EPISODE 1121

[INTRODUCTION]

[00:00:00]JM: As software permeates our lives, there are increased number of situations where the legal system must be designed to account for that software. Whether the issues are open source licensing, cryptocurrencies, or worker classifications, software overlaps heavily with the law. Just as software is crafted by engineers, the legal structure around software is crafted by lawyer. There are large law firms that have built their business by knowing how to navigate these software and business question.

Mark Radcliffe is a lawyer who has been working with software companies for decades. He joins the show to talk about the interaction of software and the law, which we discussed from multiple points of view.

We are looking for a writer who can help with preparation and research. And if you are interested, you can send me an email, jeff@softwareengineeringdaily.com. Also, I am investing in software companies. If you're building a software company and you think it's interesting, then send me an email, jeff@softwareengineeringdaily.com.

[SPONSOR MESSAGE]

[00:01:06] JM: As your infrastructure grows, you have SSH host and Kubernetes clusters in staging, production and maybe even on edge locations and smart devices. You want to implement the best practices to access them all, and that can be time consuming. Security tools can get in the way of engineering work. Well, there is a tool called Teleport. It's open source software. It's written in Go. It's a drop-in replacement for open SSH. It also has native support for Kubernetes. It's built by Gravitational.

Teleport provides identity-aware access using short-lived certificates with SSO, session recording and other features, and it ensures compliance and audit requirements. Teleport also prioritizes developer and convenience, because it's built by engineers for engineers. You can give it a try going by going to try.gravitational.com/sed. There are links to downloads,

documentations, and a GitHub repository. That's try.gravitational.com/sed to try out Teleport from Gravitational.

Thanks to Gravitational for being a sponsor. And again, if you want to try it out, you go to try.gravitational.com/sed.

[INTERVIEW]

[00:02:23] JM: Mark Radcliffe, welcome to the show.

[00:02:26] MR: Thank you very much.

[00:02:27] JM: You are a lawyer. You have significant experience in open source, cryptocurrencies, cloud computing, a lot of different things. And I like to explore a lot of those different aspects. But one I'd like to start of is back in time, so which is during the 90s, you've been in the software industry for a while. And I'd like to get your reflections on the Microsoft legal proceedings of the 90s. Because I think this was one of the earliest cases of the law colliding with the software world. What are your reflections on the Microsoft legal proceedings of the 90s?

[00:03:02] MR: Well, sadly, that is something – We represent Microsoft now. So that's not something I can really address. But what I can do is give you a little bit of insight into how software made its way into the legal business and actually caused the change in the structure of the legal business, which might be of interest to your listeners.

[00:03:23] JM: Sure, go ahead.

[00:03:25] MR: Yeah. So I actually started practicing in 1982, and at that time there was a clear division between law firms. There are what are called corporate law firms, and then there were what are called PTC law firms, or patent, trademark and copyright law firms. And the corporate law firms kept with their lane, which was corporate law and all things related to corporations, litigation, etc. And the PTC firms did all the pattern trademark and copyright work. So they did

advising. They did licensing. They did litigation. And the corporate firms [inaudible 00:04:00] Harrison, which sadly is now no longer around, didn't do any of that.

But software licensing changed all that, because in the world at that time, if you had a problem involving intellectual property, you sent it over to [inaudible 00:04:16], very well-known names of law firms in San Francisco. But when we sent them software licensing, they weren't interested. As a matter of fact, PTC firms were really patent firms who would do trademarks and copyrights as a combination, but really wanted to do patent work.

When we couldn't send this work to them, and this is the early 80s, and people didn't know how to license software. Was it protected by copyright? There are people [inaudible 00:04:50] protected by patent. It was subject to something called article 2 of the [inaudible 00:04:55] commercial code. All these things were new issues, and they simply weren't interested in doing it. And so that ended up being with the general practice law firms, the corporate law firms.

In order to do that, they need to learn about patents. They need to learn about copyrights. They need to learn about trademarks and they said, "Wow! This stuff – We can learn this stuff." And so that began what eventually became a tidal wave of integration of these intellectual property law firms with general firms, like [inaudible 00:05:35] Harrison.

Essentially, the entire structure of the legal industry has changed. There are very few PTC firms left. Some of these firms were over 140 years old. They worked for Thomas Edison. But [inaudible 00:05:51], for example, major New York firm, no longer. [inaudible 00:05:57], we ended up taking most of those people. And no longer around. Townsend and Townsend merged with the general practice firm.

So software was sort of the first stuck in that journey. It completely reorganized the legal industry, where now major intellectual property matters are handled in large law firms. And the specialist firms, there are some specialist firms left. Some of them do only patents. Some do patent and trademark. But my firm now has the largest trademark practice in the world with over 60,000 marks under management. So that is a big shift, and it all came about because of software licensing in the early 80s.

[00:06:46] JM: Do you have any other examples of how the generational changes in the software industry have affected the structure of law firms?

[00:06:58] MR: Well, yes, because law firms now – Like virtually all professional service firms, and frankly all companies are essentially software firms. So Marc Andreessen said softwares in world. That's absolutely correct. And as we'll discuss in more detail, open source software is hitting software. So open source software therefore eating the world. But as a practical matter, software has affected industries across the board. And, really, software and your infrastructure is now in a critical competitive advantage for virtually everybody. Everybody, from insurance companies, and banks, to manufacturing companies.

So it's not just the technology firms that are concerned about software. It's essentially everybody. And they need to be. And frankly, technology, starting with software, is frequently a core competitive advantage for companies, even in industries outside of technology. But that's also frankly enabled competitors come up without the legacy software infrastructure and be very effective. So you have the new banks, all online banks. Or you have insurance companies, like Lemonade, that just went public

So software has had a fundamental effect on the structure, I would say a business as a whole. And I think blockchain is on the cusp – I say cusp. I should say near to medium term of having a similar effect, because it is applicable to all types of companies. It's kind of changed the way in which people do business.

I mean, just take a look at the rise of ecommerce and the shrinkage of traditional all retail. I mean, that was all really driven by software. And so I think that the pandemic we're having right now is accelerating that as more and more people work from home. So the question is are people going to go back to their offices?

But it's software, just like Zoom, like we're using, which has enabled people to do this. I mean, if you take a look in the past, you couldn't have made this shift. I mean, my law firm went from 250 people working remote to 3600 in a 36-hour period. So software has had a fundamental effect on reordering your business and driving new competition, i would say.

[00:09:53] JM: Can you say more about how cryptocurrency technology specifically has had an impact on law firms?

[00:10:03] MR: Let me be careful and say blockchain, not cryptocurrency. Because cryptocurrency is a subset of blockchain, and it's still a subset that has practically limited use cases. But blockchain itself as a technology – And people should remind themselves this is not quite as new as people believe. All the technologies that makeup blockchain have been around for a while. The combination is what makes it truly powerful.

But let me give you some examples of how blockchain is going to affect [inaudible 00:10:42]. Then we'll talk about how law firms get involved in that. So I have a client called Velocity Networks. They've launched. They intend to use blockchain to completely reconfigure the way people maintain records of their work history, as well as how people hire people. Because right now, that's system is very broken where everybody that interviews somebody has to go and call all the references, call the university they went to and things like that, because there is no single source of truth. That's where blockchain can be very powerful.

And their concept, you can take a look at them on the web, is to you essentially bring together the universities who provide the credentials. Other people who provide credentials. The companies that are hiring people. The companies that enable hiring, and the companies to do the background checks and put them all on a single blockchain so you're not constantly reinventing the wheel. And that's something that could not be done with current technology.

I have another client who is putting together a blockchain for trading certain types of commodities in the oil business. And you've got a bunch of these competitors all sitting around the table, because it's going to make the transactions much more efficient. But cryptocurrency itself, Bitcoin – Now, Bitcoin is very interesting as a store of value. But I don't think it's going to replace regular currencies. We're just really at the beginning where cryptocurrencies will have an effect. People have been talking about stable coins. They're being used right now though primarily in the crypto environment.

But I do think – The PRC has announced that they're going to have a [inaudible 00:12:45]. I think we're going to see a move by the central banks to digital currencies. I'm not sure if you'd

call that a cryptocurrency, but it's digital. I was involved by one of the investors for Libra. Took a look at that. They ended up dropping out.

Libra was a very interesting project. Not entirely well thought through. Particularly, the reaction of the regulators was rather harsh, and I think they were surprised by that. But the net of it is, yeah, it offers an entirely new way of doing business. For example, there is a type of insurance that is based not on damages, but is based on the occurrence of certain factors. So let's say you have a hurricane insurance that says, "You get to pay a certain amount of money if there are hundred-mile winds around your building. Well, yeah, you can use smart contracts to completely automate. You have to have an Oracle to tell you what the winds are [inaudible 00:13:55] trust. But you can automate the payment of that. And you can also automate – I know the insurance industry is looking at automating payments on basically car accidents.

So if you think about it, I don't have the exact numbers, but let's say there are 20 major insurance companies that have car insurance. They are consciously either receiving money or paying money to the other people in that group of 20. If you could use blockchain to consolidate all those payments, maybe make one balancing payment between each of the members of that group in one time, that would be very powerful and a dramatically increased efficiencies.

One of the big insurance companies, Asa, said that they – Internal payments within their company, one of them basically generated 2,000 thousand emails followed up. So if you had blockchain internally, that could be a major way of saving money. Once again, even if all you're doing is just using internally Axa to track payments between different subsidiaries.

So I think that blockchain has the potential to be across all industries. Talk about, for example, I got involved with an effort to set up a marketplace for used airline parts. Sometimes you learn things you don't really want to now, and this is a case. There's apparently a very lucrative and very troubling trade in counterfeit airline parts. Most airline parks come with elaborate documentation about their provenance. Where they were used? How long they're used? How long they're serviced? Everything else. But there's also sort of a gray market out there, particularly in some of the poorer countries where things aren't as well documented.

Well, blockchain could provide a solution to that problem and give people a lot more confidence that the yeah the part you're getting is actually a real part. And it also enables it to open up other business models. One of the other problems for airline parts is with 3D printing, parts don't naturally come from a factory. It could be 3D printed on site. And so how do you control that? How do you make sure you know that that 3D printed part is actually a real part, not a counterfeit?

So there's a lot of situations in which blockchain can be used in the context of the supply chain to make it much more efficient as well as to reduce the amount of fraud. That's also true in a food supply chain. For example, there was a contaminated lettuce about a year and a half ago, and it came from a particular farm in your particular county in Arizona. That county has lots of farms and lots of lettuce packaging facilities. So eventually everything that came from that county for like a two-week period was taken off the shelf and thrown out. So there's like I think $4 million dollars' worth of lettuce was thrown out.

Yet, if the lettuce had been tracked, and as people may know, Walmart is demanding that leafy vegetables be tracked on a blockchain. They put together the IBM. Then you can dramatically reduce that sort of wastage. So I think blockchain has an enormous amount of use cases. We got a little bit diverted in 2017 into initial coin offerings. But I'm seeing a lot more major enterprises getting interested in blockchain applications ever since.

[SPONSOR MESSAGE]

[00:18:11] JM: If you are a retailer, a big sales day like Cyber Monday can make or break your business. If you sell accounting software, the tax deadline day is like your Super Bowl. And if you're a sports broadcaster, then the Super Bowl is your Super Bowl. Every company has days or seasons that are more critical than the rest. If your systems are ready for the moments that matter most to you, then you're going to be doing much better. And that's the theme of this year's Chaos Conf, the world's largest chaos engineering conference. Chaos Conf is a free online conference taking place on October 6th through 8th, and you can register at chaosconf.io.

Ever since the first Chaos Conf in 2018, the objective has been to create a community around resilience and SRE best practices. Attendees range from having a decade of experience to

those who are totally new to chaos engineer. And this year's keynote speakers are Gene Kim, and has been a guest on the show several times; and Adrian Cockroft, who's the VP of cloud architecture strategy at AWS. There will be 20 sessions for all experienced levels focusing on the practice of reliability, completing the DevOps loop and how to build a data-driven culture of reliability. You can register for free at chaosconf.io and the first 1,000 registrants will receive a limited edition swag pack. Claim yours at chaosconf.io and be prepared for the moments that matter.

[INTERVIEW CONTINUED]

[00:19:41] JM: What was the fallout from the 2017, 2018 bubble? How that crypto bubble affect where we are today?

[00:19:51] MR: Well, it means that a lot of security slurs for making a lot of money defending it. In the case of the kin/kick, the company has said they've spend $5 million defending the offer. There're a lot of people who've chosen not to do that and have just folded up their [inaudible 00:20:10] and give the money back to the investors.

So, basically, this was a delusion of people. I mean, lobbying we actually – My law firm formed called an ICO committee, because we are getting bombarded from all directions by people who wanted to do it, basically do an ICO the next day or within a week. And many of these people didn't understand that they are likely to be securities didn't hear if they wanted to be securities. So we were very selective in the matters took on. And so we've gotten involved in trying to fix problems, but happily I don't think any of our clients got hit with that.

So the fallout has been – first fall, I think a real big black eye for tokens and blockchain technology. I mean, throughout most of 2018, certainly 2019, you couldn't really say there were blockchain for large enterprise, because they assume that you are a scammer trying to sell bunch of tokens go lambo. So that's one result, the possibility of actually using tokens as a funding device I think has been dramatically decreased, because nobody wants to touch the ICO. And the SEC went from being open to the idea to viewing all token. I think the chairman of the SEC said every token – Every ICO I've seen is a security.

So I think it created a lot of headaches for people who want to integrate the technology into the financial system, it sort of darkened the reputation of the technology. I think we're pretty much coming out of that. But I think the hangover from that is going to continue. People are probably aware of the Telegram situation where they recently told they couldn't sell their tokens. And unfortunately told, and the decision came out in a way which makes structure that people had tried to use to avoid security law problems, something called a SAF construction, where you sell something called a simple agreement for future tokens to accredited investors. And then with the idea that you'll only sell tokens when that system is up and running and decentralized. And base the Telegram decision poured cold water overall that. And to be perfectly frank, Telegram itself made a number of errors and it's way too aggressive. But I think tokens as a financial incentive has been set back pretty dramatically, because of everything that happened.

[00:22:57] JM: Let's shift the subject to something else, which is cloud providers. And you and I have had one previous conversation. You had a lot to say about the legal risks and the legal ramifications of being a cloud provider. I think one area is the platform versus publisher realm. The question of whether a cloud provider, which is the underlying medium of many of the online platforms and publishers these days can be classified as a publisher or a platform. What are the legal risks of being a cloud provider today?

[00:23:36] MR: Right now, the laws in a state of considerable amount of turmoil, okay? So if you're a cloud provider, particularly at the beginning of the cloud error, people were tagging you with potential liability for copyright infringement. So if you hosted a video of a Hollywood movie, you are liable for that. If you've hosted a picture of somebody, you could be liable for that too.

That was pretty much resolved through something called the Digital Millennium Copyright Act, would essentially gave a pure cloud service provider a lot of defenses against copyright infringement, okay? And so the major issue is if somebody sends you a notice saying I'm the copyright owner of this movie, take it down. And if you take it down, then you're not liable. That was a major shift in clarification of what people's liability is.

Then there was also liability for what people stayed on your platform. If somebody puts up an article that has are a bunch of lies. Is the platform liable for that? Because a publisher – This was in New York Times. Yeah, you'll be liable for it, although strong First Amendment

protections there. But the question is what about the cloud service – That, and something called the Cloud Decency Act was put in place to – Not cloud. The Computer Decency Act. Sorry. That essentially dramatically reduced the risk of people who publish things like Twitter. Being liable for the actual contents as long as they take appropriate steps.

That is now up to in the air, because there's a fight between the current administration of Twitter over Twitter marking some tweets as being potentially modified. There are also claims that Twitter has unfairly kicking people off the platform. And so there are people re-examining that safe harbor, I would say. But much of the Internet was built around that. And so if you few change, it's going to radically alter what gets put up on the Internet.

And then different countries have different approaches to that. So there are countries in Europe, for example, that say that if you have a link to a newspaper, if you do a short article and you link to a newspaper or maybe you just have a link with a headline with it, that's copyright infringement, and the cloud service provider is liable for that. That's also something that looks very much a work in progress and people are trying to come up with some rules about how you can do that, because the newspapers believe, I thing correctly, that many of the cloud service providers have severely damaged their business. So those rule are right now in flocks. So it's a little difficult to predict where they're going to go.

[00:27:08] JM: What was your reaction to the case of Cloudflare when Cloudflare took down the Daily Stormer, which is that pseudo-Nazism site?

[00:27:18] MR: Well, I think you have a right to do business to the people you want to do business with. Cloudflare is not a public utility, and I think the Daily Stormer was a pretty troubling site. So I think you got to have the freedom to now do – Unless you're a public utility, or unless there are rules regarding discrimination, for example, you can do business who you want with. I think the Internet is better off without the Daily Stormer, but that's my personal opinion.

[00:27:55] JM: You have significant experience in the domain of open source. What role does a lawyer have in the creation of an open source policy? Or more generally, what has been your experience engaging with open source technology? Open source companies?

[00:28:12] MR: So I've been in open source from a long time. I actually help server CRM develop the dual licensing, which is now called the open core model. I have been outside General Counsel, the open source initiative, which determines which licenses can be called open source. And I also work with a number of other foundations, like the Apache Software Foundation, the Linux Foundation, OpenStack Foundation. So I've been quite involved, and I helped Sun write the CVDL, which is a license alternative to the GPL V2.

So lawyers have a very important role in open source to essentially help people understand license. Understand what the responsibilities are. And in many cases, that role is up to doing an open source policy because a company, if it's going to be effective, really needs to have rules on how they're going comply with the licenses, because the licenses are sometimes opaque. Most of the licenses have not been through a court proceeding. So some of the ambiguities in it remain ambiguities. The scope of what is a derivative work. For example, in the GPL V2 remains an open issue.

So there are a lot of open issues and open source that can enable you – That require a lawyer to sort of tell you where you are on the risk scale. I don't think any – There were very few situations in open source where a lawyer can say, "Yes, absolutely. That's the way it is." But because the licenses deal with issues, which are not entirely settled in copyright law. And some of the licenses are somewhat difficult to understand or ambiguous.

The GPL V2, for example, uses a number of different terms for the idea of works that are based on it. So sometimes they used Derive, which is a contrary terms. Sometimes used based on sometimes even use the term of our derivative group out of the US copyright law. The derivative work doesn't have that many overseas. So it can be quite confusing if you're trying to understand what your obligations are.

[00:30:41] JM: Is legal action ever taken to enforce open source policies? Like if somebody is using open source software in a way that is not compliant with that policy?

[00:30:54] MR: To date, that has not happened. There've been actually very few cases involving open source software and interpreting the licenses. So nobody has really gotten to the policy

level yet. And policies are generally internal. So I'm sure they'd be legally enforceable by third parties. But for policies, frankly, policies need to have input from the programmers and the people on the ground. A policy written by a lawyer is going to be very problematic, because you're going to be very cautious, because many of the issues are uncertain. And its, frankly, my experience is that lawyer written policies are just not complied with. They just stick them in a drawer and don't use them.

So if you want to have a policy that's useful, then you got to work with the people in front, the programmers themselves, not even frankly the managers, but the programs themselves and understand what's realistic. So you can get adoption.

There is – And one of the reasons people recommend that is if there was ever a case about compliance with an open source license and if you had a policy and you violated your policy in the way in which you complied with the open source license, then you're in a much weaker position in court. So that's why the policy should – Well, first of all, policy should always reflect the real-world. But that's the particular reason why the policy should be reviewed, like people who are developers, so they can give you practical advice about what's going to work and what's not going to work.

[00:32:41] JM: What aspects of open source and open source have you changed your mind about over the recent years?

[00:32:48] MR: First of all, I'm a strong believer that an open source policy alone is not enough. You have to integrate into a system, which probably includes some level of scanning along the way. You've got to treat it as an ERP process, not a point in time. So processes, which basically say, "Okay, there is an open source checkpoint three days before parolees or doomed to failure?" Okay? Because at that point, you may have choices you've made, which would have been different if you could have – If you've known the problems at the tail end.

And so anybody who has set it up, you create the software, send it to legal. And three days later, or two weeks later, you can release it, is really playing with fire. So you've got to have a continual system of review. And part of that starts with we don't use GPL V3, for example. Some

people take between the consumer electronics products, where you need to make crypto, certain crypto keys available. It has installation information.

Most of the consumer electronics manufacturer now would simply say, “Well, we’re just not going to use GPL V3 software.” So you need to have sort of the rules of the road, because there are number of products like Bash that are now GPL V3 licensed, which are attractive. But they create an enormous compliance headaches for people. And then there may be other rules you have. For example, we don't want to use a [inaudible 00:34:35] public license, because it's a very difficult license to comply with, because it requires you to make available over a network of computers, but it must also modify the software. So if you're not tracking both of those issues, then it’s very difficult to have compliance with that.

That’s probably the most important change from my point of view. Plus, I'm encouraging people would take a look at the business purpose of choosing an open source license. For a long time, people choose the GPL V2, which is the first open source license, and you got to give the people who developed it a lot of credit. But it doesn't always fit modern business circumstances.

So the question is should you be looking at a copyleft license? Or should you be looking at a permissive license? If it’s a permissive license, do you care about patents? In which case the Apache license would be a natural choice. Being aware of the business purpose is very important, because you can create situations in which a license choice actually means that your product gets sidelined and nobody uses it.

If you're strong enough believer in, for example, a GPL V2, that’s maybe fine with you. But other people may want to get product use as much as possible, in which case a permissive license is probably more appropriate.

[00:36:12] JM: We talked, or I guess we sidelined the discussion of Microsoft a little bit earlier. My hope there was to touch on monopolies a little bit. But obviously, you can't talk in terms of Microsoft. That's it. I'm sure there are potential monopoly examples you could give or touch on in the software industry that are not clients. Can you give me – You don’t even have to talk about specific examples, but can you give me the condensed Mark Radcliffe thesis on monopolies within the software industry?

[00:36:46] MR: So I think that we're beginning to realize that the Internet did not do away with monopolies. I mean, I worked with a lot of startups. My team generally worked with 40 startups at any one time. And I'm very much a supporter of the Silicon Valley ecosystems for building new products. But I think what we've discovered over time is that in certain areas, and one of them is social media. I think you can mention Facebook there. They are not our client. It's become a winner take all game in a way that we certainly didn't anticipate, right?

And so I think that we need – Frankly, the Antitrust Laws has been sort of held in abeyance for a long time. Part of it was, I believe, the technology would solve all problems, and that even if you had a temporary monopoly, you couldn't – That would be a passing monopoly as people shifted to the next technology. I think people were re-examining that. Are there situations, rather, where the companies have such an enormous competitive advantage? A competitive advantage which they may be able to move into other arenas that it's appropriate to have them looked at from an Antitrust point of view?

I mean, coming back to Facebook. I think it'd be very difficult to imagine a competitive social media company. Now, of course, Facebook is moving towards cryptocurrencies. Libra, which suggested, wants to do transactions on its platform. So take a look at China and Tencent and Alibaba where they've been able to send their platforms. So I think that people are much more aware that technology is not the silver bullet for market dominance. In other words, it's not the silver bullet that will kill all your market-dominant firms. Instead, it could lead the market dominance. So I think that, pragmatically, we need to re-examine Antitrust.

And look, this is not something entirely new. AT&T was broken up from an antitrust point of view when people felt that they had too much power. Now, they've come back together, because competition has reemerged. But I do think that we need to re-examine the technology industry for an antitrust point of view, because we have discovered that people can be dominant. It's not – As I said, the technology is not a silver bullet.

[SPONSOR MESSAGE]

[00:39:41] JM: Open source tooling is generally preferable to closed source tooling, because with an open source tool, you're going to know what code is running. You're going to know what the community is saying about that code. And you're going to have flexibility. But scaling open source tools is not that easy. You're going to have to spend a lot of time managing and maintaining that open source software. And the alternative is to use closed-source software, which will be scalable, but you won't know exactly what code is running. And you won't have an easy migration path.

Logz.io is a scalable and fully-managed observability platform for monitoring, troubleshooting and security, and it's all based on open source tools like the ELK Stack and Grafana. Logz.io is open source software at the scale that you probably will need if you are a growing company. Sign up for logz.io today by going to logs.io/sedaily and you can get a free t-shirt. You can go to L-O-G-Z.io/sedaily, create an account for logz.io and make a dashboard. Once you make that dashboard, you will get a free logz.io T-shirt.

Thanks for listening to Software Engineering Daily, and I hope you check out logz.io. That's L-O-G-Z.io/sedaily.

[INTERVIEW CONTINUED]

[00:41:19] JM: Shift the conversation to market places. Gig economy platforms. I know there was this regulation recently around gig economy platforms. Are gig economy platforms legal in California today?

[00:41:33] MR: Well, they're certainly legal. The question is whether or not their drivers, their employees. But then this – Let's step up a minute and talk about the fact this has been a feature of software for a long time, and it enables business models and maybe even its use cases basically challenge the existing laws.

Let's give an example, copyright. As I mentioned earlier, in the early 80s, many people believe that copyright did not cover software, because copyright was for creative works. It was for things like paintings, or movies, or books. Well, the courts decided, "No. It covers software." So what has happened is copyright, which was frankly a rather sleepy area of the law totally focused on

your traditional creative industry is music, books, film, suddenly is invaded by software where it has a much bigger value than all those industries combined. And the principles of copyright law are being sort of bent in a way because of the way software works.

Software is very different from a movie. You could do a lot of things in a movie. Very few limits on what you can do. In software, you're constrained by the hardware you're running on. You're constrained by the software you use. So there are a lot more constraints in the way you implement software than there is in the way you would create a movie. And that's had a big effect on software.

So similarly, this whole issue of the Internet and – The Internet also post a lot of questions. We talked about earlier this whole Digital Millennium Copyright Act. Was the platform liable for the download? And obviously there were other cases, particularly involving the music industry were companies were found liable. But once again, raised issues that were really obscure about what's called contributory infringement. When is somebody who's aiding and assisting and infringer liable for that infringement? In the world before software, that would come up rarely. So there were cases involving, for example, there's a case involving a television station that had a CEO that was – They're were not paying the fees to the movie company. And so the question is was the CEO liable for that lack of payment? But this whole issue of contributory infringement could've come out and override it in different ways, except for the fact that Digital Millennium Copyright Act was put in place to make very clear about what the new rules the road would be.

So this whole question of are drivers, employees [inaudible 00:44:50] consultants is another example, although less directly connected that software, but how software enables businesses that challenge the current legal rules. The legal rules now are you're an employee or you're a consultant. That's pretty much it. But people who are drivers have characteristics of both.

Look, the rules that I just mention consultant, versus employee, they're not something got handed down by a tablet by the founders of the US. There are state rules to begin with, and there are rules that evolved over time as to when somebody is a consultant, when somebody is an employee. And as a consequence, this is yet a third category. So the question is how do you deal with that third category?

So yeah, I think this is an example of software enabling new business models that don't fit currently with the existing legal firm. And the question to that is, “Okay, now they pass the law faithfully saying that for the most part, drivers are employees.” But can the car companies adjust their model so that they’re no longer employees? Or do they even apply? The car companies have challenged the law as to whether or not it applies to them. As I said, this is another example of technology in general, but software-enabled technology enabling new business models. And the question is how do you deal with that under the current legal regimes?

[00:46:37] JM: Are there any other interesting questions that the gig economy platforms have opened up for you?

[00:46:45] MR: Not the gig economy, but I think the blockchain has raised an issue, which is important the entire software industry, which is who is liable for software errors? Okay? I'm sure that your listeners know that virtually every software program has errors. If you have a software program where you've got a direct relationship with the person who’s distributing it, like Windows, or Word, you have a contractual relationship that’s governed by contract and it’s pretty clear. All the liabilities are disclaimed as a practical matter. But those rules are fairly well-said.

The rules which are not well-said and which have been – Which blockchain has caused to get opened up is what's called tort liability. Okay? So tort liability is basically damages to the person or a property caused by the a third-party. A classical tort liability is an automobile company. They make an automobile. They thin out the fender. People get into an accident. They hit the gas tank and car is engulfed in flames, okay? And so the question, was that negligence the way the car was designed? That’s what important to do.

Well, think about a car now. A car is basically a rolling computer. So now let’s take a different analogy. So let’s say car manufacturer 20 years ago makes a brake, but he’s trying to save a little money on the brake pads. So it makes the brake pads very thin. That the brake pads. Somebody runs into somebody else. A person dies. Who’s liable? Well, maybe the car manufacturer, because the brake pads are made. But in the software world, think about how much in your car is software-enabled. We’ve seen this in the context of autonomous driving. But put autonomous driving aside. You don't even have to go there, right? You can simply say what

about just a regular car with a human driver and all of the software that goes into that car that potentially could affect the way the car operates.

And remember, this is not just software from a car manufacturer. You got the car manufacturer, tier 1 auto manufacturer. You got the people who put the sensors, and it's tenants constantly changing. So that's a very difficult situation and that's something that society needs to think about. And programmers need to think about too. Because in the blockchain space, there is a professor called Professor Walsh who suggested that developers on public blockchains should be considered fiduciaries of the use of those blockchains. That's a bad idea on a whole lot of levels. Fiduciary, by the way, is the highest duty imposed by law. So for example, a director of the company has a fiduciary duty to its stockholders. Similarly, an officer of the company has a fiduciary duty to stockholder.

So the ideas that are being flooding around for this problem I think would be immensely damaging to software developers as a whole, because, theoretically, the risk here is that if you make a change to the Ethereum blockchain and causes somebody to lose property. Maybe they lose maybe their Bitcoin wallet does in operating, or their Ether wallet I guess. And Ethereum blockchain doesn't operate anymore, it's locked up. Are you liable to the person whose wallet got locked up?

So that would be a bad idea, I think. But I think that's one of the most difficult issues facing the software industry right now. And this type of tort liability is generally what is called court-made. In other words, the court see a situation and they try to solve it. And there's the famous case [inaudible 00:51:12] learned in law school about in the 1930s, many tugboats did not have radar. Okay? Radar was new. That is expensive. Basic, there's a collision out in the harbor and a court said, "Well, by not having radar, you were negligent, mister tugboat owner. And therefore, you're liable for this accident."

And so courts change the scope of liability on a regular basis, and unless the software industry starts thinking about this and proposes a solution, it can find itself in very difficult position because there's some old statement about bad cases make bad law, which basically says, "Courts want to do justice." So the question is how are you going to present the court with an

alternative for this very difficult problem rather than having it just impose some type of overreaching liability on all software developers?

[00:52:20] JM: Are there any other areas that you anticipate a lot of change coming to the legal system in the near future?

[00:52:28] MR: I think that the legal system is going to see a lot more people working remotely and courts working remotely simply because it is so efficient. Also, law firms like everybody else in this society are going to be much more dependent on software. And the problem with that, and it's true of sort of all service organizations, everything from accountants to management consultants, which is let's say a certain task takes you 10 hours. Okay, you go out and buy software. For example, we have a program called Kira, which is an artificial intelligence program which essentially reads contracts in large M&A deal and tells you that you've got four provisions you're looking at. Maybe you're looking at the warranty. Maybe you're looking at the limitation of liability. You're looking at the choice of law and you're looking at the assigned ramifications. And it basically puts all that together for you on a chart.

In the past, you would've had a bunch of junior lawyers go out and read all the contracts. So you've got – You're paying for Kira, and instead of taking you 10 hours. Now, it takes you 5 hours. See you've got a cost which reduces your profitability and you've got a – You have fewer hours for that task. So that is going to lead in a direction I think away from the billable hours. For those who are familiar with the law, most law firm operate on what's called billable hours. While hours, where a task – You may get an estimate, but you really don't know how much it's going to cost you until the end of the task, which reflects frankly some of the uncertainty about the legal matters. But I think that that law firms in the 50s didn't use billable hours. So may see – Have a return to a world of non-billable hours, except for certain things like litigation or stuff like that that's pretty difficult to predict. I think that.

And I think lawyers are going to become much greater consumers of software and services, which is also going to enable smaller law firms compete. It used to be that the large law firms had a very high- competitive advantage because they had a law library. And that law library – But in the small firms that didn't have access to those books had to go to the county law library. Well, now, we don't really have much of a library more. It's all online. And I can't remember the

last time I looked in a the physical book. But the point is that means that smaller organizations can get access to resources that they couldn't in the past. So I think you'll see a proliferation of smaller law firms because they'll have much higher capabilities.

[00:55:30] JM: All right. Well, that's' very promising for the entrepreneurial lawyers out there. Thanks for coming on the show, Mark. It's been great talking to you.

[00:55:38] MR: Great talking to you too.

[END OF INTERVIEW]

[00:55:48] JM: You probably do not enjoy searching for a job. Engineers don't like sacrificing their time to do phone screens, and we don't like doing whiteboard problems and working on tedious take home projects. Everyone knows the software hiring process is not perfect. But what's the alternative? Triplebyte is the alternative.

Triplebyte is a platform for finding a great software job faster. Triplebyte works with 400+ tech companies, including Dropbox, Adobe, Coursera and Cruise Automation. Triplebyte improves the hiring process by saving you time and fast-tracking you to final interviews. At triplebyte.com/sedaily, you can start your process by taking a quiz, and after the quiz you get interviewed by Triplebyte if you pass that quiz. If you pass that interview, you make it straight to multiple onsite interviews. If you take a job, you get an additional $1,000 signing bonus from Triplebyte because you use the link triplebyte.com/sedaily.

That $1,000 is nice, but you might be making much more since those multiple onsite interviews would put you in a great position to potentially get multiple offers, and then you could figure out what your salary actually should be. Triplebyte does not look at candidate's backgrounds, like resumes and where they've worked and where they went to school. Triplebyte only cares about whether someone can code. So I'm a huge fan of that aspect of their model. This means that they work with lots of people from nontraditional and unusual backgrounds.

To get started, just go to triplebyte.com/sedaily and take a quiz to get started. There's very little risk and you might find yourself in a great position getting multiple onsite interviews from just one quiz and a Triplebyte interview. Go to triplebyte.com/sedaily to try it out.

Thank you to Triplebyte.

[END]