



For Cloud Professionals, part of the On Cloud Podcast

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Title: Fueling the cloud with the power of open source

Description: Innovation is the lifeblood of information technology—especially in cloud. However, it can be expensive, time-consuming, and unproductive for companies to tackle cloud innovation in their own silos. In this episode of the podcast, David Linthicum talks with Priyanka Sharma, GM of the Cloud Native Computing Foundation (CNCF), about how they're leveraging the power of open source to boost cloud innovation and make cloud computing ubiquitous. Priyanka talks about CNCF's accomplishments as well as the exciting projects they have in the works now—and those that they are looking forward to working on. She also invites innovators to come aboard CNCF with their ideas and let the open source community help bring them to life.

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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. Today on the show we have Priyanka Sharma, and she's the new General Manager of the Cloud Native Computing Foundation (CNCF), which we've heard a lot about and even spoken a lot about on this podcast. How you doing, Priyanka?

Priyanka Sharma:

I'm good. Thank you for having me on the show, David.

David Linthicum:

So, what does a day in the life of a general manager of the Cloud Native Foundation like? Is it all cocktail parties? I guess virtual cocktail parties, now?

Priyanka Sharma:

I wish. I wish. Well, when people are able to travel, there's a lot of travel involved just to go to various locations for events, speak at various places, et cetera. But since I took on the job, we have been in a pandemic, so I'll tell you what my life has been like. For me, a day is very diverse. I maintain an open calendar because we believe here in CNCF that team cloud native is everywhere and everybody has a voice. So, in order to keep my pulse on our very, very diverse community, I maintain an open calendar and, so, often will have meetings with new members, people who are considering our projects, people who have any kind of question. So, I have some of those meetings sprinkled during the day.

I also work very closely with our phenomenal events team to ensure that our greatest collaborations with the ecosystem, which are the KubeCon Cloud Native Con events run smoothly. In this past year, it's been, well, challenging, just because we've had – as the largest open source conference in the world, we've had to pivot from a very vibrant, in-person event to virtual. And, in addition, every day is about building cloud native, being the ground zero of innovation here. So, we create that space and we market-make by bringing companies together for cross-company collaboration and interoperability. So, I have lots of conversations and work to do in various working groups, special interest groups, meeting with execs, meeting with contributors. So, it's a mixed bag. It's everything that a startup founder would do at scale, so that's a day in the life.

David Linthicum:

Yeah. Boy, it sounds like a lot of work. I've been friends with a lot of people who are CEOs of different standards committees over the years, and it is a full-time job, and it is trying to spin a lot of plates at the same time. So, people think—erroneously so—that the Cloud Native Foundation is really kind of tightly coupled with Kubernetes, and I know that's not the case, but can you explain the true mission of the Cloud Native Foundation, where Kubernetes fits in and where it doesn't?

Priyanka Sharma:

Absolutely. So, the Cloud Native Computing Foundation, our mission is to make, well, cloud native computing ubiquitous. Now, how do we define ourselves? Well, we host some of the most important infrastructure technology projects in the ecosystem, and our goal is to support modernization of software by utilizing container-based technologies so that people can build loosely-coupled, resilient systems and do it in a secure fashion. Now, to do that, as folks know, we started with the Kubernetes project, and it's very much a reflection. Kubernetes has graduated in a way to become a platform, and it has given rise to this very new way of doing things. It's brought developers onboard for operations, for security, et cetera.

But in addition to that core container orchestration platform, there are many needs that come up when you're building software in this modern way. So, those needs can be around observability, whether you need to do metrics-logging traces in different way. It can be around security. It can be around a number of policy as code, so many different things. So, today the Cloud Native Computing Foundation is proud to host over 70-plus projects, and of those, 33 are graduated and incubating. And, of course, that includes Kubernetes. Of course, Kubernetes is one of the stars of our show, but today we have also ten other graduated projects such as Envoy Proxy, which is a reverse proxy that's used in most service meshes.

We also have Yeager, which is a tracing project. We have all sorts of other examples like that that are out there, that are very strong projects with deep roots in their end user communities, people who are using them, and are multi-vendor collaborative. So, CNCF is really the ground zero of all innovation that is cloud native that reflects in our 70-plus projects. And today, we have over 570 members and 140 end users, making us the largest open source foundation that – making us the largest end user community for any open source foundation out there. So, Kubernetes has been the kernel from which great things have happened in cloud native, and today we are being the center of that for the entire ecosystem.

David Linthicum:

Yeah, this is exciting because this is needed in the space, and moving into cloud computing now, we're moving into multicloud worlds, and so we need these platform of platforms, the ability to leverage observability, deliver common security layers, common governance layers, common management and monitoring layers, and certainly common application development and container orchestration layers, which is kind of where Kubernetes plays. So, in essence, you guys are prepping us for what I think we're going to need next year and the year after that, and that's the ability to abstract ourselves away from the complexity of all these various systems that we're building and get to some sort of an automated level where we're able to, in essence, become much more efficient than we are today without dealing with every little detail programmatically, but the ability to leverage automation and orchestration in such a way we're able to leverage it finally as a force multiplier. Am I missing something?

Priyanka Sharma:

No, you're absolutely right. I mean, it's the everlasting quest of technology, right, to be better, to build easier interfaces, better abstractions. And we're absolutely there. And cross-cloud, multicloud, however you want to call it is absolutely the name of the game. In CNCF, we have given the end users, the folks who are consumers of these technologies, a formal and loud voice. And they have mandated that they do not want to be vendor locked in. They want the benefits of all of the clouds, and so we're definitely seeing a lot of momentum in that quest.

David Linthicum:

Yeah, it is. There's a huge amount of momentum. But let's look at the accomplishments that the Cloud Native Computing Foundation has basically made in the last few years. So, which ones would you highlight that are most significant that the listeners should really kind of understand?

Priyanka Sharma:

Absolutely. I think the number one, I'll go back to what I was talking about, which is end user driven open source. So, the beauty of this "ecosystem," the beauty of this foundation, and why I'm so delighted to have this job, is that CNCF is a foundation of doers. Everyone here contributes in one way or another. Like, you are a member of team cloud native contributing by sharing our story out there. I am a member by helping everybody in the background. Advance teams are a member. The project contributors, maintainers, the end users, every contribution matters, and everyone's working hard. And what we are building is end-user-driven open source. So, as I had said, we have given a formal voice to end users in the CNCF, and that is somewhat unique. So, effectively, we have an end user community that has representation on our technical oversight committee, it has representation on the board. They have their own special interest groups where they talk without vendors to discuss the various technologies out there, and then they drive research such as the latest technology radars that we put out on technology categories such as—there was one on observability; there is I think one coming on database storage there.

End users will share the tools that they're trying out, whether it's open source projects or proprietary, and what do they recommend. So, we have entered this next era of open source based infrastructure technology that is directly sort of voted on by end users. That is, they are constantly in communication with the project creators, project maintainers so that there's this virtuous cycle of end users giving advice and feedback on roadmap, being really involved, maintainers building all of that, and then vendors providing value-add services on top. And then these end users sometimes become contributors. Sometimes they'll even start their own company. Sometimes they join the big vendors. So, we've created this momentous ecosystem which is a virtuous cycle. That's one thing I would like people to know.

Then another thing, as I said, numbers wise, we have a lot of diversity with 70-plus projects. Now, a cool thing I'll tell you is that for those projects we now have more than 100,000 contributors who are working on them. And these people represent 177 countries and 1.3 billion lines of code. Those are big numbers. And what that's meant to tell you is that CNCF is a large ecosystem that's driving innovation and is the ground zero for cloud native.

And then finally I'll tell you that, as the foundation that's at the center of it all, we take our responsibility very seriously to enable each and every member of team cloud native. Every year, there's hordes and hordes of new developers, security people, other professionals who are entering our industry because this industry is powering the world. So, we take training and education as a very key component where we support our ecosystem. We empower individuals in their career and companies in their pursuit to recruit and retain talent. So, to that end, we have certifications. So, there's the Certified Kubernetes Admin and Certified Kubernetes Application Developer exams that people can take.

Today there are 15,000 people who have passed these exams. Now, that doesn't mean there's only 15,000 people who have taken these exams. These are actually really challenging exams which are not multiple choice, but they are about – people take trainings, people work hard, and they come out of it with so many greater job prospects. I mean, if you just look at the Linux Foundation Open Source Jobs Report, you see that there's so much momentum there, and the key skills that people are looking for are cloud and container technologies. So, the training and education is a key portion, and we've had great success there.

And we are also very thoughtful about the fact that education is a multifaceted experience. You take exams, you take trainings, and you also immerse yourself in conversations and learn from other people. To that end, our KubeCon Native Con conferences are the largest open source conferences in the world. They're virtual this year because of all the crazy, but even so, we have delivered very high-quality content that has been selected by technologists with great rigor.

David Linthicum:

So, let's talk about innovation. You know, one of the things that I see in the open source community is really kind of a culture of innovation that I don't see as much in the, I'd say closed source, but you know, traditional software development cycles moving forward. So, is that where innovation is going to occur primarily? Is it going to be, we're able to experiment and fail fast on the open source side and then fold it back into traditional software at some point, or how does that cycle go?

Priyanka Sharma:

Absolutely. And you know, you're totally right that what innovation looks like is changing. I think open source used to be a side show back in the day, 20 years ago, right, where it was this novel new idea which many, many large companies really tried to squash. But here we are, 20 years later, and we have become the show. This has happened because developers have gained more power, they have gained more agency, and they are building in a way that's never been done before. The reality of software development and innovation is that it takes a lot of manpower, it takes a lot of effort. And by going the open source way, you end up just augmenting the number of people who are going to work on certain problems. As I told you, CNCF has over 100,000 contributors, so that's a lot more than many companies out there, right.

So, I do believe open source as the mainstay of innovation is here to stay. I think what's going to be really changing in the dynamic between the proprietary and the closed source is the comfort is increasing every day. We see all sorts of new business models such as open core, which was at the previous company I worked at, Gitlab, it's been a really successful model for them. There are people who are doing service-based models on top of open source, et cetera. So, I think as we're moving, people are getting more and more comfortable with the idea that collaboration happens with inclusion and that every contribution matters, so bring more people in. With that understanding, people who are building products and value-add services on top are also seeing the surface areas for them to build revenues on, increasing. So, I would say that the conflict-based relationship with open source is now a thing of the past for the most part, and we are now in an inclusionary era where every voice matters, where every contribution has value. And as I said to you before, CNCF is the foundation of doers.

David Linthicum:

Yeah. What I like most about it is that if you're in that world, you're focused on the invention. You're not necessarily focused on turning it into a business, and that's a huge issue because ultimately – and I've run a bunch of companies before – you have to think about how that needs to fold back into the business. Every R&D expenditure needs to be justified, where in the open source world, we're, in essence, working toward the innovation or the creativity aspect of it, not necessarily thinking about the business. So, you have 70 projects you guys have, you're working on, so can you tell us about those, and what can we expect from the Cloud Native Computing Foundation as far as new technology?

Priyanka Sharma:

Absolutely. I'd like to very quickly address what you just said about the bottom line and cost savings versus innovation. I think absolutely open source ups the game, right. It changes the story towards how we are building as a world together. At the same time, it just makes so much more sense financially too because you're actually reducing R&D costs within your company when you leverage open source. That has been a big driver for more and more companies pouring resources into open source development. And secondly, I think what open source has been very successful at is demonstrating to the world that it's not a zero-sum game. And I think this is one of the best things we have all done collaboratively as a group of people is that it is not a zero-sum game. When you expand the reach of technology, when you build more, you get more surface areas for revenue generation. So, I'd like to say that even from the very traditional conventional business point of view of cost reduction and revenue generation, open source is a winning strategy.

David Linthicum:

Agree with you 100 percent. So, projects you guys are working on that you can reveal, we'd love to get the skinny on those.

Priyanka Sharma:

Absolutely. So, CNCF has so many awesome projects. CNCF has three tiers in our projects, and the first tier is sandbox. Sandbox projects are where it's easy to get in, all we're providing is a neutral IP zone where people can come and safely collaborate without worrying about one company losing interest in a project or taking over all the control, et cetera, et cetera. And there we have close to 40 folks there, and some really cool ones are, like, Backstage that Spotify donated.

Spotify is an end user company and Backstage is like a developer portal to make it easy for people who are working in a company with lots of services. So, they have a service catalog, and it helps – it centralizes all of that. So, I've been really excited about Backstage for a while. And there's so many others, as I said. Cross Lane is a project in our sandbox that is working on enabling multicloud, which as we just discussed, is critical. K3S is another very important one because that takes Kubernetes to the edge deployments. Edge is the future, and with the advent of 5G, it's going to get supercharged. So, Kubernetes is ready to support that with projects like K3S, and there's another one called KubeEdge.

And then the second tier we have is called incubating projects. These projects have gone through due diligence, they have a vibrant community, they have a code of conduct and governance set up in a very effective manner that abides by the CNCF rules. And here again you have awesome people. You may have heard of Open Policy Agent. So, OPA, as we call it, has been instrumental in helping so many people have policy-based control for cloud native environments. So, you get, like, fine grain control for administrators just across the stack. So, policy as code and the overarching concept of GitOps, I think, is going to just keep getting stronger and stronger, and OPA is an example of that. There are other projects such as Flux and Argo that are working in similar ways with GitOps, and I think that would be really cool for people to watch out for.

Then finally there's our crown jewels. Our crown jewels are our graduated projects. These folks meet all the requirements that incubated meet but also have gone through a security audit. They have gone to extensive due diligence, and CNCF and its technical leadership provides its stamp that you can trust to use these projects and they'll be here to stay for a while. Of course, Kubernetes is the first one that graduated. We also have Prometheus for metrics, Envoy, Reverse Proxy, Fluency, which is for logging, and a bunch of others. So, as I said, there's a lot going on and it's all very exciting.

David Linthicum:

Sounds like the center of the world for open source stuff, so everybody should go out and monitor what you guys are working on. So, let me walk you through a scenario. Say I have an idea. Let's say I'm doing AI-enabled middleware to have bidirectional communication between two separate heterogeneous clouds. Made that up, by the way. That doesn't exist. And I want to build it, and maybe I've built a prototype and I want to bring it under your guidance within the Cloud Native Computing Foundation. What do I do? How do I approach you? And do I have to do a proposal? Is this something that some sort of a prequalification that I have to go through? I'd love to learn about that.

Priyanka Sharma:

Absolutely, and I'm so glad you asked. So, as someone who's building a new project, it's actually very easy to join CNCF. So, remember I mentioned sandbox as the beginning of our tiers for projects?

David Linthicum:

Yes.

Priyanka Sharma:

So, sandbox is the place I would recommend you go when you're building something new like that, and it's super straightforward, the process of getting involved. All you would do is go and create an issue saying, "Hey, this is our project and we would like to be part of the CNCF." And then after that, the TOC, which meets regularly would then batch process these applications, and it's a simple vote, yes-no answer. And they would then accept you. Once you're in, you would transfer the IP ownership over to CNCF and you're good to go. That's all it takes. It's super easy. And I can actually provide links.

David Linthicum:

Yeah, send us the link. We'll put it in the show notes. Wow. And then suddenly you have an invention, and it goes into an open source rank and you're able to build a community around it and you're able to see whether or not it gets crowd sourced and people pay attention to it, or it's something that needs to be pivoted into something else. Is that kind of the way it works?

Priyanka Sharma:

Exactly. Exactly. And you know, the TOC will ask – they have the right to ask questions when people represent themselves.

David Linthicum:

What does TOC mean?

Priyanka Sharma:

Technical oversight committee. They are the technical leaders of CNCF and they decide basically what projects get in, they decide what projects get to graduate, they do the whole product management lifecycle and they are comprised of elected members who are from the technical community that have the trust of the ecosystem. So, currently the chair is Liz Rice. She and I work very closely together, and I'm so impressed by all the work that they have done because they've suddenly gone from cool case makers to people who are having to deal with lots of process and steps because so much interest is there, right. People want in and who are we to stop them? We want the best people to come in, so she's done a great job with the rest of the TOC to streamline processes so that we can accept more and more people and help them be the best projects that they can be.

David Linthicum:

Boy, that's a lot. And the thing is it's a great idea because if I look at my career, the most lucrative things that I've built, I've built without being paid. So, in other words, writing books or building software systems or things like that. And, ultimately, if there's a motivation or a passion for you building something, that's going to be a far greater motivator for you to be creative and economical and optimize the various systems versus the traditional path. And I think that that's been kind of underestimated in the past, and now we see these tremendous amount of open source projects that are just blowing me away in

the fact that you can always find open source alternatives, and in many instances they can be better than the traditional software services that are out there. Anyway, final words and what's your web site again and where can we go register for KubeCon?

Priyanka Sharma:

Yes, absolutely. So, my final words to anybody and everybody listening are that team cloud native comprises of this foundation of doers. Anybody with an interest in cloud computing and building software in a modern resilient way with containers belongs in this, so you belong in this. You have a space in team cloud native, so join us, whether it is by commenting on documentation, but checking out our projects, by showing up to our event, know that this is a community that will welcome you and we want you here.

David Linthicum:

Wow, Priyanka, I can see why you got that job. You're a force of nature.

Priyanka Sharma:

You are so kind. Thank you.

David Linthicum:

No one could probably run an open source community and organization better than you. You're very enthusiastic. So, anyway, if you enjoyed this podcast, make sure to like and subscribe on iTunes or wherever you get your podcasts. Also don't forget to rate us. Also check out our past episodes, including the On Cloud podcast hosted by my good friend, Mike Kavis, and his show Architecting the Cloud and his book by the same name. And if you'd like to learn more about Deloitte's cloud capabilities, check out deloittecloudpodcast.com. And 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 projects. We'll talk again very soon. You guys be safe.

Operator:

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