



For Cloud Professionals, part of the On Cloud Podcast

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Title: Edge: it's the potential, the power, and the future of IT

Description: Edge computing has the potential to revolutionize IT—especially the way organizations interact with customers. But the edge space is still somewhat of a wild west, and there are competing theories of where it should go and how it can be utilized most effectively. There are even competing definitions of what “edge” truly is. In this episode of the podcast, David Linthicum and Edgevana CEO Mark Thiele break down edge computing—what it is, and isn't, and ways companies can leverage it to help create better value for customers. Mark also gives his take on what an edge-enabled future would look like, and he gives some pointers on how organizations can build a path to get there.

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Operator:

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David Linthicum:

Welcome back to the On Cloud podcast, your one place to find out how to make cloud computing work for your enterprise. This is an objective discussion with industry thought leaders who provide their own unique perspective around the pragmatic use of cloud-based technology. And today we have a special guest on the show. He's famous out there certainly in the edge computing world, but other things as well, and so we welcome Mark Thiele. How are you doing, Mark?

Mark Thiele:

Hey, it's good, Dave. Good to be back on.

David Linthicum:

Yeah, and introduce yourself because I think a lot of the audience may know you by name but not necessarily know about what you're doing and some of the new stuff you're getting into lately.

Mark Thiele:

Thanks, David. So yeah, Mark Thiele, CEO for Edgevana. Edgevana is still in stealth, so I can't give away all the secrets, unfortunately, but we're really looking to effectively lower the barrier to entry for folks that are attempting to deploy from one server, to hundreds or dozens of racks, or even hundreds of racks of servers anywhere in the world, simplify that process. And in lowering the barrier to entry, basically what we do is making it more cost effective for both the buyer and the seller to acquire, or make available, services on infrastructure that's already there, and that's really kind of a key component for what we're for our business is leveraging what's already there in order to get the most value out of it because I've been – and of course it threads throughout most of my writings, but I've been a firm believer that much of edge computing won't come in a big bang but would rather – will rather come through thousands and thousands of little windows of opportunity.

And my opinion is that lowering that barrier to entry to get more people into the market is likely to help the market grow more successfully. And so, in a short nutshell, that's the space we're in, and this will involve data centers and server data and even cloud connection and so on and so forth. And before Edgevana, most of my career has been in cloud, data centers and edge. I've been building infrastructure for companies like HP and Gilead and VMWare and others for three decades, and I've been from global networks to cloud infrastructure to full data centers and everything in between. And for about the past four or five years, I've really focused on edge and just really love the opportunity created by this new space.

David Linthicum:

Yeah, I'm excited for you. So how did you get on this journey to start a company? As a reformed entrepreneur who's been CEO a few times at different technology companies that we sold and CTO at a lot of small publicly traded companies, I'm always interested to hear on how you started the journey toward, in essence, building a new concept and a new company to deal with the concept.

Mark Thiele:

Yeah, I mean, the truth is, David, I've got a lot of personal problems. My personal problems are I always feel like I'm the imposter in the room. I always felt more insecure because for most of my life, especially the formative part, my life as far as my education and learning humanity was on the poor side of the tracks and I didn't have a formal education for many years growing up. I mean, I'm not talking about college, but I mean elementary and middle school. I didn't go to school at all for five years in a row. And so when I started working, my first and foremost goal was getting a job, keeping a job, trying to save money and make money and trying to build a nest egg at some level for my future and my family's future. And so being an entrepreneur inside of companies was always a safer bet for me and felt more comfortable, but I finally got to the point where I was tired of both building opportunity within other companies and failing to build opportunity, because I couldn't convince folks of the opportunities I was representing sometimes.

And over the past four or five years, as my thoughts and ideas around what edge could be, what's likely to drive its adoption, how big it might become, what would be barriers to enabling it to occur more effectively, more quickly and more successfully for more people, an idea began to crystalize that had been sort of bubbling in my mind since as early as 2010, after a data center conference I had where I talked about the end of the data center, surprisingly enough, in London in 2010 with people like Tim Crawford and Jan Beersma. And it started there in a conversation I had with some co-lo operators and has been percolating ever since, and edge really, as I mentioned already, has kind of crystalized that vision and just made me get off my a** and stop whining and do it for myself this time.

David Linthicum:

Yeah, that's a great description. It's interesting too. And I think that the edge space really is so untapped right now. And so, in other words, cloud computing and all this other stuff, we're pretty well aware of how to build those various systems, but on the edge-based systems, we're still figuring out how to balance data on these platforms, versus centralized computing and the ability to kind of separate and bifurcate AI technologies between edge-based systems and centralized systems, and we really don't have the best practices out there to, in essence, get us to where we need to go where we're able to replicate success each and every time. Is that what you're trying to do?

Mark Thiele:

Well, to some degree, yes. I mean, they're sort of aligned with the personas blog that you might ask me a question or two about that I wrote probably over a year ago now. Probably well over a year ago now. It's understanding that access to the edge comes in many forms and from different angles, depending on what part of the edge is interesting to you. So, from the world that I populate, I can easily get interest development from a whole bunch of people that I actually speak to directly within the edge marketplace. But they have to do with enabling capabilities that heed to that edge marketplace.

And so my big concerns relative to the personas and developing general is that edge is a little bit of the Wild West – well, very much the Wild West, and I liken where we are with the edge today to where the internet was in 1992, maybe 1993. And back then, guys like us, you were probably still smarter than I am, just like you are today, David, and you probably already had some ideas for how to use the internet, but most of us were thinking about how to put pictures on it or how to read other people's VI scripts from across the world using IP addresses with Mosaic and finding web sites and stuff, but we didn't really think of it as what it would become.

We didn't think about it as the internet of Amazon and Google and Facebook and so many other things. We didn't think that within five years, if you didn't have a web site for your company by 1996, 1997, that you basically didn't exist as a mid-size or larger company. And I believe that the edge environment is in a similar position right now, but the things that enabled the internet to take off – and there are many things, but some of the primary drivers that enabled the internet to take off were the ability to gain access to lots of eyeballs more cost effectively and thereby drive more value in putting things on the web, which then drove more eyeballs.

And the things that helped bring eyeballs to the web were things like lower cost clients, better access to internet services, whether at home or in the office, or client that allowed you to get to most places, if not all places via something like Netscape, et cetera, search tools that allowed for better access to the

information that was out there. All of these things led to the barrier to entry for more companies to exploit the edge and there by even bring more eyeballs. And some of the concerns I've had historically about edge development in general and that we're really approaching it as if there are ten different big companies that somehow want to find maybe one other partner, if any, and exploit the edge for themselves.

Somehow that will be the answer to computing. And I'm realistically thinking that there's better opportunity for more pull to provide a free-form access approach to development and delivery of applications at the edge and thereby allowing it to grow more efficiently and allowing more of those little apps that people develop in their basement or in their garage over a long weekend, that they can deploy anywhere, no different than they might deploy an app to the iPhone store or the Android store.

David Linthicum:

Yeah, that's interesting. And it's also interesting that you break this down to personas of edge computing, and I thought that's kind of brilliant because ultimately we kind of need to understand the sub-patterns here, and I think personas are probably a good way to describe it. So what are the personas out there that you're finding, and which ones are we going to run into sooner than later? What's going to be more popular?

Mark Thiele:

Yeah, I mean, the personas can be broken down maybe at least in a vertical and a horizontal layer, and from a horizontal layer, maybe we could look at the personas relative to considering how the edge might be provisioned. And then on the vertical layers, we could look at the ways the edge might be exploited by the companies that would want to deploy services for capabilities there. And from a persona standpoint for edge development, a lot of the people I talked to were in this space of building – wanting to network or put 5G, or do they need to build more data centers, do they need to build different data centers? Is this just an extension of public cloud? Are we just moving it to the edge? Is this something net new?

Is it actually going to be cloud at the edge, or is this going to be just individual islands of infrastructure distributed everywhere. And each one of those areas of opportunity have a different persona because they look at the market from an opportunistic standpoint differently from what value they expect to drive from their customer, and frankly, somebody that's putting in new data centers isn't targeting David Linthicum or Mark Thiele as buyers of a drone app that might be available anywhere in the world or a museum app that might be available in every museum in every major city. Where they're looking at they want to sell to Google or Microsoft or Cloudflare or just attempting to put more of their infrastructure that then have personas around cloud deployment who are addressing personas in the buyer market might be you or I.

And then on the buyer side, we have folks that are attempting to deploy gaming as an example and one major vertical that is already looking heavily at exploiting the edge, but you have game builders, and then you have game publishers, and then you have game acceleration platforms, you have actual game platforms, and then you have game buyers. And each one of those have a different perspective on what the edge is or how important it is to the success and who they are responsible to from a buyer and a performance establishment standpoint. So while my blog was fairly short, it just meant to highlight the fact that when you're talking to someone about edge, not only do you have to have some relative clarity for what edge you're actually talking about, but you have to understand what perspective the person you're talking to is bringing to the edge because you and I could spend two hours talking about edge and I could think I just gave David the most brilliant dissertation on what edge is, and you're like, Jesus, Mark went on and on for two hours. I just wanted to find out whether there's going to be more five-megawatt data centers in secondary markets.

David Linthicum:

Yeah, so going forward, I mean, are we in danger with edge computing kind of going down the path of cloud computing where it's just kind of this big innocuous thing that's defined so many different ways that it really doesn't have much of a meaning? I remember writing a blog post, I think ten years ago, – that this just in, cloud computing is meaningless, and that's when kind of everybody tossed their technology into the cloud computing ring. And if it means everything, it kind of means nothing. And so is edge computing at danger of doing that now?

Mark Thiele:

Well, I think we're a long way from doing that, mainly because – and maybe going back to your question about the personas, maybe because of the personas, because there are so many unique delivery models associated with edge computing right now. You know, the fact that we call it edge computing, sometimes we call it fog computing, sometimes we call it edge infrastructure, sometimes we call it distributed cloud, sometimes we call it distributed edge.

And there are real and imagined differences in every one of those opportunity spaces. For me, what I would love to see is not so much that it gets to the point where it's all just a shade of gray, but rather the consumption models are simplified for the buyer, which is what will enable the marketplace to grow, right. So if we think about someone who, back to my reference earlier about David and Mark coding a real time VR museum app that requires the app to know in real time where you are in a museum and what you're looking at and provides you feedback and directions and even identify what else you might be interested in in the rest of the museum, et cetera, et cetera, assuming that requires low latency and uses the kind of data that would mean being at the edge would be important.

That's a particular consumption model, but in other cases, a consumption model may have nothing to do with a generic consumer end user and may have more to do with traffic mapping, or patterns, in a city and being able to leverage that data for a combination of potential buyers or users of that data. I mean, one example, talking to one of the major car manufacturers, it seems so silly, and yet it's just an indicator of where opportunity might be represented at the edge, and they're doing autonomous cars and they're doing car training in real world driving situations, et cetera, and what they found right away is that they're actually, whether they wanted to or not, creating a map of road conditions. And not just that the road is busy, or that the lights last too long, but actual road conditions like where are the holes in the road, where the potholes are in the road.

And so all of a sudden, you're beginning to realize that any one individual opportunity at the edge could potentially have downstream opportunity for what I like to call multi-tenant IOT. In other words, an opportunity to leverage what one company is doing relative to data creation by virtue of their localized environment of sensors and video sensors, et cetera, et cetera, and being able to leverage that across multiple opportunity spaces to create value for customers. So I think we're a long ways away from edge being offered as a simple one thing to everyone, but more succinctly to your point, I do think that without better clarification, we do run the risk of minimizing the value of talking about different edge opportunity spaces if we don't have better clarity for what those opportunity spaces are meant to solve for and what opportunity they're meant to create.

David Linthicum:

Yeah, and speaking of clarity, one other thing that used to drive me crazy kind of when edge computing started to emerge three or four years ago was the differences between edge and cloud computing, and even some people out there in the tech news space that was kind of reporting the demise of cloud computing with the rise of edge computing. And so what's your take on that, the confusion as well as how to define it and how there's a symbiotic relationship between the two?

Mark Thiele:

Yeah, I mean, the first thing is that – and, David, you've been around long enough you've seen it. I mean, you've probably been in organizations that have done it. I know I have. But we have a horrible habit in the IT space of saying it's all or nothing. What's happening here, what we're doing or what cloud is doing is everything. Or, this is coming in and it's going to supplant potentially some cloud capabilities, so cloud is going away. And in some cases, it's hyperbole, it's click bait. In other cases, it's marketing material, or grist for the mill, for a particular company's product or service. And in other cases, it's just short-sighted as to how IT is really adopted and where and how it can be leveraged.

But I really see the opportunity associated with -- If you think about how edge is likely to be absorbed by large enterprises, and you think about how edge is likely to be provisioned by in-between operators, meaning in-between the enterprise and cloud operators, the cloud operators are trying to find a way to link edge to what they're doing, and there are certainly plenty of examples from Azure Stack to AWS Outpost, which has been turned into Wavelength et cetera. And they're looking to make it an extension of cloud.

And truthfully there's not necessarily any reason why that can't work, but one of the problems that I see with generalizations in that type of scenario is that, if you talked to Amazon about Outpost, and probably even today if you talked to them about it, they would say it's an edge solution, and maybe it is, but its target audience was really on premises IT in campuses. And while, yes, you could call that edge, that means that everyone's on premise IT is also edge. But it's only edge for the people that happen to be on that campus. And so it goes back again to a combination of personas and definitions is that what are we trying to solve for and are we trying to stretch existing paradigms of the structured delivery or cloud technologies out over this new border, or are we taking opportunities to break assumptions and build something really new at the edge? And my perspective is our opportunity is to really build something new, and I'd be happy to delve into that for a few minutes if you're interested.

David Linthicum:

Of course we're interested.

Mark Thiele:

Yeah, I mean, David, if you think about it, put yourself in a perspective of being one of the hyper-scalers, and you already can't build fast enough. Even though you've got a \$14 billion-a-year budget to build new data center and infrastructure, you can't build enough, and you're buying from co-location companies and you're doing other things to manage your growth and expansion. And so you have that in perspective as far as scale and demand and money. And let's say just for kicks and giggles that there's only one company that sold generators for these new data centers and heretofore, you'd been buying those generators. For every megawatt worth of compute load, you were buying a generator and a quarter or whatever the math worked out to for your level of redundancy in your data centers.

And all of a sudden, the generator delivery schedule went beyond the window of opportunity for ordering them and having them ready in the same time scale as a project was approved for building the new infrastructure. So in other words, if Google had good enough planning or Microsoft had good enough planning to determine when a data center was going to be built, and when in the budget for it could be defined with say a 15-month lead time, but generators couldn't be delivered for more than 20 months, or something like that, what do you think the response from Google would be? You think it would be let's slow down our deployment? Let's run the risk of delaying our ability to respond to customer demand or missing the opportunity to make a lot of money, or potentially both? Hurting our ability to deliver services from a quality standpoint and missing an opportunity to make more money? I mean, that sounds pretty horrific if you're one of the hyper-scalers. So what would be the answer? There's really only two answers in that situation is they would say we're going to build without generators or we're going to figure out how to build them ourselves, but we can't be held victim to this supply chain issue going forward because this puts us too much at risk.

And so why do I bring that up and where does that fit into the edge? Well, many of us – many of the people, I mean, people that I respect and who have been in the space for a long time, when I discuss edge computing with them, are still talking about what will work and what won't work based on their understanding. And my supposition here is that, if you're trying to extend a rubber band from your internal infrastructure or from your existing cloud design and infrastructure out over the edge, then you're broken before you got started.

The opportunity here is to really build for an entirely new paradigm. I mean, let's pick the extreme and work backward. Build for throwaway. Literally build for throwaway. Build so that if something crashed a door in the closet of the CVS where you had your little data center and spilled the bucket of mop water that was on the other side, your data center in that room shut off and encrypted itself. If somebody began to unplug cables without having notified the environment ahead of time and they're not supposed to be there because they're going to steal stuff, it encrypts.

A piece of hardware breaks, you leave it there for once every three months and the UPS driver comes out because the UPS driver has become a certified mechanic – not a technician, but a mechanic – who can come in and replace given parts based on blinking lights or whatever it is you decide. Or they have a robotic door similar to how you drop your money at a bank overnight where you can put a disk, or a motherboard and it automatically goes and plugs it into a rack. And those racks are in rooms that don't require physical entry and they don't require air-conditioning units and they don't require external additional power sources because if any one of them is unavailable, it's only capacity. It's not capability.

And in my mind, it's those things, along with so many others around how we can manage at scale, how we can distribute workload at scale, how we think about the consumption model at the edge. My perspective is that many of the applications we'll be using at the edge will need to be similar to an app in the sense that you'll be able to use it consistently wherever you are, but with the added dynamic of being latency-sensitive. So when you characterize it with latency sensitive, now that means that you might be able to support an app that could miss connecting to one particular small data center somewhere because that data center is unavailable or the network is down, but still maintain successful connectivity to another nearby data center, all while traveling through town, through that region on a 300 mile an hour bullet train.

Or while you're in the family station wagon cruising through town, pointing your phone at a movie screen to determine which movie is playing in the next two minutes as you drive. To me, these are all part and parcel with what the edge could become, and that's not the only delivery model that we need to be able to support, but it is certainly a significant and – from my perspective, a significant delivery model area, and the only way to do that cost effectively is to rethink delivering infrastructure.

David Linthicum:

Yeah, I love the vision there, and I think that's a great description of kind of where edge computing should go. One last question. We're about out of time, but, where do you go for edge computing information? What are the sources that you go to every week to read about the evolution of edge-based systems and edge-based computing news?

Mark Thiele:

Yeah, I'm pretty eclectic in how I learn, and I take information from a lot of different sources. There's one place that actually has some good information, and I apologize I don't remember the web site off the top of my head. I've got a link to it that I can go to, but they do the yearly edge review type of report, and it's part of the consortium that includes Tim Crawford's company AVOA, and edge – MicroEdge X, and there's a handful of other companies that are in there. They put out some pretty good material – a lot of the material I read tends to be from just other professionals in the space, companies like some of the folks I talk to, for instance, like John Cohen at EdgeX or Rob Hirschfeld and some of the stuff he does as CEO at RackN. Who else?

Anyway, those are some of the best resources. There's a couple of event companies that are doing a fairly good job of putting on edge material, and some of those are areas where I feel like I can still learn something about specific aspects of edge. BroadGroup does a pretty good job with their edge congress. Data Centre Dynamics has started doing some good stuff with their borderless sessions. So there is good material being built out there but David, just like for you in the first four or five years of the cloud space, a lot of this stuff we're still making it up as we go, and a lot of the material is good, but really depends on you knowing what you're looking for and knowing how to interpret it for value for you specifically, meaning what business are you in? Are you going to be consuming or are you going to be investing, et cetera, et cetera.

David Linthicum:

So where can we find more about your company on the web and how are things going to evolve over the next few months?

Mark Thiele:

Well, so my company, relatively speaking, is still in stealth, so there's really not much on the web site, but the web site is Edgevana.com, and feel free to register your name if you have interest, you want to learn more. We are looking for potential customers, buyer of what might be considered edge resources and sellers of capacity at the edge. We're already working with about 20 different companies that are looking to become members of the Edgevana community, and so please feel free to leave us information, your name, ask for a response, whatever. Also I do quite a bit of discussion on LinkedIn under my profile at Mark Thiele and have a lot of discussions there. And of course, you can find the majority of my blogs there as well. And to give you some kind of thinking of how I view the edge as a marketplace, you go back to January of last year where I wrote a blog called, "The Edge Marketplace," and happy to debate and discuss any or all of those things. And then on Twitter, you can find me @MThiele10.

David Linthicum:

So anyway, check out Mark. He's a great resource out there. He has a lot of publications and a lot of thoughts on where edge computing's going, and obviously you can tell from the discussion here, very knowledgeable about the space and certainly a visionary. So if you enjoyed this podcast, make sure to like and subscribe on iTunes or wherever you get your podcasts. Also check out our past episodes, including the On Cloud podcast hosted by my good friend, Mike Kavis, and his show and book, "Architecting the Cloud." And if you'd like to learn more about Deloitte's cloud capabilities, check out deloittecloudpodcast.com. If you'd like to contact me directly, you can reach me at dlinthicum@deloitte.com. So until next time, best of luck in building your cloud computing solutions. We'll be back very soon. You guys stay safe and healthy.

Operator:

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