

Cisco Cloud Unfiltered Podcast Series, Episode 16: Diane Mueller-Klingspor, Mike Duarte, and Michael White



Ready to talk OpenShift? Diane and The Mikes are! In this episode they discuss the best ways to “lift and shift” legacy applications to the cloud, the new roles of developers and IT leaders in a DevOps environment, and the importance of persistence when you’re trying to change corporate culture.

- Niki Acosta:** All right. And we're live. Hello. Good morning. Good afternoon. Good evening. Good whatever it may be to wherever you are. My name is Niki Acosta. This is Cloud Unfiltered. I'm joined by my awesome cohost Val. Say hi, Val.
- Val Benincosa:** Hi.
- Niki Acosta:** And we've got many dogs on today. Those of you listening won't be able to see. But Diana is with us, and she's got her dog. My little Marlon wanted to be in my lap, so we're hanging out. It's a dog day here on Cloud Unfiltered.
- So let's get right to it because we don't have a lot of time. And we've got a lot of awesome stuff to talk about. Diane, Michael, Michael, introduce yourselves.
- Diane Mueller-K:** All right. Well. I'm Diane Mueller. I'm the Director of Community Development at Red Hat. And I work on the OpenShift Project and lead all the cross-community collaboration efforts at Red Hat around the OpenShift ecosystem, which means I get to play with everybody in the CNCF, like Kubernetes, and Fluent, and Jager, and all those good folks. Plus all the wonderful people at Cisco and all of the folks who are using OpenShift in production and POCs around the world. So I think I have the best job in the world.
- Mike Duarte:** I'm convinced you're first, so yeah. So ...
- Michael White:** All right. I'll go first. I'm Mike White. I'm an architect here at Cisco. I work in the Global Infrastructures Services Group. And for the past 18 years, I've been working on various platforms as a service. The last few years, we've been working with Red Hat on the OpenShift platform. And we're currently using OpenShift Version 3 as our next generation container and platform as a service offering.

Mike Duarte: And I'm the other Mike. They often refer to us as Mike Squared here at Cisco. I am, I guess, was, the Lead Design Engineer around our container efforts here at Cisco IT> I've been working with Mike White for probably the past two plus years now on particularly the OpenShift 3 deployment that we affectionately call the CAE, or Cloud Application Environment, which is both a kind of container as a service solution as well as a traditional kind of web app, PaaS-like solution as well. It's great to be there. Thanks for the invite, Niki.

Niki Acosta: You're welcome. And I think the whole reason we got together today was because of this talk that y'all recently delivered together with Diane, the fine folks at Red Hat. So first, give us some background about what- ... Tell us how you got to Red Hat to begin with as far as using it for your PaaS choice platform. And then let us know about this talk you delivered. What was it about?

Diane Mueller-K: Well, I'm going to interject just for a second. These guys are very modest. I think they've even done a migration from OpenShift V2 to V3. They've been around the OpenShift world for quite some time. So I love working with these guys, and they totally rocked it on the stage in Boston. At the day before Red Hat Summit, we did an OpenShift Commons Gathering. So we had about 300 people in the room, and they just did a wonderful- ... Well, Mike Squared. The twins, whatever you want to call them. Presentation on their journey and why multi-tenants and all these- ... It was just wonderful, so I'm really pleased to be back here with what I call the Twins. So with that, they've got some deep history and knowledge about OpenShift and lots of things, so I'm ready for them to share it again with everybody.

Niki Acosta: Damn, I should have let Diane introduce you guys.

Mike Duarte: Seriously, that was ...

Michael White: That was nice.

Mike Duarte: Yeah, can you write my resume or something? That was impressive.

Diane Mueller-K: Yeah, if you'll submit it to me. There we go.

Niki Acosta: We're unfiltered here, folks, for a reason.

Mike Duarte: Yeah, seriously.

Niki Acosta: All right.

Michael White: Why don't I start with kind of a two-minute background on how we got to OpenShift and then we can jump in and talk about our topic in May at OpenShift Commons. So we've been doing platform as a service for many years here at Cisco. Probably before platform as a service was even coined as a term. We were offering multi-tenant environments for hosting web applications.

Val Benincosa: And Mike, just to be clear. These were internal Cisco people, or this was Cisco customers, or these were internal Cisco projects that were running on these platforms you created?

About five years ago, maybe six, we started working with Red Hat and the OpenShift project because we wanted to expand from just offering a limited number of technologies on our platform to be being able to offer all of the open-source technologies that were becoming popular at the time

Michael White: Our clients are Cisco developers.

Val Benincosa: Okay.

Michael White: And they are developing applications that support both internal processes and customer processes. So our ordering and renewals is one of our biggest applications that runs on our platforms. And so that's Cisco's bread and butter. Taking orders over the web from partners.

Niki Acosta: Are you allowed to say how many applications are under your purview?

Michael White: Sure. We've got northward of 1,500 applications running on our platforms.

Niki Acosta: Wow.

Michael White: And all of the lifecycles of those applications run on our platforms as well. So if you take that 1,500 number and multiply it times Dev and Stage and [crosstalk 00:05:49] and Prod. We distributed across multiple data centers. Ends up being a big number of application instances that we're running.

Val Benincosa: So this is the internal belly of the beast of how Cisco's internal IT stuff is running then.

Michael White: Yeah, if you hit many of our websites, they're running off of this platform.

Val Benincosa: Awesome.

Niki Acosta: Which means if I ever have a problem, I just hit folks like you up in Jabber to get expedited service. Mike knows about that.

Mike Duarte: Just a little bit.

Niki Acosta: Just a little bit.

Michael White: Like I was saying, we started about five years ago, bringing in OpenShift Version- ... I don't even know if it was Version 1 yet at that point in time.

Diane Mueller-K: If it was five years ago, it must have been 1 then. And that was courageous of you.

Michael White: And once we rolled that out, we were able to offer a lot of the open-source languages to our developers as well. They could develop in PHP or Python or Ruby. Whatever the choice may be.

Niki Acosta: So one common complaint I hear from developers is that, a lot of times, when IT is putting cloud services together for use internally, that it is not sort of as easy as they would like it to be. Or they still run into these sort of having to jump through hoops to get through all the teams to be able to deploy an app. Did you find that at Cisco? There's probably a lot more than just-

Mike Duarte: This is unfiltered, right?

Diane Mueller-K: [crosstalk 00:07:24]

Niki Acosta: It is unfiltered.

Michael White: So let me grab that one, too. When we delivered OpenShift the first time around, five years ago, we made a big effort in providing a front-end interface where developers could come to a UI, order those services, and get them in less than a minute. So that's always been a big focus of ours is to make these platforms consumable by the developers. There are different platforms within Cisco IT that might not be as fast, but we've always wanted to do that. And with a product like OpenShift that exposes its APIs, you can do a lot of integration and automation that facilitates the experience. With our latest platform that we've just released based on OpenShift Version 3, we're directly exposing the APIs of the platform to the developers, so they have unprecedented, within Cisco IT, access to control their infrastructure.

Mike Duarte: And just to kind of elaborate a little bit more on that, that's not just OpenShift APIs. But OpenShift also avails the Kubernetes APIs as well. We expose those. In addition to that, there's a great deal of effort to write API wrappers around a lot of our devices that weren't natively accessible, programmatic to program [inaudible 00:08:54]. And so we created what we affectionately call CAPI, or the Cloud API Layer, that was either kind of a transparent passthrough for some of these APIs to be exposed, or writing an entire, kind of an API extraction layer to allow our developers to provision what they need when they need it.

And frankly, this is a big part of kind of the cultural shift that's occurring within the industry as we see the rise of true clouds, AWS, Azure, Google. And really for the first time in IT's history, we're facing competition. Traditionally, traditional IT in the past, we've had a monopoly over our customers. We're like Ma Bell back in the day. And what's happened is with AWS, with Azure, all these other big cloud providers, they're not just providing hosting services. They're really providing IT as a service to some extent.

And so what we realized in kind of the midst of this kind of two-year journey with OpenShift 3 in particular, where we really start seeing this kind of really kick off within Cisco, is that we need to get faster. We need to enable our developers. We have to make them successful, frankly, in order to keep them as customers. And so to recapture some of those workloads.

Now that's not to say that we view AWS as a competitor or Azure or any of those other big clouds. But we see it as both are needed and required in this new world. And we need to do a better job of catching up in our agility and our feature sets. And so that's been a big challenge for us and a big part of why we've been driving the way we have.

Val Benincosa: So why'd you go with OpenShift? What was the reason for going there?

Mike Duarte: Mind if I take that one, too, or ...

Michael White: If you know the answer, go for it.

Mike Duarte: Yeah, so about two years ago, we kind of started down this container POC process. We knew OpenShift 2 was probably going to be heading close to end of life, and so we needed a PaaS replacement. But in addition to that, there was also a parallel effort going within the infrastructure side of IT. So Mike's from PaaS. I'm more from traditional infra. Around containerization as kind of a first-class citizen equivalent to the way we treat hypervisors today in the data center. Or what we kind of refer to now as container as a service.

And so it was really two different mindsets of what we were hoping to get out of a product, out of containerization within IT. But as we were kind of going down this path, separately we kind of start merging together and looking at it together and realizing that

there's an opportunity to hear to grow PaaS beyond just PaaS and to grow infrastructure beyond just infrastructure. And that's kind of what started [crosstalk 00:11:46]

Niki Acosta: I think the quote that you told me, Mike, was that IT got caught with its pants down, is the quote that you used when I talked to you originally. And I was like, "Oh, that's a good way to put it." And I think you're probably not alone in that. I think IT departments everywhere are kind of feeling that to some extent. Would you agree?

Mike Duarte: Yeah, absolutely. And I think we've been fortunate enough that we're catching it maybe a little earlier than a lot of bigger businesses are. They're going to be facing this, too. They are facing this, too. I think just by the nature of the size of a company, a smaller business is able to be a bit more agile. A younger business probably has picked this up right from the get-go.

So it's a unique factor with large enterprise IT services like ourselves. And I mean, Cisco isn't very old. 30 some odd years now. But it's kind of the granddaddy in the Silicon Valley. So we have a lot of legacy. We have a lot of things that we need to continue to support and maintain. But we also have kind of a precedence to run the cutting-edge, latest, greatest technology trends. And so it puts us in a unique situation where we need to be able to do both. So yeah, we did kind of get caught with our pants down by the cloud evolution, or revolution. I absolutely agree with that.

Niki Acosta: Five years ago. I mean, you probably caught it, I think, arguably before most people. What's the cloud, or infrastructure, that you're targeting underneath your OpenShift deployment? And your containers. Where are you throwing containers?

Michael White: That's yours.

Niki Acosta: What's under the hood?

Mike Duarte: So both. Hybrids of both VM and bare metal. And a longer-term goal for us is bare metal. We see a lot of advantages with that. Mostly around infrastructure capacity utilization improvements. Not taking on a hypervisor tax. And so, hypervisor VMs are very much needed, are important. And I believe a lot of people will be running containers on top of VMs until, well, forever. And that's totally fine. It just really depends on your use case.

For us, we're aiming at not just providing traditional microservice or web applications off our platform, but also more stateful, clustered systems like databases. And those have typically some very stringent performance requirements in regard to latency in particular that we're just not able to do on virtual machines. And those databases are running on bare metal today, and they will never end up on VMs.

And so the ability to take that and put those into containers without causing any sort of performance loss, and then utilizing the spare capacity that exists on those machines for thinner application like web apps. Again, improves our infrastructure efficiency quite a bit. Now overall, I think everyone agrees that containerization and microservice infrastructure mindset is really aimed at the developer. And there's tons and tons of advantages to developers in this kind of a setup.

But really, from an infrastructure point of view, there's a lot of advantages as well. And a big part of us trying to get this moving forward was to preach both to both sides of the house and to realize that there's a lot of wins here for everyone.

Niki Acosta: So what does the application pack look like for some of these people? Are you taking old apps and migrating those? Or has this traditionally been used for newer cloud-native type apps? Or is it a mix?

Mike Duarte: Why don't you take that one?

Michael White: All of the above.

Diane Mueller-K: Yeah, that's what I would say. One of the things is also that lots of people are lifting and shifting, but the nice thing about OpenShift that it allows you to do both stateful and stateless apps. You're not limited to 12-factor apps in any way. So the wrappers that these guys have written for their legacy APIs are really some of the helpful tools that push forward, so ...

Michael White: Yeah, so with that is the foundation. We're able to do both green field development and migration work. So typically, the path we follow when we roll out a new platform is to get it stood up and tested out. And then we'll engage with some of our more forward-thinking development teams, who are really trying to push the envelope. And that's where we test the new features. So we have a lot of teams who are actually interested in all the buzz around containers and Kubernetes and OpenShift. And they want to break up their monolithic applications into microservices.

So we've got a handful of those folks who are either developing brand new applications or rearchitecting legacy applications. We invite them onto the platform first to kind of put it through its paces. And then shortly thereafter, we will migrate a lot of the legacy applications from the old platform onto the new. So at this point in time, we're developing a lot of scripting to pick up and move an OpenShift 2 application, containerize it, and put it on 3.

Niki Acosta: Super rad. So Mike, going back to the culture thing. And someone's got a little bit of an echo. I'm not sure who it is.

Mike Duarte: It might be us. The mic is in front of the speaker, so I apologize about that.

Niki Acosta: Oh, that's all right.

Mike Duarte: [inaudible 00:17:19] and reposition here. Okay. We can try that. How's that?

Niki Acosta: So far, so good. Oh, much better. Thank you.

Mike Duarte: Yeah, no worries.

Niki Acosta: So Mike, you and I again have talked a lot about kind of the cultural shift. As you kind of look across all these teams being a traditional infrastructure guy, are you finding that the cultural change is going pretty smooth? Is it rocky? Like what are the types of things that people are running into as they move from traditional infrastructure up to cloud to using platform as a service?

Mike Duarte: I think we could probably both tackle that. So I think of course it's rocky. It's challenging. In fact, a lot of the questions that we were getting after our presentation at Summit in particular were mostly around culture questions of how to drive this change. How were you guys able to make this happen? How much resistance a lot of these folks were hitting in trying to change the way that IT perceives and functions.

On one side, I think from the developer point of view, it's easy. The developer culture fits right in line with this. And someone asked me once, "How are you driving, getting adoption?" And it's like, we're not really having to do much to drive adoption. They're coming to us at this point. They want it. They need it. Again, most of the advantages have been toward developer teams.

From an infrastructure side, and I think this has always been the case, there's always kind of a fear of new things, which is kind of ironic considering that we're a technology-focused organization where there's constant change. But especially in recent years as our technology has become a lot more advanced and complex, in some ways, it's also reduced a lot of complexity and simplified others.

And so if you take a look, say 10 years ago before VMs really took over, the amount a server system administrator could administrate was maybe in the 10s to low 100s. Post the VM revolution that's occurred, that's now always well above the 100s of servers that a single server administrator could manage and handle.

And so as new technologies come down the pipeline, I think people are, one, kind of afraid of what that might mean for their own role and job. But as a culture, especially larger enterprises, there's kind of an overwhelming cultural sense of needing to keep things up and running and keep the status quo, keep things humming. And anytime a new technology comes down the pipeline that's sufficiently disruptive to that flow, it can cause bumps. And so the key I think is really just persistence and communication and persistence and persistence. And eventually, I think if you're persistent enough, and you're just transparent enough, and you present the facts well enough, either your arguments will win them over, or the rest of the industry will get caught up and help you finish out the discussion, the argument.

And we certainly still have a long way to go. I think we're kind of in the midst of a big cultural shift in the way we do IT. A lot of it has been kind of driven around the work that we've done around containerization. And it's kind of rippling out to the rest of our organization. But we still have a long ways to go. And we're still being persistent, and we're still communicating. And we're still being persistent, so ...

Michael White:

Yeah, I'll add a different perspective to that question. So as far as the culture change goes, I think what we see is the developers are coming to us and definitely clamoring for the new features. But as we all know with cloud, when you give more control to the developers, that also comes with a lot of responsibility. So in traditional IT infrastructures, we always built things to provide availability, to provide resilience, to provide uptime for the developers.

Now when we move to a cloud model, while Kubernetes and OpenShift will do their best to keep an application up, you've got those APIs where you can dynamically scale your application. You can redeploy it easily since it's in containers to another location if a data center goes down for some reason. So I think that's one of the cultural shifts we're seeing, where yes, you can have all this flexibility, all this agility. But with that-

Mike Duarte:

Comes responsibility.

Michael White:

Comes a little bit more responsibility on your side to take care of- ...

Diane Mueller-K:

I'm going to ask a question, too. One of the things that the CI CD workflow and how developers are now part and parcel of that. And I don't recall exactly what you're doing at Cisco around that, but that also has changed. And before we just threw our apps over the fence at IT. [inaudible 00:22:47] workflow of CI CD and whether you're using

Jenkins or whatever your workflow is, that has changed. That's been a cultural shift in and of itself.

Mike Duarte: Completely agree.

Diane Mueller-K: For a lot of them.

Mike Duarte: And not just for developers. For IT as well, right? And so there's been a lot of thought and work into integrating CI CD pipelines not just for code, but also for documentation. For infrastructure itself. CI CD mindset and mechanisms allow for transformation across all the different ways in which we work. And there's a lot of advantages to it. It's just a bit of hurdle to get non-developers into that kind of a mindset because it is a bit of a shift.

I want to kind of add a little bit to what Mike was saying, though, too. And kind of as he's talking about this cloud methodology mindset and this responsibility shift really out of infrastructure more onto the developer teams to maintain their application uptime. In addition to that, that also really changes not just our culture but the way we have to build out and design our data centers as well. And that is also a challenge. And unlike software, and I would argue even servers, those things are fairly, relatively easy to upgrade or change. Data center design and infrastructure. That's physical, actual hard hats, construction type stuff. That's harder to change.

And so we've been having to do a lot of work in that space as well. And trying to adapt to this kind of new cloud or horizontal scale model in the way that we try to avail uptime through spare capacity requirements versus load balancers and active/passive setups, and all these other types of things. And so with that, we've had to- ... I was explaining to another customer of ours earlier. If you look at our data centers, it's almost like we have- ... Have you ever seen those really ugly yards where it's just like dark brown, dead grass that's still a little green?

Niki Acosta: Oh, like mine?

Mike Duarte: And you see one spot where they've cut a little [crosstalk 00:24:53] there and they've plopped down new grass?

Diane Mueller-K: I'm looking out my window, and I see the same thing.

Mike Duarte: Well, that's what our data centers kind of look like right now. And so we have a lot of legacy brown field, brown grass, design of data center for vertical stacks, HA stacks. And we're kind of sprinkling in our horizontal new design within these existing data centers to make it work. And so one of the advantages at Cisco, and this is unfiltered, we have the most patchy grass of any corporation I know. We got a lot of brown grass, and we got little spots of green grass everywhere.

Diane Mueller-K: No JS containers. The weeds. Or the [inaudible 00:25:34]. Which languages do you consider the weeds that are out in my yard? I have a lot of brown [inaudible 00:25:42] patches and a lot of weeds going on.

Mike Duarte: There you go.

Niki Acosta: So in this new sort of paradigm, in this new culture shift, what happens to traditional network teams, traditional security teams? All these other teams that have kind of played a part in the mowing of the traditional infrastructure. Like what happens to those roles? Are you still interfacing with them in cloud? Or have you turned a lot of that responsibility over in the form of quotas or limitations for cloud users?

Michael White: Let me take that first.

Mike Duarte: Yeah.

Michael White: Those folks are still critically important to our success as a platform. When we talk about changing to a cloud-native mindset, you can't just do it with one piece of the infrastructure.

Mike Duarte: Yeah.

Michael White: It doesn't work. You have to provide that experience to all of the infrastructure services. So Mike mentioned earlier the Cloud API, or CAPI. That's been our attempt to bring some of those services forward and make them programmable by the clients, even if they don't have a traditional, multi-tenant API. So we've spent a lot of time working with the storage team, the computer team, the networking guys. If they don't have programmable interfaces to their services now, let us front them. And so we wouldn't have been successful without those folks.

Mike Duarte: Absolutely. And I guess to add onto that, especially security. I only see that need growing. In the container world, again, since we're shifting things up to the cloud, workloads might not even be existing on traditional- ... your internal infrastructure. It could be sitting in AWS. It could be sitting in Google. At Azure. I feel like I got to mention all three every time I bring up one to be fair.

And so because of that, I think security actually gets even harder in some ways because it's abstracted away. Traditionally in IT, IT infra has been the henchman for our info secs security folks. Information security folks. Because the infrastructure is where the rubber hit the road. Now with that responsibility, back to what Mike was saying, from infrastructure up to the application, now security's really happy to engage with each of these individual application owners to ensure security.

And that presents a lot of challenges. Cloud also introduces a lot of abstraction and vision [inaudible 00:28:22]. To what's happening underneath. The more easy you make it for one group, the harder, the more complex you make it for another. And so one of the things that we've been really trying to focus on within CAE is making ways of allowing our info sec guys, our networking guys, to get better access and understanding of what's going on in the environment so they can grab that data. But that's only one piece of the puzzle for them. They're also happy to consider public cloud, and how are they going to grab that information that they need to make sure that things aren't compromised at the application layer.

And so things like AppDynamics. Not to plug Cisco tech. But well actually, to plug Cisco tech, right? Why not? Or other log cache or any other logging tool or monitoring tool or metrics tool and to look for vulnerabilities and things like that. From a networking side, I would argue similarly. Containers present a lot more challenges. We're looking at expansive growth in the networking space. So much so that IPV 4 addresses were nearly out. We can't give each of our container instances a native IPV 4 address. There's no way. We have too many of them.

And so if you think that's a problem with just IP allotment, think about all the different contracts and policies and all those things that have to [inaudible 00:29:40] between all these individual microservices or databases and web servers and all that, which has previously existed at the traditional layer and has required many man hours to maintain and keep up. Now we're multiplying the amount of components greatly. And the amount of interlinking that's occurring on the network greatly, that creates a lot more work that is

required. And so that's where things like ACI and Tetration kind of come in for our point of view. It's to kind of help fix that or to address that, to manage that scale.

And so that's a big challenge, I think, going forward. Not to mention the fact that most of our environments are not flat. So we're running [inaudible 00:30:23] encapsulation overlay networks on top of our underlays. And so there's- ... Yeah. Plenty of work. And we greatly appreciate our network and security folks, and our compute folks. Because yeah, it wouldn't be possible without all of them. And they're still going to be very much needed. It's just the work that they're going to be tackling is going to be just different and I think more exciting and challenging personally.

Niki Acosta: Fun time to be in IT. Go ahead, Diane.

Diane Mueller-K: Well, there's just so much going on in the security and the monitoring and the metering space right now. I mean, I do that- ... another podcast. The OpenShift Commons Briefings, and I'd say about at least a third of them are some variation on security or monitoring or metering. And we just did one a couple days ago. Well, we've done two this month, and both people have hit on a really great resource. The Center for Internet Security has Kubernetes benchmarking. And a phenomenal job they did getting the 3.7 Kubernetes release benchmarks up and out. And I've now found two different groups. New vectors of company that's automated those benchmark tests. And there's an open-source project called Kub/Bench. And that's just one little piece of the puzzle. And then I just did another one with another group who was doing all the networking visibility, checking and logging all this.

So to me, the interesting thing is a long time ago, I came out of an IT auditing software background. So as we go to microservices, and there's bazillions more in the log files, and now we're all talking serviceless. And serverless. And we're going to functions as a service. The nightmare of being compliant, if you're HIPPA compliant, or enterprise, or you're Cisco, and you have encryption, and you're taking credit cards and all this. The things that people have to worry about are still all there. And it's how do we surface those up in ways there's visualization and audit logging and tracking and things that humans can deal with and verify and check off their compliances. So the security compliance officers at Cisco are really busy right now, I would bet. And all of that, that didn't go away.

Mike Duarte: Nope.

Diane Mueller-K: And the traditional roles that people played in IT have just morphed into cloud data roles. And our job from the technology side is to make sure that they have the tools to do their jobs, too. Because some of that stuff is pretty intricate and low level details that we now- ... And we're generating a lot more data. And I think that's really been pretty phenomenal.

Niki Acosta: Do you think that the complexity is reduced or lessened when an enterprise or a large user decides to leverage open-source technologies? Like I was reading- ... Yesterday, there was an article that they have successfully given a DNA sequence or a virus, like an actual virus. And they wanted to do this because they wanted to show there's a flaw in some open-source software. And of course there's been some-

Diane Mueller-K: [crosstalk 00:33:56]

Niki Acosta: Some flaws in Bitcoin and everything else.

Diane Mueller-K: Well, I think that you're framing the question a little awkwardly. I think that it's not- ... What we're talking about is the migration to cloud-native. And open-source has been around since Perl and the early days and when I started because I'm ancient. And so

open source is pretty much the bread and butter now of any enterprise. Any project you work on is going to have open source components, and there's great tools for scanning the software and finding that bugs. And the fact that [inaudible 00:34:28] and they're coming in the DNA thing, that's not open source's problem. That's a coding problem and something else.

Niki Acosta: I would argue that there's probably a benefit, just because you have so many more eyes on these open source projects versus a proprietary thing, right?

Mike Duarte: That's been kind of the traditional response, right? And so I think the reason why we hear a lot more about open source issues and hacks and what not is mostly because there are so many eyes on it and it does actually get fixed. Whereas proprietary software, you might not necessarily have as many eyes on it. But I mean, is one going to ultimately be better in regards to security? I think that's almost too broad of a question to answer. It's going to really depend on a product-by-product basis, right? Just as you have really crappy proprietary software, you have really crappy open source projects. You have great open source projects-

Niki Acosta: Which OpenShift and the stuff that Diane works is not one of those. Just to be clear.

Mike Duarte: No, no, no, no. But we've all seen some interesting idea on GitHub, we downloaded it, and then regretted it. And so the quality- ... It's hard to declare one or the other better in that sense because there's examples of both in both.

I would argue, though, that it is a little bit harder for enterprises to adopt open source traditionally. And again, this is more of a culture mind shift change is because open source methodology, which I think is its greatest strength in regards to it's all modular componentized, and you have to tie all those pieces together to build a solution, right?

And you even see that kind of a model and that mindset in Linux itself, right? In the shell, you have to pipe a series of commands to get a certain output just the way you want. Kubernetes is very similar in that way. All open source projects are like that. At least, I think, in my opinion, good ones. The problem, though, is that traditional, corporate IT are still kind of stuck in some of the old days where they got a single executable. They double-clicked. And it was up and running and good to go.

Now, to their credit, I think they've tried to bridge that gap a bit there. But there's just inherently more challenges with the more complex the system, but also the more powerful it is. So it's a trade-off.

Niki Acosta: I hear a lot from customers that there's a risk aversion factor, too. The reason why somebody would choose to get, let's say, an open sec private cloud from us is because if something goes wrong, they have someone to blame. They've got a- ... the choke to throat. Or throat to choke.

Mike Duarte: Yep.

Diane Mueller-K: I also think that there's one plug that I'm going to say that is a bit of a thing that I've been trying to say whenever I get the opportunity with people talking about open-source is GitHub is a huge and wonderful thing. But if I could just plug one thing that everybody has a GitHub repo, put a license in their README. And add that into their repos because there are so many people who equate, this is out there in GitHub to an open-source project, and so many people today put stuff up in GitHub that we want to use but they didn't put an Apache II license in there.

And those are the kind of poison pill things that like, "Oh, you're halfway through your thing," and then legal does a review of all of your source code, or you do some source

code analysis on it, and then you find this one library. And I'm not going to blame Python, but I'm going to use Python for an example. That they didn't put that in. And you have to go all the way back to square one and clean up everything.

And that kind of stuff, there's a lot of automation. Black Duck does stuff. Tons of people do great things around automation, so that shouldn't be happening. And we do a lot of ... We make sure that doesn't happen with OpenShift and with all of the things that we release into OpenShift. And I'm sure Cisco does similar things. But the one thing. It's sort of like the General Surgeon's Warning that I would ask every developer who's out there who has a GitHub account is, if you're putting code out there for people to reuse and you want them to, go out and throw an Apache II license. And you just cut and paste, and pull it in, and you make Diane happy, and you make the rest of us be able to use your code. So there. I'll stop. That's my podium for the day.

- Niki Acosta: That was great, Diane. Thank you for that. I wouldn't want to piss you off. I'm just saying. And you're like one of my idols, so ... And I still wouldn't want to piss you off.
- Val Benincosa: I do remember getting pinged by somebody. Some company just saying, "Hey, can we use your library?" And I said, "Sure." They go, "What's the license?" And I go, "I don't know. Whatever." And they said, "Well, you got to put a license in it, so we can use it." So you get pinged by just random companies sometimes.
- Diane Mueller-K: Yeah. There's tons of great tools out there to check it. As an enterprise, reach out to us. We'll definitely- ... We have lots of people who can help with that. But it starts at the beginning. It's like, you write a piece of code and you throw it in GitHub. And you think it's open-source. It's not. It's open. It's out there. But you can't let- ... Other people can't just use it. Especially in an enterprise situation. And I think that's the only risk that I see that's coming up from open-source because what with the Sunlight Foundation. You put something out in the open. Enough eyeballs on it. Enough sunlight. It'll get cleansed. We'll fix most of that problem.
- Val Benincosa: Are there some licenses that- ... Not to change the subject. Go to licenses directly just real quick. There's the unlicensed. There's the do whatever the F you want license. Any gotchas with these licenses?
- Diane Mueller-K: Well, I think we should have another whole session on licenses.
- Val Benincosa: Okay.
- Mike Duarte: [crosstalk 00:40:16] license and ...
- Michael White: Yeah.
- Diane Mueller-K: I have some friends, and we will love to have that conversation. And every time I venture out there, someone will come back and slam me. "Oh, my GPL is the best." Or, "[inaudible 00:40:30]." Whatever.
- Val Benincosa: Okay.
- Mike Duarte: So Diane, I just have to say. If you ever decide to go into a new career, you should seriously think about becoming a PSA announcer. I'm just thinking like those 1980s cartoons. I watched G.I. Joe's as a kid. And it's like, "The more you know." You could be that voice.
- Diane Mueller-K: I could be Smokey the Bear.

Mike Duarte: There you go. Exactly.

Diane Mueller-K: That's my one thing. It's my pet peeve in the universe is people who put up repos that don't have licenses or acknowledge the fact that they need one in some way. But anyways, and you can always ask me because I will come and help you.

But I think by the time it gets into something like Cisco. And this is kind of to bring it back to the very beginning when you were V2 and people were asking you for other open source projects to use. Have you seen a growth or a cornucopia of different languages and different tools being used at Cisco? Or did the opposite happen? Did everybody go to Java?

Michael White: Well, everybody was originally on Java.

Diane Mueller-K: What happened?

Michael White: I think the adoption of other technologies across the board has been a touch on the slower side than I would have anticipated. But that being said, some of these forward-looking teams who are now picking the right technology to fit their requirements are definitely branching out into the open source technologies. Our first big adopter on CAE OpenShift 3 has picked so many technologies that I had never even heard of before. And I think that's kind of the beauty of open source and the open community. They've been able to go out, find the technologies that they need, and run them on OpenShift. And they didn't have to have my approval or my blessing. I didn't have to spend three months learning the technology. And so long as it passes a vulnerability scan, they're free to use it. So I think that's pretty powerful.

Niki Acosta: That is powerful. And that's a benefit I didn't even think of. But I guess on your end, that's the stuff that'll either take you months to do or literally minutes or seconds to decide, right? So just the time factor involved.

So we're getting close on time. I know you have a hard stop, Diane. So I wanted to first thank all three of you for joining Val and I. This has been a crazy insightful podcast episode. I know, Diane, there are some places and there are some things that you wanted to give a shout out for.

Diane Mueller-K: Ahh, yes. Well, hopefully, the Cisco Michael Twins will join us there, too. We're going to host another OpenShift Commons Gathering the day before KubeCon in Austin on December 5th. And you can find out about that at commons.openshift.org. All the information's there. So we'd love to have you guys there again.

I want to give a shout out to what's going to make your lives even more interesting is all the service catalog work that's going on for Kubernetes that's going to bring even more interesting variations on things that are available into your world. So get ready for that. And then around three release 1.7 of Kubernetes came [inaudible 00:43:57], and I think the alpha version of [inaudible 00:44:00] catalogs, which I consider the best part of Cloud Foundry. And they've open-sourced it, so kudos to them for working with the rest of the community doing all that cross-community collaboration.

But really, there's some amazing things coming. Our back and others, and the new releases of Kubernetes. And we'll be talking about all of that as the Gathering is where all the upstream project leads come together to give updates to the OpenShift community. And basically, it's a great prep session if you're going into KubeCon. If you'll go there, you'll get all the tips and tricks on which talks to go to at the next couple days, too. So it's really lots of fun. And we have good espresso. And it'll be [inaudible 00:44:41].

Niki Acosta: And I'll do a little add-on to that. If y'all find yourselves in town, I'm wearing my Franklin BBQ shirt today. If you find yourselves in Austin and you know how many folks are coming, Michael, Michael, Diane, let me know, and I will call in advance, and get some Franklin BBQ ordered. If you eat meat. If not, I don't know. Have some potato salad.

Michael White: Sounds good.

Diane Mueller-K: That sounds awesome.

Niki Acosta: So last words from- ... Thank you, Diane. Last words from Michael and Michael. A lot of people have CIO mandates. They're saying, "Hey, get everyone using cloud. Become a service provider. Stop being a cost center. Start providing value to the business. Help us help you. But go help yourselves first." What advice would you give to these companies that have these mandates and need to go down this path? I mean, obviously, I would say it's fair to recommend that having something like OpenShift is a huge benefit. What other advice would you give to these companies making that transition?

Michael White: I'd say just go for it. And always keep your developers in mind, right? This is cool technology. It's got a lot of benefits for the infrastructure as well. But a transition to cloud-native is more a change in behavior and process than technology. The technology certainly enables it. It's good to have good partners like Red Hat. But you've got to just get it out there and make the experience great for your developers.

Niki Acosta: Mike? Other Mike?

Mike Duarte: I have nothing to add to that. That was spot-on. Yeah. I couldn't agree more.

Niki Acosta: So if we want to find y'all on the social channels. I know, Diane, you're still @PythonDJ.

Diane Mueller-K: Yep. And @OpenShiftCommons as well, so if you're looking for us and you want more information about it, just look for OpenShift Commons, and we'll get you hooked up.

Niki Acosta: And props to Red Hat. I recently got, as part of their open source community, a little viewfinder in the mail. Did y'all see that?

Mike Duarte: I got one of those, too. They're so awesome.

Niki Acosta: Aren't they awesome?

Mike Duarte: They're so cool.

Niki Acosta: I opened the box. I was like, "What is this?" And I open the box. And it was like the old school Red viewfinder. He's going to go grab his. Watch. I seriously think that's been my most successful tweet this year was like, "Hey, whoever thought of this is a genius." It was so neat to get an actual physical thing that was nostalgic in the mail from Red Hat, which is awesome. He's going to get it. There it is.

Mike Duarte: This is the coolest thing ever. Thank you. Best marketing gimmick gift thing ever. So cool.

Niki Acosta: Why don't they all do that, right? And where can we find Mike and Mike on the social channels?

Mike Duarte: I have a Twitter account. It's not even worth bothering looking at. But yeah, hit me up on LinkedIn. Just Mike Duarte. Cisco. You'll find me without any problems.

Michael White: Same for me. I'm kind of a social media neophyte.

Niki Acosta: So okay. Leave them alone, guys. If you want to get a hold of them, guys and gals, hit me up. I'll put you in touch. How's that? Thank you so much to all of you again for joining us. With that, our show is over. Subscribe. Leave a comment. Tune in next week. We've got plenty more guests lined up all the way through the end of the year, so with that, everybody say bye.

Michael White: Thank you. Goodbye.

Mike Duarte: Bye.

Val Benincosa: See ya. Thanks, guys.

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