EPISODE 912

[INTRODUCTION]

[00:00:00] JM: Open source software is very new. Open source has existed for less than 30 or 40 years, depending on who you ask. The idea of open source was popularized by Linux, and open source software started to get heavily commercialized in the 1990s. By the early 2000's, open source was used by nearly every large software company. In recent years, most of the new databases, and web frameworks, and user interface libraries, and other software primitives are being built in the open.

Dirk Hohndel is VP and chief open source officer at VMware where he works on strategies around Linux, containers, Kubernetes and other open source software. Dirk joins the show to talk about his long history with open source and the current state of the open source ecosystem.

[SPONSOR MESSAGE]

[00:00:55] JM: This podcast is brought to you by PagerDuty. You've probably heard of PagerDuty. Teams trust PagerDuty to help them deliver high-quality digital experiences to their customers. With PagerDuty, teams spend less time reacting to incidents and more time building software. Over 12,000 businesses rely on PagerDuty to identify issues and opportunities in real-time and bring together the right people to fix problems faster and prevent those problems from happening again.

PagerDuty helps your company's digital operations run more smoothly. PagerDuty helps you intelligently pinpoint issues like outages as well as capitalize on opportunities, empowering teams to take the right real-time action. To see how companies like GE, Vodafone, Box and American Eagle rely on pager duty to continuously improve their digital operations, visit pagerduty.com.

I'm really happy to have PagerDuty as a sponsor. I first heard about them on a podcast, probably more than five years ago. So it's quite satisfying to have them on Software

Engineering Daily as a sponsor. I've been hearing about their product for many years, and I hope you check it out at pagerduty.com.

[INTERVIEW]

[00:02:22] JM: Dirk Hohndel, welcome to Software Engineering Daily.

[00:02:25] DH: Thank you.

[00:02:26] JM: You've been in the open source ecosystem for a long time. Tell me about the earliest days of Linux.

[00:02:32] DH: Well. So Linux actually predates the term open source. Open source is something that it was invented quite a bit after Linux got started. When we started with Linux in 1991, it was all considered free software and was just the shortcoming of the English language that has one word; free, to describe two different concepts, which is in many other languages it’s two words. So it’s libra and gratis. It’s umsonst and frei. So it's the concept of being free, as in free speech, and free as in it doesn't cost you a thing. Because of that confusion and the constant bickering about what it actually means. So that’s where we actually came up with the term open source about a decade later.

But Linux has been a fascinating project that started as nothing more as a hobby as something as Linux says just for fun. Trying to figure out how to create a Unix-like operating system that was available in source to anyone without any restrictions, and everything else was almost a coincidence.

[00:03:42] JM: Describe the culture of open source in more detail, the early cultural elements. What were the ideals of open source?

[00:03:51] DH: That's actually a very, very hard question, because now you're assuming that there is a consistent culture, a consistent set of values as ideals across this increasingly huge community. We have always had people who had a very strong ideology about all software must be free. Proprietary software is evil, and very strong ideological background.

Then on the other hand, there are a lot of people who were very pragmatic, who wanted software that didn’t suck. Who wanted software that did solve their problems and that was available with sources so that others could collaborate. So they wouldn't get stuck if a vendor walked away from something.

But there isn't really a single culture that overarches all of that. There're a lot of different viewpoints, a lot of different ideals and truly a lot of different levels of pragmatism versus ideology. A lot of the challenges that the open source community has faced over the years and a lot of the disagreements are based on exactly these different approaches to what it actually means to do free software or open source software.

[00:05:07] JM: In the early days, was their vision for this full ecosystem of open databases and open word processors and all the applications you would need, or was it just kind of gradual where, first of all, we had Linux and then kind of everything else happened organically?

[00:05:27] DH: So the Free Software Foundation I think had this vision of herd of their all-encompassing software stack since even before Linux got started. A lot of the tools that made it possible for Linux to actually become a reality where of course around before Linux. Most importantly, the GCC suite and the Binutils. Without that, it would have been impossible to create Linux.

But if you ask specifically about the Linux community, so about the early developers working together with Linux on creating this kernel, I think none of us have any illusions, any plans, any grand desires of creating anything more than just a very simple Unix operating system that we could use on our Intel PCs and that would allow us to play with a Unix box without having to pay extremely expensive software licensing fees or be on the very, very limited quality toy OS, like Linux.

[00:06:28] JM: Ddid people envision businesses being built around open source in the early days?

[00:06:35] DH: Not at all. So I think when the first people started talking about Linux in a commercial environment, many of us were really surprised and did not see this as viable or reasonable, because it was a hobby. It was a toy. It wasn't something that we ever intended to be really something used in businesses.

But, five, six years into this, we're now talking mid-90s. It's certainly became obvious that there's a lot of opportunity in this space, and you see the first Linux distribution companies being created, and you see the first successful attempts to make money just selling a prepackaged Linux distribution. From there, I think it very, very quickly broadened and became something that everyone was looking at an angle of how to make money with this. Then of course the .com maniac revolution, chaos – I don't have enough bad words for this, of the late 90s up until 2001, created a plethora of companies that lost an incredible amount of money in the attempt to create a second Red Hat.

[00:07:47] JM: You were the CTO of SUSE Linux from 1995 to 2001. Describe how SUSE fits into the business landscape of the 90s. What was that like?

[00:07:59] DH: Well, actually I think your numbers are wrong. I think I became the CTO of SUSE either in late '98 or '99. Maybe late '98.SUSE was one of the first Linux distribution companies out there, and the initial target audience for the SUSE Linux distribution was decidedly the hobbyist. It was the Linux enthusiast. It was not targeting business users for the first few years.

Then around the time I became the CTO on the late 90s, there was much more effort to try and make it something that would be a reasonable OS for enterprises. So the first SUSE Linux enterprise server was developed was actually the first enterprise Linux distribution in the market. We had a significant uptake in the financial services industry, logistics payers. A lot of small and medium-sized businesses that saw this as a way to have a rock solid soft perspective that solved their problems and that was much more affordable than many of the other offerings in this space.

[00:09:06] JM: What did enterprises pay SUSE for?

[00:09:11] DH: So they paid us for the compilation of the product and mostly for the services and support around it. So obviously you could get a Linux distribution for free. Back then, downloading them from the internet was still fairly painful because, generally, internet speeds were so slow that the downloads took forever. But with enough determination, you certainly could have gotten a very solid Linux distribution for free.

But what the enterprises were interested in was the support and services around that and the ability to have someone to call when you get stuck when you need help. So I actually helped start the first professional services business around Linux and a bunch of open source software that was included in the broader OS specifically targeting companies in Germany that were trying to use Linux enterprise environment.

[00:10:03] JM: How did the Linux ecosystem compare to the Windows ecosystem?

[00:10:08] DH: I think the Windows ecosystem at that point was much more mature. It was based on a very large set of value-added resellers that had all their own niches, their all target markets that had very strong service offerings, but that also brought with them a very significant cost in their overall solutions. So I think Linux was competing on stability, on performance and price.

[00:10:39] JM: What was the competitive framing of SUSE versus Red Hat in those days?

[00:10:47] DH: That's such an interesting question so much later. I think a lot of what SUSE was talking about was the rather German approach to engineering. We kept joking that this is like the difference between a BMW and then the Chevy. Having driven both cars, I think that was not a bad comparison.

I think a lot of our perception was that we had the stronger, the more solid product versus Red Hat had significantly better sales and marketing. They had a much better grasp of how to get to a broader set of customers. So SUSE continued to be very successful in Germany and in the EU in general, but never really was able to compete with Red Hat in the US, which was the largest market at that point.

[00:11:37] JM: So if I didn't get your timeline wrong, you were the CTO through the .com bubble bursting, right? Through 2001, right?

[00:11:48] DH: Correct.

[00:11:49] JM: What was that like? How did the bursting of the .com bubble affect SUSE? Do you have any reflections on the overall software infrastructure industry during the .com bubble burst?

[00:12:01] DH: I think it affected any company that hadn't managed to go public yet and was trying to succeed either on private equity investments or on just positive cash flow and continued to grow. The number of Linux related companies that went bankrupt between 2000 and 2002 is staggering, and the amount of money that was invested in that fundamentally was lost in the end. It's pretty heartbreaking. Even some of the companies that did manage to go public still weren't able to create enough sustainable business to be longtime profitable. I think it is a fair statement that Red Hat in many ways is the single and certainly single most successful player in this space.

[SPONSOR MESSAGE]

[00:12:59] JM: LogDNA allows you to collect logs from your entire Kubernetes cluster in a minute with two kubectl commands. Whether you're running 100 or 100,000 containers, you can effortlessly aggregate, and parse, and search, and monitor your logs across all nodes and pods in a centralized log management tool.

Each log is tagged with the pod name, and a container name, and a container ID, and a namespace, and a node. LogDNA is logging that helps with your Kubernetes clusters. There are dozens of other integrations with major language libraries, and AWS, and Heroku, and Fluentd and more.

Logging on Kubernetes can be difficult, but LogDNA simplifies the logging process of Kubernetes clusters. Give it a try today with a 14-day trial. There's no commitment. There's no credit card required. You can go to softwareengineeringdaily.com/logdna to give it a shot and get a free t-shirt. That's softwareengineeringdaily.com/logdna.

Thank you to LogDNA for being a sponsor of Software Engineering Daily.

[INTERVIEW CONTINUED]

[00:14:19] JM: After SUSE, you joined Intel in 2001. What was the world of open source like at that point? Not specifically about Intel, but just in the context in which you joined Intel. How was open source starting to impact the world of software?

[00:14:38] DH: I think 2001 is very much one of those inflection points where the perception of this industry changed quite dramatically. We came from a world where we were considered fringe, strange, bleeding edge, something that maybe a few very adventurous and high risk-taking companies might be looking at something maybe in a couple of niche markets. It shifted to a truly competitive offering compared to SPARC Solaris, which was the leading Unix at the time.

So one of the reasons why I joined Intel was very much to make Linux on x86. The premier Unix offering in the market and to make Intel the number one platform in the service space. Now, today, in 2019 where Intel is in the 90% range of market share in the service space, this is maybe hard to remember, but in 2001, x86 had single digit percentage of market share in the service space all based on Windows MT and servers were basically SPARC Solaris, PowerPC, AAX and a few other smaller Unix flavors most of them actually on their own proprietary hardware platform. So Deck Alpha, HP Width, HPPA and a few others.

So it was a fascinating opportunity to fundamentally change the server market and at the same time create a massive business opportunity for Intel and create with Linux in open source a completely different way to establish enterprise class infrastructure in that space.

[00:16:32] JM: So around that time, what were the other successful open source companies that were getting started?

[00:16:39] DH: Getting started around 2001. I don't think there were a lot of them. I think after 2001, it was very hard to get venture capital for open source companies. We saw few companies around the fringes of that. We saw companies like Splunk, for example, that went public and very successful. But the big wave of open source companies being founded I think was before 2001.

[00:17:05] JM: Okay, before and after, certainly. Eventually, I'd like to get to discussions of more recent open source events. But continuing with your historical context, because you have a lot of historical context in the world of open source. What role did you play it Intel? What kinds of decisions did you make?

[00:17:23] DH: I was the chief Linux open source technologist. I worked in the software and solutions group, which was then renamed to software and services group. I helped Intel phrase a fairly coherent and extensive open-source strategies. So how to use Linux and the open source infrastructure around that. Oh by the way, the proprietary software stacks that were being built on top of this, like, for example, the Oracle database on top of Linux in order to create a very significant and multibillion-dollar opportunity for Intel in the server market.

So I was involved in a lot of the overall strategy of how to approach this. How to engage? How to create opportunities for our hardware? How to compete with some of the other vendors who had similar ideas in that space? Obviously, AMD was very active in taking a different 64-bit approach. Intel initially did.

So it's very hard to claim ownership of any of these decisions, because that's not how large companies work. It has always been a combination of people pushing for these ideas. It was Intel's CTO back then, Pat Gelsinger, who was very actively involved in this. The head of the software and solutions group, Bill Swope, and a number of other people who strongly believed that this was a huge opportunity. I played my part in providing the open-source angle and they played their part in making sure that the hardware platform measured up to what SUN SPARC was able to offer and eventually surpass that and became the leading server platform in the market.

[00:19:06] DH: Well, one way in which you had impacts that sounds like it was quite direct and quite scalable was that you helped ensure that Intel was compliant with the open source licenses. How do you scale open source license compliance? What does that involve?

[00:19:24] DH: So very early on, we had an internal team that was run by a colleague of mine that focused on making sure that the way we use open source software, the way they ship it, the way we engage with the different open source components complied with the underlying licenses, and we built internal tools to do that. We had very well-defined processes and mandated review steps to ensure that every product team that included an open source component and what they did came in front of this team. Discuss their process for compliance and got the seal of approval or consent back with the explanation of what they needed to do differently.

Intel has a very strong process culture as a hardware company that's very tepid. So it was fairly easy for us to plug into the existing frameworks and simply add this as other approvals step, therefore create very consistent compliance with the license rules.

[00:20:31] JM: You worked at Intel for almost 15 years, and over that time, cloud computing emerged. It took much of the industry quite a long time to realize how influential cloud computing would be. Why is that? Why didn't more people recognize the importance of cloud earlier?

[00:20:49] DH: That's an interesting question, because it's so hard to tell at which point people meant what when they said class. It's one of those beautiful terms that in hindsight we all think we know what we meant. But at the time, it took a very long time to actually establish this delineation between public cloud, private cloud, the software defined data center and how all of these components are similar, yet different and how they would impact the way enterprises use the compute and network and storage resources.

I think early on, there was skepticism how much companies would be willing to have their data off-site, to have their data hosted by a public cloud provider and to basically lose control. Not have things in the data center where they could set the rules. I think that was a very common perception and something that took quite a while to overcome.

Once more companies were willing to deal with that and to accept that risk, I think the shift then was pretty significant and the way it changed the way people were thinking about building data center versus just renting capacity is something that has implications into this market all the way to today. I think that that overall process continues on, and the perception of what it means to have cloud computing and to integrate your cloud resources with you on-premises resources continues to evolve.

[00:22:32] JM: All right. Well, you must've seen cloud computing. However, you interpret that term change Intel's business. How did cloud computing – Or I guess this period of time in which we started saying the word cloud. How did Intel's business change in that period of time?

[00:22:52] DH: I think I'm not the perfect person to answer that, because my focus inside the software and services group was very much in our open source engagements and with a strong focus in our Linux engagement and a couple of our initiatives on the mobile and client-side, and then later with some of the more server-centric projects. But all of these is in the context of the open source software stacks.

So I certainly had visibility into what it meant for the business and how it was discussed in the context of SKUs and pricing and whatnot. But that never was my focus. That wasn't what I was working on. So I don't feel I'm the perfect person to answer that.

[00:23:35] JM: Fair enough. You didn't see the container orchestration wars occurring around 2015, 2016. What reflections do you have on the container orchestration wars?

[00:23:47] DH: I think this is one of those spaces where we've seen a staggering number of different solutions all trying to solve the same problem, and many of them trying to say, "Solve this problem," with a very distinct desire to shoehorn an existing business model into an open source infrastructure. I think the reason why Kubernetes was in the end so successful was that Kubernetes didn't seem to come with this automatic up-sale attached.

It came with the vision of trying to solve the underlying problem in a modern and extremely modular way and not trying to tie them to a single business that would want to sell your enterprise version. That would sell you these additional features that you wanted. But instead creating an open ecosystem where many companies were able to add their own components, their own additions and their own flavors of how they decided to package this and to deliver this to our customer.

[00:25:01] JM: Okay. Well, I would love to hear any interpretation of – I mean, do you think it did not, like in terms of container orchestration, being the dominant container orchestration, being the Linux equivalent of container orchestration?

[00:25:15] DH: I think Kubernetes is five years old, and I think Kubernetes in these five years has been tremendously successful, and we see it as certainly the dominant player in this market today. What I tried to caution people is five years, it means you're in your absolute infancy. You're very early in the development. If you compare this with Linux in 1996, I think you have an idea of how early we are.

If you look at where, for example, open stack was four, five years in its lifecycle, a lot of people would've told you, "Oh! This is the open source cloud solution for about everything else. OpenStack is the answer." Today, I think that's not what a lot of people will tell you.

So, yes, I think Kubernetes is a fascinatingly successful project. I certainly believe that it has a huge opportunity in this market. If we avoid major missteps, I think, this will be a long-term successful project. But to make the statement that it has one is I think reaching a little bit, because given five more years and then look what else is out there and help people build their ECO systems and how people build their hybrid platforms, and then we will know more. I certainly think Kubernetes is a very, very strong offering in this space, and I think it is currently the most promising projects in the container orchestration space. But I am hesitant to already call winners here.

[00:26:52] JM: Appreciate the nuance there. So I guess more subtle question. How has Kubernetes changed the world of open source?

[00:27:00] DH: Well, Kubernetes is yet another hugely successful large-scale project and there haven't been that many. If you look at this size at the velocity of the project, as the number of contributors, the number of companies involved, there are only a few projects that have ever reached that scale, and that I think is very remarkable. I think that Kubernetes as a project has changed a lot of how open source is perceived because of some of the ways in which the project has organized itself.

Many of these innovations I think have been good. Some of these innovations or some of these approaches we're struggling with. If you look at some of the challenges around the way releases are done, the way the overall container echo system deals with compliance, with the ability to determine what components are you actually running when run a certain set of containers. So what's the build of material? What are the corresponding sources of your GPL license components?

So this whole question of how do you ensure that you understand what went into the software that you're running. Who built it? Who authenticates that there are no malware components in there? Who is ultimately responsible for what it is that creates this infrastructure? There are a lot of questions that I think you do deserve a lot more thought than they're getting today.

[00:28:50] JM: You joined VMware as the chief open source officer. What you do at VMware?

[00:28:56] DH: So I'm responsible for overall open source compliance. I am responsible for our open source strategy. I am doing a lot of work with an upstream engineering team to do what we call open source goodness work. So we work in project specifically on challenges that are not directly related to VMware's business, but they are much more related to what does this open source project need. How can we make the release process better? How can we help them with tooling? How can we help them on security on the overall quality of the open source project? I have a number of internal functions that are specific to the way VMware's processes work when it comes to the release process. When it comes to mergers and acquisitions, and a lot of other mundane tasks that you have as an exec.

[00:29:50] JM: How does the open source virtualization world, how has that open source virtualization software affected VMware? When you think about your historical understanding of the open source markets, virtualization software, VMware kind of pioneered bringing that stuff to market. Then over time, there were open source alternatives. How has that affected the VMware business?

[00:30:18] DH: So I think the question of what is open source, what is proprietary software, is something that is often overstated, because all software that you can buy today is built on top of open source components. Some companies are very adamant that every single piece of software that they sell is all open source. A lot of companies use open source where they're trying to build strong, rock solid infrastructure and build proprietary software where they feel that having a single entity in charge top to bottom and being able to create very tightly coupled software products is in the best interest of the customer.

So our approach has been that we provide the APIs, the open source components that our customers are interested in and tie it all together around a stack of proprietary software that we feel best serves the more high-end enterprise needs, whether it's in storage, in complex networking situations or just in the scalability. How many servers? How many VMs can you manage? How can you create a single pane of glass that actually makes this easy to manage and easy to consume for a customer?

So a lot of the components that go into this end up being open source. For example, the design tool that we use for all of our UIs is an open source project that we have started and that now a lot of companies are using. It's called Clarity. A lot of internal tooling that we're using, we have open source to help create more shared infrastructure. Of course, we use a ton of third-party open source components that go into our products.

So, to me, trying to create this black-and-white open source versus proprietary contrast is actually misleading, because it is a very much spectrum that goes from the complete open source software stack that you just download from GitHub and start and pray for the best when you run your enterprise on it. To something that is assembled from various pieces. Some open source, some proprietary, and is built as a coherent infrastructure that you stand behind as a company. So I think we have done very well in this space.

[00:32:51] JM: How does Kubernetes fit into VMware's long-term strategy?

[00:32:54] DH: I think Kubernetes as a container orchestration framework is something that we have made significant bets on and that plays prominently in our strategy, because it is a set of APIs, a set of user stories that our customers believe in, and that we want to make sure we have strong products and services around.

So, as you know, we acquired Heptio a little over half a year ago. To us, this was maybe a way to accelerate our ability to create these products and services. We had been very active in that space before already. But bringing Joe Beda and his team into the company certainly was a nice boost for those initiatives.

[00:33:43] JM: Fair enough. So I guess it – Well, an industry-wide question. Since you have a focus on open source, what's your perspective on all the licensing changes that are being made to some of these open source database projects? Do you have any perspective on that stuff?

[00:34:00] DH: Yeah. So we have seen a number of open source database companies struggle with the fact that it has become so easy for some of the cloud vendors to create services, database services that allow the customer to use these databases without ever interacting with the startup companies. Obviously, if you are a company building a database, you have to have a path to revenue.

So a lot of these companies are struggling with defining how to create this value proposition. We've seen a number of attempts license changes to make this a more successful endeavor. Some of these license changes I think were maybe not as well thought through and not as carefully written as they should have, which then caused significant pushed back from the open source community. Some of these databases have been removed from pure open source distributions because the licenses are not considered actually open source because of some of those restrictions.

Having said that, I have a lot of sympathy for these players, and I think one of the key learnings for us as an industries that we need to ensure that all the players in the echo system have an opportunity to thrive, because if you base your business on somebody else doing all the work and you reaping all the benefits, I can predict that this will not work long-term.

So you have to create an ecosystem in which the individual companies, the individual players, all have an opportunity to create positive business outcomes.

So we are certainly engaging with many of these vendors to try and figure out how we can jointly create products and services that are available to our customers. You have seen our acquisition of Bitnami, which is very much in the context of having a catalog of open source based products that are done in conjunction with these underlying vendors with the startups building the underlying projects, because we think we need a healthy echo system that allows everyone to build strong solutions, but also survive doing so.

[SPONSOR MESSAGE]

[INTERVIEW CONTINUED]

[00:37:57] JM: When you think about the origins of open source, is there anything – Are any rules being broken here or any important norms being broken here, or is this just like an evolution in just a subtle change to licenses that maybe it actually doesn't matter that much and there shouldn't be so much stress around these licensing changes?

[00:38:25] DH: We're going back to a topic that we had early on in this conversation, where in reality, this is not a single community, a single culture, a single set of values and thoughts and ideas. If you look at some of the discussion mailing lists around open source licensing, you will see very active vocal, loud, often aggressive and acrimonious discussions where people voice different opinions on exactly this question. So will find people who will tell you very, very strongly and very comfortably that there is one single clear definition of open source as written down the OSI rules, and if you don't follow these rules, your aren't an open source project.

There are a lot of other people who bring very good arguments that say, "No, this should evolve over time, and this is all just evolution and improvement and fine tuning." It's sometimes really hard to read all these arguments and not end up being confused or conflicted.

I'm trying hard not to take a position that alienates either side of this discussion, because I can really see where they both come from. Having been around for a long time, I certainly have fairly strong feelings what open source means and what some of the key values in open source are as far as I'm concerned.

But as I said earlier, I strongly believe that we need to create an echo system where the innovative companies continue to have a chance to grow and to succeed from a business perspective. If that means that we need to evolve these licenses, then we need to do this. Where I get worried is if licenses are written in the way that actually is disruptive to the echo system, and especially when projects that are used in many ways in existing products and services suddenly change the license and they do so in a fairly brutal way.

For example, if you say, "Hey, my next version in the future will be under this new license. But security updates to the old version will still be available." I am okay. Yeah, we can talk about this. But if you say as of next week, all updates will force you on to my new license. If you don't want the new license, you are stuck with gaping security holes. I have concerns about this approach. So it's a complicated question and it doesn't have a simple answer.

[00:41:10] JM: Okay. Well, let’s talk a little bit more about what you do at VMware. So as chief open source officer, give me an idea of what an average day looks like for you. What kinds of decisions around open source are you making?

[00:41:26] DH: I spend a lot of my time with the typical mundane work of a manager, or an executive. I spend a lot of my time just dealing with running an organization. Around open source, I think the interesting questions that come up are always around how do we engage upstream? Which projects do we engage in, whether we invest? What is our focus? How do we prepare as a company for the opportunities that we see on the horizon? New technologies, new areas where open source suddenly showing up as a key component of a software stack.

Then the other big part where I'm engaged is, of course, compliance. Whether that's for our existing products, whether that’s in the context of mergers and acquisitions, whether that’s in our interaction with other companies and joint products, joint initiatives that we’re doing, and of course our engagement with the upstream open source projects and foundations.

[00:42:30] JM: I have another kind of a far-flung question that I'd like to get your perspective, since you have this historical perspective. I think we see a lot of open source at the infrastructure layer, at the virtualization layer even, at that containerization layer, at the database layer. We see all these open source infrastructure tools. We don't see as much open source at the consumer layer. Other than maybe WordPress, we don't see like open source social networks or anything. Do you have any idea why that is, or do you think that's coming in the future?

[00:43:12] DH: So I think you actually answered your own question. So a lot of the areas where open source has always been successful is if there is something that is shared, that is infrastructure, that a lot of different people, a lot of companies all rely on, and where reinventing the wheel doesn't really give you any differentiation because your value layer is a buff.

So the operating system kernel, once you have a solid broadly accepted kernel the supports thousands of hardware platforms and devices, the incremental cost of creating something new, something competitive to that, something proprietary by a single company is insane, and the added value is very small. On the flip side, if you have something that is all about a user experience. So all about delivering a strong narrow vertical, that is an area where the tendency of open source communities, to bike shedding and to arguing and disagreeing and forking slows down something where a single company engaged on and strongly focused on very narrow environment typically tends to be quicker to market and quicker to innovate. That really delineates some of the differences that you are pointing out.

So when you talk about the consumer space, it is all things that are about URIs that are about user experiences and that are about fairly narrow products. I am a photography enthusiasts, and I take a lot of pictures typically, and lot of these days. But still – And I have used many of the open source photography tools. I will say, quite frankly, nothing comes even remotely close to what you can do with Adobe Lightroom and Photoshop. That is not for lack of trying.

There are quite a few open source projects with very enthusiastic developers and they're very respectable in what they can do. But they're not even close in usability and user experience to what the Adobe products can do. You can go down on various different types of applications and make similar observations. So, to me, that really is the difference. Are we talking about something that is infrastructure, or are we talking about something that is focused on a fairly narrow user experience?

[00:45:50] JM: Great answer. Tell me something about open source software that you believe that I would be unlikely to hear from anywhere else.

[00:45:59] DH: Oh my Lord! I think that open source software is so broad and so highly differentiated in the approaches and in the ideas that people have and what it is and how it should work and the motivation that brings people into open source software. If you look at the 90 million+ projects that are out there, I think there's so much more than you and I don't know than what we know that in a way this should be a trivial thing to answer, yet as a specific, "Oh, here is a data point that I think you won't know and that is actually interesting." Having a hard time coming up with something, something fun.

I can talk about my hobby open source project, which working for an enterprise virtualization company might surprise you, which is in open source dive log application for scuba divers. But I don't think that's really all that interesting for your audience.

[00:47:06] JM: You'd be surprised. But, yeah, maybe that should wait for our scuba diving engineering daily offshoot show. Okay. Well, I guess last question. What changes to the world of open source do you anticipate in the next five years?

[00:47:22] DH: I think we will continue to see a massive influx of enterprises and professional software development into open source spaces, because open source more and more becomes the underlying infrastructure for most everything that companies build. The more that happens, the more this interaction between all of these open source components drives innovation higher up the stack and the more this line moves up, the more we will see global corporation between a log of typically competing companies.

The classic example is if you had told anyone in in the Linux community 15 years ago, or in 2004, that Microsoft would be one of the top five contributors to open source or depending how you measure. Maybe the number one contributed to open source. Everyone would've laughed at you.

So I think we will continue to see the large software companies more and more engaging open-source and more and more contribute and evolve open source as we know it. I think that will be really the defining change over the next five years.

[00:48:37] JM: Dirk Hohndel, thank you for coming on Software Engineering Daily. It’s been great talking.

[00:48:40] DH: Thanks for having me, Jeff.

[END OF INTERVIEW]

[00:48:51] JM: Software Engineering Daily reaches 30,000 engineers every week day, and 250,000 engineers every month. If you'd like to sponsor Software Engineering Daily, send us an email, sponsor@softwareengineeringdaily.com. Reaching developers and technical audiences is not easy, and we've spent the last four years developing a trusted relationship with our audience. We don't accept every advertiser, because we work closely with our advertisers and we make sure that the product is something that can be useful to our listeners. Developers are always looking to save time and money, and developers are happy to purchase products that fulfill this goal.

You can send us an email at sponsor@softwareengineering.com even if you're just curious about sponsorships. You can feel free to send us an email with a variety of sponsorship packages and options.

Thanks for listening.

[END]