of developers now to develop all on the same piece of virtual hardware, which really accelerates our development timeline, reduces our cost, and provides the flexibility to OEMs to improve that product over time, adding new features, adding new content, and ultimately bringing more content to consumers that otherwise might take a much longer process than what it is in this instance.

Sara Armstrong ([19:24](#)):

Can you tell us a little bit about the value of having your system demonstrated here in the labs?

Nate Sladek ([19:29](#)):

Yeah. We're really excited that we were able to bring this product to the lab here because it allows maybe customers that we might not otherwise have access to, or just partners, to be able to see what our technology can do from a development perspective. So this was something I didn't expect to come out of our initial collaboration for CES 2023, but we're really excited that this has kind of blossomed into a much bigger partnership and excited to see where it goes in the future.

Sara Armstrong ([19:55](#)):

Well, we're excited to have you here today. Thanks for being with us.

Nate Sladek ([19:58](#)):

Absolutely.

Sara Armstrong ([19:59](#)):

Tap, should we go check out the server room and some of the equipment Iman and Jeremy were just describing?

Brian Taptich ([20:05](#)):

Definitely. Let's do.

Sara Armstrong ([20:10](#)):

Oh, Jared. It's loud and cold in here. We're in our server room, a clear glass wall that looks out on the showroom. Jared Thompson, our Hybrid Edge specialist, is going to talk a little bit about what we have here in the server room.

Jared Thompson ([20:22](#)):

Hello. How you doing?

Sara Armstrong ([20:23](#)):

Good.

Brian Taptich ([20:24](#)):

You weren't kidding. It is cold in here, and this is some amazing equipment you've got, Jared.

Sara Armstrong ([20:28](#)):

Jared, can you talk to us a little bit about some of the equipment we have in here?

Jared Thompson ([20:32](#)):

Sure. All the equipment in here is part of our Outpost Test Lab. And as part of the Outpost Test Lab, we have specifically three pieces of equipment in here. On the left, we have our traditional Outpost offering. So it has a mixture of different compute sizes, EBS, S3, and different managed services that come with the Outpost offering. On the right rack here, we have our new ultra-low latency Outpost rack. This is the same rack that NASDAQ announced in re:Invent. So we have this as part of our test live. This is the first of this rack in the lab, and actually, I think it's the first of this rack of any lab around in the world. And then on the right here, we have this little 2U server, and this is the Outpost server that's in the rack here. So of these three, these are the lab resources.

Sara Armstrong ([21:20](#)):

Can you tell us a little bit about how our customers and partners come in and use this equipment?

Jared Thompson ([21:27](#)):

Sure. Obviously, with the Outpost, you can't really just try it before you buy it. So with the lab, it became necessary to have that offering, so a customer could come in and try their workloads before they actually purchase an Outpost. So this lab is exactly that playground, where they can go in and validate and look at the service offerings before someone goes and actually purchases. So it's absolutely essential to the process of validating workloads and Outposts.

Sara Armstrong ([21:53](#)):

Fantastic. Well, thank you so much, and stay warm.

Jared Thompson ([21:55](#)):

I will. Thank you very much.

Brian Taptich ([21:57](#)):

Wow. It feels like we've got a remarkable amount of AWS technology in here.

Sara Armstrong ([22:01](#)):

Tap, it's so exciting to see the partner demonstrators and appliances and all the hardwares in it. Let's go find Kandha again in our co-development spaces and check that out.

Brian Taptich ([22:11](#)):

Yes, let's go check that out.

Kandha Sankarapandian ([22:12](#)):

All right, welcome back, folks. We are now in the co-development rooms, where we have workstations, whiteboards, and conferencing systems set up for customers and AWS engineers to be co-located for joint development. We follow sprint methodology and conduct sprint planning, daily standards, and sprint demos in these co-dev rooms. Now, let's check out the workshop. The workshop's design conveys an industrial look and feel. We have outfitted the workshop with a 3D printer, soldering station, PCB printer, oscilloscope, and other equipment for light fabrication. This is where my prototyping team builds prototypes powered by AWS IoT and HML. For instance, we are building this smart manufacturing demonstrator that detects and removes defects in your production line using Amazon Lookout for Vision and a Universal Robots cobot.

Brian Taptich ([23:06](#)):

Really cool. And again, using so many different AWS services.

Sara Armstrong ([23:11](#)):

Thanks, Kandha. So Tap, that's pretty much the space, unless you want to check out our storage room, which isn't nearly as exciting as everything else we've seen here today. I'm so inspired, Tap, by the possibilities ahead of us for co-developing and innovating with our customers and partners.

Brian Taptich ([23:29](#)):

Yeah, I agree. And if the rest of the space is any indication, I'm sure the storage room can't be missed.

Sara Armstrong ([23:36](#)):

Well, Tap, thanks so much for joining us on this tour today and sharing with our listeners the benefits of the lab.

Brian Taptich ([23:42](#)):

Well, thanks so much for having me. I really want to reiterate that spaces like this are so important in helping us develop long-term relationships with our customers and our partners. We're really here to support customers at all points in their journey, and these spaces are a great place to do that. We're really not here to close deals and meet goals. We do that in a lot of other parts of our business. We're here to make long-lasting relationships with customers through physical spaces where we can build and innovate together.

Sara Armstrong ([24:11](#)):

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