Cisco Cloud Unfiltered Podcast Series, Episode 4: Dave Lively, Director of Product Management, Cisco Cloud Group

He’s been with Cisco for 20 years. Read on to learn what Dave has to say about the impact of technical debt on your ability to implement cloud, the evolution of how containers are being used, cloud adoption trends among service providers, and much, much more.

Niki Acosta: Good morning. Good afternoon. Good whatever time it is for you. I'm Niki Acosta, Cloud evangelist at Cisco. Welcome to Cloud Unfiltered, where we talk all things Cloud. We have a great guest with us today, Dave Lively, one of Cisco's very own. Dave introduce yourself.

Dave Lively: Thanks Niki. Glad to be here with you this morning and with everybody else out there across the Internets. I am a director in the product management team inside of Cisco's Cloud group. We're focusing on software products to help Cisco customers use and take advantage of Cloud on prem or off prem.

Niki Acosta: Awesome. How did you find yourself, you've been at Cisco for a minute. How did you get into tech to begin with?

Dave Lively: It's a good question. I've been at Cisco for longer than a minute. I've been in tech for kind of as long as I can remember. Early on, I was geeking out with my dad on early computers. We started with the Atari 800XL, was my first computer way back in the day. My dad had big Zenith and Heathkit computers that he put together himself, big eight inch floppies. We've been doing computers almost ever since there's been computers. First programs were writing basic programs to draw lines on the screen. I've been at it for a while.

Niki Acosta: I did read that you are in a adrenaline junkie. Tell us about that.

Dave Lively: Yeah. That's my email address. Don't spam it please. I've been doing sort of crazy stuff for a long time. I got into rock climbing when I was in college. I've done mountain climbing. I've summited Mount Shasta is California, Mount Rainier up in Washington. I raced motorcycles back early in the day. I race bicycles now, mountain biking. If it's got a little bit of a push myself element to it, then I'm kind of in.

Niki Acosta: You're a little crazy is what you're trying to say, and a little hippie maybe too?

Dave Lively: I don't know. Hippie is probably not the word I'd use to describe myself. No one else that I know of.

Niki Acosta: Right. That's me. We were talking before the show and we were talking about the amount of change that Cisco Cloud has gone through, and you were very involved in OpenStack. You were involved in OpenStack from a very, very long time ago. You care to date yourself in your experience with OpenStack so far?

Dave Lively: The first time I was working with OpenStack was back when I was in our systems group at Cisco and we were building infrastructure based systems for service providers, to build hosting services off of, we were using VMware at the time. We were looking at OpenStack but deemed it a little bit too immature at the time. That was back in the, I want to say Cactus release if I remember correctly. First OpenStack summit I actually attended, I want to say it was down in San Diego, I think that might have been the Folsom one down in San Diego where networking got introduced as a first class citizen. It was Quantum at the time, back when we were allowed to call it Quantum, before we had to change the name.

Niki Acosta: To Neutron, right?

Dave Lively: Yep.

Niki Acosta: You've probably seen a lot of change in networking, but going back to your Cloud experiences. InterCloud was a thing for Cisco. We've kind of withdrawn from that just based on market conditions. Is there anything else you want to add to that part?

Dave Lively: No, I'd say when we started off on InterCloud, this is going back three and a half or four years at that point, the focus was we need to build a Cloud platform internally to host Cisco's applications, collab, Spark, mobility, security, IOT, those types of applications and along the way, as we were talking with more service providers, more service providers were interested in trying to offer public Cloud style services, self service experiences to give them something, to give their customers something similar to what Amazon was offering. They didn't really want to try to build it themselves. We had this idea that we'd be able to take what we're already building at Cisco, drop regions of it into service provider's data centers. We'd still run it as Cisco so we can get the scale from an operations perspective and engineering perspective, but then service providers would then sell it to their customers, use it for their own applications, sell our applications and services on top, et cetera.

It was an interesting journey for me. I moved from being what I would say on the vendor side, in Cloud where I'm selling the boxes, selling the software, to being the operator. Suddenly we were building and operating a cloud, 24/7, dub ups, everything. It was a great experience. Fast forward three years, the pace is so fast and I think that we've arrived where most of our customers have arrived as well, which is there's a few big hyper scale providers, Amazon, Azure, Google, that have such a size and scale advantage that they're just light years ahead of most other people in terms of building things on a public Cloud scale. We actually still have the same Cloud running internally at Cisco because, just like our customers, there's a number of workloads that we want to for whatever reason, control, compliance, security. We want to be able to run those on prem, keep them in Cisco data centers. We still have some of the regions that are still up and running, still supporting work loads, still based on OpenStack. The same thing we built before, we've sort of refocused, or we started which is hosting Cisco workloads.

Then, the external Cisco SAS applications, they're running where a lot of our customers serve externally focused applications are running, which is up in public Cloud.

Niki Acosta: What are you specifically tasked with now?

Dave Lively: Right now I'm working on the private Cloud side of things here at Cisco. Again, most people still have a large number of work loads and applications that are running on prem, and we're trying to give our on prem customers the same sort of self service, use services experience they get when leveraging public Cloud, but doing it on prem in their private Cloud. It's the [inaudible 00:06:13] experience and we're working on some stuff to add some more features and capabilities into that.

Niki Acosta: Is it more intended for sort of the developer audience that might use sort of an AWS, or is this more oriented towards IT?

Dave Lively: The answer is both. Right? Ultimately the purchasers inside of enterprise tend to be IT. It's the developers live in the lines of business. They do the development. IT is more in charge of a lot of the spending, a lot of the security postures and policies, a lot of the networking postures and policies. The developers ultimately don't care if it's run in a public Cloud or run in a private Cloud. They care about being able to get the virtual infrastructure as fast as they need it, scale it up when they need it, do everything self service, everything through an API. They don't want to have to open trouble tickets to add a user or to increase their quota or things like that. They're used to that self service experience. They want to continue it. They don't care if it's on prem or off. IT does. IT tends to be a little bit more of the buyer if they can set up and maintain and operate an infrastructure on prem, that looks and feels to their developers the same as Amazon, or Google, or Microsoft off prem, then that's going to be a win on both sides.

Niki Acosta: You mentioned Google, Azure, Microsoft and as someone who's kind of in the market maybe evaluating Cloud providers, most people would probably think of Cisco as a networking company, not a Cloud provider. As we were talking about earlier in the show, you don't believe that's a very fair assessment. Why?

Dave Lively: No, certainly it's easy to look at Cisco and just say, "Yeah, you're a networking company," because that's where our roots were. That's where we started a long time ago. If you look at the portfolio of products and capabilities across Cisco right now. Yeah, we've still got a data center group, and that data center group produces servers and switches for data centers. We've still got networking groups that are building routers and switches and things like that, but in terms of Cloud, if you're thinking just purely a Cloud infrastructure provider, like an Amazon AWS or like Azure or like Google Cloud platform, then yeah Cisco is probably not who you are thinking of when you are looking to go to public Cloud.

When you're looking at leveraging Cloud services, whether it's collaboration capabilities with our Spark systems, whether you're looking to do IoT applications, whether you're looking to do Cloud security and secure stuff on prem and in the Cloud, whether you're looking to do networking and you have Cisco's Cloud services router, actually one of the more popular items in Amazon's marketplace because enterprise customers are looking to leverage that same networking sort of expertise and constructs and policies that they've built on prem, extend those up into their public Cloud.

We may not be a Cloud infrastructure provider, but a lot of Cloud services from Cisco, and when it comes to all those workloads that customers want to keep on prem, increasingly they're turning to Cisco for the infrastructure on prem to run those Cloud workloads as well.

Niki Acosta: In a private Cloud.

Dave Lively: In a private Cloud, that's right. Or in a hosted Cloud. Not all private Clouds are on prem in a data center. Some are out in [inaudible 00:09:16] or in hosting providers as well.

Niki Acosta: I asked Kip the same question last week, but what are you seeing in the service provider space? Obviously it's a very, very different market than your traditional enterprise or midsized company. What is the allure for service provider companies currently?

Dave Lively: I think service providers, it's an interesting time for them. Right? Service providers are, if you looked a few years ago, four or five years ago, I'd say there were a lot of service providers that were looking to be Cloud providers, IaaS providers. It was a big, how do we build IaaS? OpenStack was big in service providers for building IaaS. If I look at where most of the service provider interest is these days, it's gotten less off of the IaaS. I'll take Telstra as a great example. Telstra, they partner with Azure. They partner with Amazon. They partner with a number of public Cloud providers. They still have their own Cloud, leverage Cloud for building their own applications and services. As they want to build network oriented services, better leveraging, being able to spin up things like firewalls or VPNs or things like that. Spin those up in a private Cloud environment, inside their data centers. They provide Cloud connectivity back and forth to different Cloud providers. Service providers are still very much in the Cloud game. It's not an IaaS game for a lot of them anymore, because again the hyper scale providers are really winning at that.

I think there's plenty of service providers out there who still have opportunities in sort of a niche IaaS play. Data sovereignty is a really interesting thing to consider as we start looking at this, because more and more customers are less comfortable with my data can just be anywhere. There are security incidences in the Cloud. We all remember the Target ones. There's things that may cause some people not want to keep everything in the Cloud. Maybe people in Europe don't want United States companies or United States government being able to access their Cloud. They want to keep things in their country. There's still a lot of opportunities. Even though Amazon, Microsoft, Google are way ahead in terms of scale, there's still a lot of opportunities especially more in the niche side or country specific side.

Niki Acosta: In addition to sovereignty too, I kind of see Cisco seeing Cloud from two different directions. That's sort of the bottoms up network infrastructure up, but then also, through acquisition of [inaudible 00:11:33] and Cliqr, kind of seeing from the application level down. There seems to be sort of different schools of thought, even within Cisco about what the definition of Cloud is. Where do you see this playing out longer term?

Dave Lively: The definition of Cloud is very cloudy. It means different things to different people. I'd say, from a networking perspective, there is no more network centric world than Cloud. In Cloud, everything is across the network sitting somewhere. Nothing is running locally. Everything is across some network, so networking plays a huge role in Cloud. Maybe plays a different role, but it's still absolutely a huge role. In an ideal world, customers don't want to have to learn and do different types of networking as they connect to different types of Cloud. If they can keep networking consistent even as they may run serverless workloads up in Amazon because they're enamored with Lambda these days, or they're building their dot net applications up in Azure, because that's the obvious place to do that. Maybe even taking advantage of Oracle's new platform, haven't talked about them. If you're running big Oracle databases and you want to be able to develop applications, running on Oracle, and put those up in the Cloud, there's probably no better Cloud to run those applications that are connected to an Oracle base than in Oracle. People are going to use multiple Clouds but if they can keep their networking capabilities consistent across those. Security, you want to be able to apply

security policies consistently across those, then as well as on prem where you're going to keep some of your workloads as well.

The answer, and this is where you see Cisco's strategy evolving to, is much more focused around multi-Cloud and how do we help our customers run their applications, control the networking to their applications, control the security around their applications, monitor the performance of their applications. Then we get into App Dynamics, regardless of where they sit, whether it's in one of the public Clouds, whether it's in private Cloud, multiple private Clouds. The reality is, few people, Netflix is the obvious counter example to prove the point. Few people are absolutely 100% all in in one public Cloud.

Niki Acosta: Yeah. That's interesting. I worked with a lot of I'll say smaller companies, and start up type of companies where they don't have this technical debt. They don't have this baggage of having to make sure that everything new that they do integrate with something that they've had for a while.

Dave Lively: Yep.

Niki Acosta: It doesn't seem like there's any larger company in the world that's going to be able to just snap their fingers and completely move everything to the Cloud. It's just not going to happen, not any time soon.

Dave Lively: No. Some do, right? Some have tried to just snap their fingers and are moving hundreds of applications up into the Cloud. It's not a short journey. It's not an easy journey. The reality is, there's some workloads, just like mainframes are still around. Even though the X86 transition beat those out decades ago, probably at this point. There's still stuff that runs in mainframes. There's still stuff that's going to run on prem even when you're going "all in" on Cloud. Even in start ups by the way, small companies, small companies start acquiring technical debt the day they start developing. Especially in today's MVP focused climate where it's ship it, ship it, ship it, or deliver it. You don't ship things these days.

Niki Acosta: I think there's actually a bomb word in there.

Dave Lively: You start creating technical debt right away. You make decisions to get something out and release it quickly. As soon as you make that decision, you may lock yourself onto a particular database because that was the one you knew and you could go fastest. As soon as you started going and you're a few months into it, and you've now done all your database calls to that particular database, now you're locked in. Now it gets harder to change. It's easy to create technical debt and lock yourself in, especially on public Cloud these days. It's really easy to, early on in the process, take advantage of all the different services that either Microsoft or Amazon or Google that they offer beyond infrastructure. As soon as you start using their proprietary database, you're now, I'm not going to say you're locked in, but it's now much harder to change and evolve.

Niki Acosta: They're pretty sticky. They make it really easy for you to take data and put in the Cloud, but it's very hard to get it out.

Dave Lively: They'll even ship a semi up to your door to help get data in, but I don't think they'll run the semi the other way though.

Niki Acosta: Right. I saw that on the keynote. I was like, "Wow. That's a pretty awesome keynote." Let's talk about containers for a minute because I have been sort of sorting through the plethora of containers now for a while and I sort of had this definition in my head of what the intent was for containers. I'm starting to realize that containers are starting to be used for a lot more things further down in the stack than just applications. Project

Contiv, it's sort of a Cisco container networking thing that we contribute to and we support. Can you give us kind of the network containers versus application containers definition?

Dave Lively: Sure. Containers have been around in Linux for a long time. They've only recently started to become a bit more prevalent and it's really around sort of the changes in how people are building applications. Moving from build it as one big monolithic application to start breaking down your application into the smallest fundamental building blocks that you can break it down into. The easy, obvious, early example and it's not necessarily containers specifically but it's sort of a discussion on how to start changing your applications is, let's say you've got an image sharing service.

Think Flicker, something like that. If you wrote it as an application that does everything, including reading new images in, serving new images out, et cetera. Anytime you wanted to scale up on one side, you wanted to be able to ingest a bunch more images, then that effected everything. The first thing, let's break down my image reads from my image writes for example. If I can start serving those from different mini-applications that are running in different virtual machines, at the point, or different physical computers, I start breaking up that application. Now with containers and micro-services, if I keep breaking that application down into smaller and smaller components, great. Now I can run each of those in their own container and now our containers start to become a lot more effective than DMs because as I start to break those things down into smaller and smaller pieces, I don't want the overhead that I get with a virtual machine in every instance. I don't want the time it takes to boot up. I don't need my own dedicated operating system. I don't need my own dedicated [inaudible 00:18:21]. I don't need all those dedicated things that I got in a virtual machine or a physical machine. I just need a name space to be able to operate in that's isolated from other things.

Then if one particular component dies, then that's a small component. I've typically got multiple of them that I'm load balancing across. If one dies, I just spin up another one next to it. Containers are great for that. Containers, you start thinking about what you're doing with containers. Again, it's just another virtual compute sort of thing. You have to orchestrate spinning those up. You have to schedule spinning those up. You have to network them together. The problems in the container space are not fundamentally different than the problems that we had in the virtual machine space around isolation and networking and connectivity, et cetera, which is why most people, and everyone that's running containers up in public Cloud they're all running them in VMs.

You use VMs for isolation from a networking component. You keep clusters of containers and a few VMs and then you can spin up more VMs for a different container cluster, et cetera. The thing that we saw the networking and why Contiv that started a couple years at Cisco, was that a lot of the early networking didn't take advantage of anything you could do with the infrastructure. It was all focused purely on network overlays and it was just VMs. We wanted to build a container networking that gave enterprises the flexibility to use the same type of networking constructs, whether it was layer three, whether it was layer two, whether it was overlays, that they did in VMs, or they did in physical networking. Now we want to be able to enable those in container networking as well, to then help integrate containers into the rest of their environments.

Again, think back to the shift. You're not going all in and now everything is in a container. You maybe have some of the front end sort of web parts of your application that are running in containers or maybe some of the message cues, things like that spun up in containers. Your database, probably not spinning up in a container at this point. It's probably sitting in a virtual machine or on a big honking bare metal if you've got a big database. Application networking is about being able to pull all the different parts of your application together, whether they live in containers, whether they live in virtual machines, whether they live directly on bare metal.

Niki Acosta: Contiv will give you a way to kind of bring together various components of a workload that might be on different types of infrastructure? Is that it?

Dave Lively: Right now, it's focused on containers, but because we have the ability to do networking and different types of networking, whether it's overlays, whether it's layer two, whether it's layer three, we can very easily integrate the networking constructs that are in your containers with the things that live on VMs or live on bare metal, because those are the things that you are on the same [inaudible 00:21:02] or can talk to each other via layer three et cetera. We've basically added a bunch more networking capabilities to containers, and then the other thing we did was enable you to set application level policies and apply a policy to a container. Think isolation. These containers get the application policy. The application policy says I can talk to the internet or I can talk to the database tier for example. The database tier can't talk to the internet, but can talk to the application tier.

You can start to set these policies. Those policies are independent of the machines that they're running on, things like that. As I spin up more containers with a particular policy, I can define the policies once and be able to spin up containers. I'll go back to OpenStack. It's like security groups in OpenStack. Then we can take that and we can tie it to the physical networking like with Cisco's ACI for example. We can now marry the policy constructs in Contiv with your policy constructs within ACI. Now you can have the benefits from a performance and security perspective of your physical network infrastructure implementing the same policies that are being defined up at the container levels. It's pretty powerful once you start to marry the two together.

Niki Acosta: That sounds great if I'm a network admin or if I'm in IT. If I'm a developer and I hear you talk about this I might say, "Great. You're trying to put more roles on me and I'm just going to go use public Cloud." Does this become invisible to the developers who are actually using the services?

Dave Lively: Yes. Just like in, the constructs are the same. You go to public Cloud and Amazon, you still have to define a security group. You still have to define your security policies. You don't get away with it. Well, you could get away from it by just doing it open open, but that's a very bad thing from a [inaudible 00:22:45]. Even as a developer, you still have to think about this, but what we've done is to think about this now with Contiv, you don't have to configure a switch. You don't have to configure the network. You define a networking policy. They're already understand how to do those and networking policies are things like admit this cyber block. Admit these ports. It's the same types of things that you do in security groups in OpenStack, or setting up your security in Amazon for example. Now, you're doing the same types of things with containers on prem, or you could run it in the Cloud as well. You can take our Contiv stuff, and bring your own, [inaudible 00:23:22] scheduler, and run it on VMs and Amazon or Google for example.

Niki Acosta: Cool. That's awesome. Thank you for breaking that down for us.

Dave Lively: No problem.

Niki Acosta: What else have you been working on Dave? Anything else cool?

Dave Lively: Anything else cool? The one thing I'm passionate about today and I think is ultimately the way things are going to go is more of a SaaS type model even for on premise infrastructure. Today, things tend to be sort of fairly strongly situated around, it's in the Cloud and I don't run any of the infrastructure or it's on my prem, and damn it, I'm running all of the infrastructure. I need absolute control, et cetera. Certainly some people do want full control, full customization, et cetera. I would argue that a lot of customers, what they really want out of private Cloud, is the ability to run things on prem, but with the ease of having to not worry about infrastructure, not worrying about

how to upgrade software and do all that, not worrying about the life cycle of the underlying platform. They just want to run their applications and they want to be able to do that on prem. That requires a little bit more of a SaaS model. I wouldn't call it a managed service. Some people call it managed services. Managed services to me are more a bespoke, I am operating and managing your network for you as an entity. They tend to be more bespoke. Yours is a little bit different than the next guy, than the next guy, than the next guy.

I liken it to what's happening with Meraki. If you've seen the new Cisco Meraki, what it is is Cloud managed wireless. I've got it running at my house. I love it. In the past, if I wanted to set things up, I'd have to get my own wireless router and then you log in to that wireless router, and configure whatever policies or things like that that I need to do. I did it while I was at home. There was a software upgrade. I did the software upgrade and I had to manage and run it all myself. I had to take care of all the care and feeding of that thing myself.

Now, with Meraki, I've got even more functionality because now Meraki is adding features at a pace that you can do in SaaS. This is one of the other benefits to SaaS is it enables the developers of the SaaS application to innovate much more quickly. They only have to deploy it once to one place, to the Cloud, as opposed to building a software update that then they ship on prem to everyone and then everyone has to upgrade. Then you've got people on 80 different versions and how do you support that and what's your test matrix look like? It starts to get kind of crazy pretty quickly.

When you do it it's much easier from a developer perspective. You can innovate much more quickly, iterate more features much more quickly and now I can manage my network no matter where I am. I can be sitting in a hotel in Germany after going to the [inaudible 00:26:09] conference and be able to hit my Meraki network and see the policies. I still configure everything. I still administer my network. I run it. I set the policies. I say who can do what, et cetera. I don't have to run the software that does all that. I think we need to see a little bit more of a revolution in private Cloud around that as well. There's a lot of compelling reasons to want to be able to do stuff on prem. I'd say that one of the reasons why private Cloud is not as successful these days compared to public is because no one's yet really given customers the public Cloud experience on prem. I'm kind of passionate about trying to figure out how to do that. I'll be honest.

I think that the technical and more cultural and organizational, because I'll use Cisco as an example. Right? I'll go back to wireless. Cisco as a company, we have a team of folks in IT that maintain our wireless infrastructure. They set all the policies. They log in they do all the stuff with the routers, et cetera. If we were to suddenly adopt Meraki, Cisco wide as a company, that group of people in IT, they wouldn't have that same job to do anymore. That's kind of an extreme example but I think you're going to see that as you move into data center and private Cloud is, it's people in IT's job to run the private Cloud, to run OpenStack, to run [inaudible 00:27:36], to run [Red Head Openshift 00:27:37], or whatever platform you're trying to use on prem. There's a culture shift that needs to happen there. They've given up that control in public Cloud but their mindset is not yet giving up that control on prem, even though to me it's much the same thing.

Niki Acosta: Yeah. You still need an admin right?

Dave Lively: To set all your policies and do stuff. The question is whether or not you're operating the underlying software. Are you the one who's monitoring it, who's giving alerts, who's o shit, the server just went down. Now I got to go in, I go to log in and I go to trouble shoot. Are you doing all that or is somebody else?

Niki Acosta: Right. I can see where that would be difficult for some people because there's some people, who like you said, they're worried about relinquishing that control because they're afraid that their job might go away.

Dave Lively: Right.

Niki Acosta: Do you think that there's still sort of this good old boys network when it comes to infrastructure that's kind of fighting off these millennials who are coming in with their T-shirts and their jeans and their fancy sneakers?

Dave Lively: No, I'm probably old enough to be a good old boy but I've got my T-shirt on right now.

Niki Acosta: Right. You're wearing a T-shirt.

Dave Lively: I would say that yeah, there's a lot of people that have been doing something the same way for a long time and change is hard. Change in a company to do something fundamentally different than you've been doing it, it's hard. [Devops 00:29:05] is the same way, right? The change to a mindset where you're not just developing software to give to somebody else, but you're developing software that you're on the hook to run yourself, to monitor yourself. It's a mindset difference and it's not. I've seen it in companies. I've seen it at Cisco. Not everyone makes that transition. Not everyone can make that jump. Things are changing. The millennials, the new people coming in. They'll question everything just for questioning everything's sake. It's the same struggle that has happened time and time and time again throughout history, but the role of IT as companies move more towards digital and are doing more things digital, it's a different role. It doesn't mean there's not one. It's different than it was before and you need a different skillset. It's good for you for a career perspective to be evolving yourself and learning new stuff continually anyway.

Niki Acosta: I'm your employee, Dave. I come to you and I say, "Dave, I'm kind of worried because I feel like my skills aren't that relevant. I might want to learn something new. What should I go learn?" What would you tell me?

Dave Lively: Skill?

Niki Acosta: Yes.

Dave Lively: I'm assuming you're in IT, I'd start looking at how to do microservices, how to build and deploy applications differently and how to leverage multiple environments to do that. That's the skill that's more about how do you develop and run your applications in multiple locations depending upon what's most optimized for that application. That's where I'd sort of focus these days. The other area I think, and this is back to what am I passionate about. I'm passionate about sort of the power of a Cloud business model to fundamentally change the way people look at things and do things. Once you can, just from any device, hit a portal that lives up in the Cloud and get access to all of the data that's being generated by things. Start to get insights out of that data, it really can fundamentally change the way that you approach things. I think it has massive power to continue to change healthcare. I think it's going to evolve education. I think it's going to evolve a lot of industries. We're already seeing it turn retail completely upside down. The Cloud model, it's sort of delivering applications and services, self service, via a platform, via APIs, that's where I'd focus.

Niki Acosta: Money. That's great advice Dave. Is there anything else you want to add? You are on Twitter @davelively.

Dave Lively: Yep.

Niki Acosta: If folks want to follow you, right? Is that right?

Dave Lively: Yeah if they want to follow me, they'll be pretty bored at the moment if they follow me though. I'll be honest. I'm more of a lurker than a strong contributor in the Twitterverse these days.

Niki Acosta: You have any talks? Are you going to be at any events coming up? OpenStack?

Dave Lively: Unfortunately I'm not going to be at Red Hat or OpenStack coming up. I'm not going to be at either of those conferences. I was just at Cisco Live not too long ago, but nothing immediately coming up on the agenda for me. Thankfully it's going to be a little bit of a quiet travel season.

Niki Acosta: Have a drink for you. Cheers. You can spare yourself a fail on an airline experience potentially.

Dave Lively: Yeah. I won't make it a United reaccommodation.

Niki Acosta: Oh. Yeah. I won't share my endorsement either. I don't want to get in trouble here. Anything else you want to add Dave? You are always just such a ball of energy, just so knowledgeable. Honestly Dave, if I can tell you the truth. You've come around quite a bit, from an infrastructure guy to really kind of getting this Cloud thing. It's been really cool to kind of see people, I don't know what it is, some people, all of a sudden it clicks and they get it. You've gotten it for a while. It just comes out so naturally for you these days.

Dave Lively: I appreciate that. I love the space. I love this environment too. You neglected to talk about, you said I'd been at Cisco for a minute. I actually just celebrated my 20 year anniversary a couple months ago, so a little longer than a minute. Although I've been at the same company for 20 years, the thing that's been great for me and one of the things I love about Cisco as a company is I've done a lot of different things in those 20 years. I've moved jobs typically every few years. I've moved on to doing something new. Cisco has enabled me to stay at the forefront of where I like to be and what to be at Cisco. You can be a pure infrastructure person. You can get into the details and the nitty gritty on the networking protocols and moving packets. There's still a lot of really cool stuff happening in that space. You can be up in the collaboration space where it's pure Cloud delivered applications, contacts, [inaudible 00:34:04] space. You can be in the Cloud infrastructure private Cloud space. You can be in the internet of things space. There's so many cool things that Cisco as a company is doing and I've been blessed to be able to have some of the advantages of staying at a single company, but being able to do different things.

The market now moves so fast. Cloud enables things to move so fast. It's just crazy how quickly things are moving these days.

Niki Acosta: There is one last question. I think this is a good one. Is this pace of innovation, is it ultimately kind of bad in a way? I think you're talking about you've got to pick a database and from day one you're pretty much got technical debt because you just never know what new, hot technology that's better, faster is going to emerge. I think it was Tim Crawford, one of our more recent guests said, "The pace of innovation. We almost need to give people a minute to catch their breath." Do you agree with that?

Dave Lively: I kind of do. It's funny. There was a chart that I actually used to use in customer briefings a bunch of years ago. It was all about the pace of innovation. It was all about from, it showed various technologies over time from technology introduction to sort of mass adoption. There were things like the automobile, and the train and airplanes. As

you've continued to move forward in history, every curve has gotten shorter and it's shot up quite a bit faster.

I'd say that's one of the ... Is it bad? No, I don't think it's bad. I definitely don't think it's bad. Does it create challenges for enterprises when there's so many options and so many choices in terms of which Cloud to use, what language to develop in. Am I in Python? Am in Ruby? Am I in note? There's a lot of options out there and making some of those initial decisions on sort of I got to pick one and get started. I think that's good.

Another thing I love about the Cloud, and I love about sort of the agile development model is, unlike in ASIC, which is the hardware chips that run our routers and switches, when you make a decision on the design for one of those, because the process from when you make those decisions to when those chips ultimately get taped out an manufactured, is 18 plus months. If you make a mistake, oh that's going to be a really costly mistake. The thing I love about application development especially in the Cloud is, I can get started really quickly and easily just by leveraging Cloud services. If I'm making MVPs and I'm quickly iterating and working with customers, I can be totally wrong but then get that feedback that I'm totally wrong and make a quick decision and make a quick pivot and I can be continually evolving. The shorter you keep those development cycles in terms of getting customer feedback and delivering new capabilities, the quicker, the less painful your mistakes are, the better it is to make mistakes, because then you can learn from those, and move on. The key is you got to be able to iterate quickly. That's another thing that the Cloud gives you that you can't get or you couldn't get when you were building the development hardware, which is why I love this space.

Niki Acosta: If only we had a quick to restore from backup button for life. You know? If you could only go back to some point in your past where you made a silly mistake.

Dave Lively: No I forgot to take that step.

Niki Acosta: Let's go back and do it over. I wish. Dave, thank you so much for joining us. It's been an absolute pleasure. You all do yourselves a favor. Subscribe to this podcast. Follow Dave Lively at @davelively and follow us @ciscocloud. Thank you so much for joining us. Dave say bye.

Dave Lively: Bye. Thanks Niki.

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