

Jason Lopez

Last year, telcos started implementing the fifth generation technology standard for cell networks. 5G promises to transform how we use mobile technologies with speeds of up to 10 gigs. Which means the vision goes beyond cell phones, accessing internet services for laptops, supporting Internet of Things, VR, AR, AI, edge computing and enterprise applications. Technologists say a bunch of tech that's been waiting for this moment will be unleashed. And an interesting thing to note, the ideas behind the technology got their start at NASA, which was seeking to improve space communication for satellites. But what's happening on the ground is what this interview with Nutanix's Satyam Vaghani is focused on. Although telco deployment has started 5G devices and apps are just being launched. There's still unknowns on the horizon. Satyam is the Vice President and General Manager of IoT and AI at the company, and we talked to him at the .NEXT conference in Copenhagen.

Jason Lopez

When you have talked about 5G in the past, it seems you were seriously into it.

Satyam Vaghani

Oh we're still into it, in fact, we are seeing some commercial success in 5G, so, I better be into it.

Jason Lopez

So how is it coming along?

Satyam Vaghani

And so, you know, it's just been a great learning experience again in 5G because it's a very different vertical than, you know, some of our other places of focus like manufacturing and retail. And so, well, I can talk about two things. One is just a very high level of how the market is shaping up. And so at a high level, I am personally surprised at how much is actually going on in 5G as opposed to, you know, when initially I thought of 5G I thought there's a lot of noise about it, but maybe there's not a lot of action. I was proven wrong and you know, in a very pleasantly surprising way. So that's a very high level thing. And then getting down into the specifics, again, we are seeing that, you know, obviously telecom operators are leading the journey, but we hope to help them as a technology provider for the journey they want to undertake. And so again, I see them taking our two-part journey is. The journey is to modernize the edge in preparation of 5g. And so they used to run these things that they called virtual network functions, you know, firewalls, intrusion detection, so on and so forth on the edge. And now it's universally accepted that HCI is a great way to modernize the 5G edge or modernize the edge in general. And so HCI gives them simplicity. It gives them the potential skill that they might need at the edge without extra complexity. The other thing they are doing in the modernizing bucket is a lot of these virtual network functions, which used to be very monolithic and they used to run in VMs are now being desegregated into microservices based containerized applications. And so we are moving from VNFs to CNF container, CNFs containerize network functions. So there's that trend going on. And so that's the first part of the journey is to modernize the edge, modernize

the potential applications that they're already running into. A little contemporary, more contemporary framework.

Jason Lopez

It sounds like it's way more complicated now, the fact that if it was monolithic and more centralized and now you have to also move it, disperse it, and then containerize...

Satyam Vaghani

You might think it's more complicated, but strangely it is done exactly to simplify it. And so by, by changing to a, to a containerized model for network functions people believe, and I think so as well, is you were to have a, have a high level of agility in terms of being able to deploy these applications to the edge, a high level of predictability and a much better way to scale this when the time comes. And so, you know, when you are monolithic, yes, of course you can deploy it once and it does what it does. But as the capacity demand increases, it is a totally different engineering problem to go from, you know, that one thing to many. That's something that is inherently built in, in the whole kind of microservices world, containerized world. And not because of containers, but mostly because of things like Kubernetes, the actual underlying orchestration frameworks.

Jason Lopez

So, it's becoming simpler. But it's all new stuff. When 4g came around, we weren't building...

Satyam Vaghani

a, no, I heard this joke apparently, you know, it's big and telcos is apparently only the even number G's are successful.

Jason Lopez

Did they say why?

Satyam Vaghani

It's just because hindsight really, there's no real underlying factor.

Jason Lopez

I remember three G was was big for like the iPhone and for social...

Satyam Vaghani

Yeah, I would think so as well. Right. But apparently they only count 2G and 4G as big successes. I don't know why.

Jason Lopez

Maybe they built all brand new stuff.

Styam Vaghani:

Possibly, yeah, but um...

Jason Lopez:

Okay, so what about the second part of what you're saying about 5G

Satyam Vaghani

So step two of the telco journey is in fact, 5G, right. As you know, 5g for the first time is going to invert the last mile. Problem is the bandwidth between the consumer and the edge is going to be dramatically higher than the bandwidth we're doing the edge in the cloud. And so now that requires us to kind of deploy a whole new generation of applications, especially around AR, VR, augmented reality, virtual reality, applications around AI, IOT applications. Now these applications need to go on the edge because you know, they need that bandwidth between the consumer and the edge. And so that's a great opportunity for a telco to be a first class provider of highly value added applications on the edge. And so I call step two, the monetization step, right? Now they are not just, our telecom company is not just a purveyor of infrastructure, but they are also the purveyor of services value added services that third parties can use, for example, to deploy their applications to the edge. To a telco, I would imagine this is a once in a lifetime opportunity. It's a business making opportunity. You know, if the play is right, they could be the AWS for edge infrastructure, right? They could be the provider of services on the edge value added services on the edge. And so our job, for example, my job is to make them succeed there by providing the technology competence, that needs to run on the edge to make it multitenant, make it a modern substrate for all these microservices based applications.

Jason Lopez

And could the telcos use Nutanix to also extend that kind of experience to the users?

Satyam Vaghani

Exactly. In fact, we are seeing some commercial success with our telcos using Xi IOT and Xi Edge as a substrate to host these new applications. And then of course they either build those applications in house or they kind of in a license them from third parties and then they sell those as services to their 5G users or their landline users and so on. So we've worked a bit with telecom providers who have created a predictive maintenance applications for their manufacturing end users. And so instead of the manufacturing user having to deploy an edge at the factory, they can use a service from the telco. And similarly, we've seen some other use cases in retail around shrink prevention.

Jason Lopez

And so it sounds like the telcos are becoming cloud companies and to do that, do they have to build out their Web Scale... or...?

Satyam Vaghani

That's what we provide, right? So through software, through our platform you can essentially create that higher level vision of yours much faster. And we are the technology providers for

their business vision, which to me is the right thing to do. As they can optimize for the revenue and the business and the breadth of the business, we can optimize for the depth of the technology and the agility of delivery and so on.

Jason Lopez

At some point even individuals are going to do this. Right now we do it with Dropbox or iCloud. At some point we're going to have a lot more of these services and we're going to need to manage all of them.

Satyam Vaghani

Yeah that's really true, in fact, it's funny because just at this .NEXT conference, a, there was a person who apparently stopped by the IOT booth at the solutions expo and they were asking the engineer there if they can use Xi IOT to manage all their home automation projects. And so, you know, it was eye opening because that's the kind of the bleeding edge, right? As now somebody has woken up to the possibility that their home is going to be a pretty complicated IOT network in itself. And not only that, but now they want to do many interesting IOT use cases of all the sensors that they have applied. So yeah, I mean, this is going to go and places that we might probably not have and have imagined so far. Right. I mean, it's about, it's like sitting in the year 2007 having seen the first iPhone and trying to imagine if there's going to be a Uber 10 years later. Right? I mean, you know, it's, I don't, it's fantastic what the possibilities are. I can't do any imagine all of them.

Jason Lopez

Satyam Vaghani is the VP and GM of IoT and AI at Nutanix. Technologists like Satyam agree that 5G is truly — and to use a word that gets cheaply thrown around a lot, because in this case, it's real — it's truly a game changer. The realization of a fully connected world from our mobile devices, to our homes, to enterprises. I'm Jason Lopez and this is the Tech Barometer podcast. We've been covering 5G on The Forecast and will continue to... find stories about 5G and edge computing at [theforecastbyNutanix dot com](http://theforecastbyNutanix.com).