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Interviewee: Jeff Moss

Interviewer: Bu Zhong

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## Abstract

Jeff Moss is the founder and creator of both the Black Hat Briefings and DEF CON, two of the most influential information security conferences in the world, attracting thousands of people from around the world to learn the latest in security technology from those researchers who create it. Prior to creating Black Hat Briefings, Jeff was a director at Secure Computing Corporation where he helped establish their Professional Services Department in the United States, Asia, and Australia. His primary work was security assessments of large multi-national corporations. Jeff has also worked for Ernst & Young, LLP in their Information System Security division. Because of this unique background Jeff is uniquely qualified with his ability to bridge the gap between the underground researcher community and law enforcement, between the worlds of pure research and the responsible application of disclosure.

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In the interview, Jeff Moss shared his early life in San Francisco where he was intrigued and enlightened by the rudimentary internet, as well as how the unplanned creation of DEF CON arised from a farewell party for a soon-be-gone bulletin board users, and also the rise and fall of its business version Black Hat. He also explained on the public misunderstanding about the hacker culture and what it was really about. He showed concern on the infringement of personal data and fragility of current internet ecosystem.

BZ: Um, so this is like a as you know, and it's like a, we call, OHI, oral history of internet. Ok, so what we do is not like and we like to keep your story there into and then like the next five hundred years. And people know who are those people Internet pioneers.

JM: Oh, okay.

BZ: Um, so we have a board and we we have a criteria who can be get into this and we share our footage with you know internet archives in San Francisco.

JM: Yeah.

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BZ: Um, also computer history museum in San Francisco too.

JM: Right.

BZ: So they're our partner too.

JM: So nothing better happened to San Francisco.

BZ: Okay, you're born there, is that right? (yeah), you're born and your dad is in the university of San Francisco.

JM: Yeah, he was now he's retired. But back then he was a professor at the University of San Francisco.

BZ: What's what what did he teach?

JM: He was a radiologist. So he's a practicing doctor, but as a professor you teach one day a week.

BZ: Okay

JM: So you teach the new doctors. Okay, or new radiologists.

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BZ: All right. So what we do is we like to know a little bit more about your personal story, and your thinking your your contribution to the internet there. So I'll start and then we'll see where we are. And then we this this will (okay).

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BZ: All right, I'm very honored and to sit down with Jeff Moss and to have a discussion about his contribution to the internet, but for for first fifty years, in Beijing, the first time and DEFCON comes out of the United States on right today is May 12th. So honored to to start from here. Uh, what I know is like, there's a lot of story about you. Um. You were born in California and ten year and ten years old. You got a computer from your dad, (right) So I, thank you for telling me on your father's professor in radiology, what did your mom do?

JM: Uh, she was an English teacher and also taught some Greek history. And so I was surrounded by someone who is very uh, precise on language. So I couldn't get away with saying things improperly. And so I think unconsciously later on, when the medium of communication switch to online, it it helped me. I didn't realize it at the time or I might have paid more attention to my mother.

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BZ: That's wonderful influence. So how's your dad's influence on you?

JM: So I think dad was maybe the, um, he thought the computers might be a big thing in the future. And they were offering, uh, IBM is offering a discount to professors and teachers. And so they thought, well, it's a lot of money on their salaries, but maybe it'll be something for the kids. And so my sister wasn't interested. Um, she went and is more interested in music. So quickly the computer moved into my room, and that was it. And then within a year or two, they started wondering, like mom maybe, he likes the computer TOO much. You know, maybe we should take it away. But same thing, they didn't realize that, that they gave me this opportunity that later on turn into a whole, you know, your career, profession or passion, um, just because they thought maybe it'll be a big thing one day.

BZ: Your sister is younger or older?

JM: She's older because she's also a professor, um, a marine biology. Ok, so I'm the only business person, only entrepreneur in the family, everybody else was academic.

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BZ: I heard like and at the very beginning the computer were targeting boy instead of like girls so end up to be boys and ....

JM: That's interesting. You know I grew up in the bay area and um, in our our junior high school had uh, RadioShack trs-80 computers and we had computer classes programming in BASIC. I'm trying to think if there were many girls in the class is when I was in junior high, not that many. And um, yeah that's an interesting

BZ: Some research were showing 1984 began suddenly those girls disappear (yeah, that's interesting) in country or not very friend to girls.

JM: That would make it probably influenced, you know, subconsciously my perceptions because it always was. So later on I was really active in local bulletin boards, in dial up modems in the online community before the internet. And those gatherings and meet ups were predominantly male, you know in yeah

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BZ: So can I see like in the you born in the right family and also grew up, you know, yeah, very wonderful

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JM: Yeah, I won the genetic lotto. I mean I was born to the right parents at the right time in the right place. Um, but then I uh, the other really lucky thing is I had a friend on the street that had a modem. He got a modem for Christmas. And with that modem in the bay area, we could dial up local bulletin boards. And once I realized, or once I go to his house and we turn on computer and he'd show me oh you can down his computer and you can have a conversation. On that time there was a conversation about rock and roll music.

So he's entering messages and talking back and forth with the grown up adults and we are maybe 13 years old. But we're having real conversations and he's like, they don't know how old I am. They don't know if I'm a boy or girl. They know nothing about me. And that started, my behavior, which was you judge someone on what they say, on how they behave, not what they look like, you don't know what they look like. They're on a modem. You know, there's no graphics. Um, so it was all about how well do you write and it just happens that my mother was this English teacher, so I could kind of write so I could pass for an adult.

So next thing, you know, I'm 13, 14 years old. And I'm not old enough to drive a car, not old enough to vote or drink alcohol. Um, and I'm having conversations with people in Russia, having conversations with people in south America, in Canada, all around the United States, and it just gave

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me, uh, made me feel like I was global, I was participating in a bigger community. And then I unplug and I'd be back in my little room, you know, to read a book and go to sleep. But then I plug in and then all of a sudden, they were my friends in Virginia and Mexico. It's just

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BZ: So you can enjoy a new identity, new status, not just a adult, sometimes as a professional. (Yeah), you know, got that kind of respect or or sometimes even glamour.

JM: Yeah, it was interesting too, because of course, as a young teenage boy, I tended toward the modern areas. Right? So I wanted to explore all a little dark reaches. In fact, then the dial up world wasn't that large. So there wasn't that much to explore. Um, but you couldn't afford a long distance back then, cost a lot of money.

So if you wanted to get out of your local calling area, your NPA, you had to make a long distance call, which was expensive. So you either had jobs and you pay for it legitimately. Or you figure out ways to trick the phone system into letting you make free or cheap long distance calls. So everybody was preoccupied on how to make free phone calls so they could get out to the bigger world. Yeah. So that was sort of my introduction to How did you make a long distance call and not go broke?



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And another part was, um, since there was no google, there's no index, there was no search engine. It was all about who you knew. So it's all about seeking and finding a teacher would teach you something that you didn't know. But there were more students looking for teachers than there are teachers. So it was almost like an interview where you had to find someone that you kind of personality you got along with. They knew something you wanted to learn and was willing to teach you. And then you were sort of expected to help somebody else out.

Um, and so it was a self-policing community, but you would spend probably more time searching the knowledge to find the knowledge than actually getting to using it. And so today's generation, you might spend a very small fraction of the time searching for the information and a large portion of time just acting on it internalize it. It's not how it was. You know, the major effort was get to the information,

BZ: And I've got to be in the network.

JM: Yeah. And to understand the network, who, how does it work? The manuals aren't available, the manuals aren't free, the computers aren't free, the networks aren't free, um, we're now it's the opposite, you know, open source revolution and everything is available. Question is, what are you going to do with it?

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BZ: Let me ask one question. I I sort of have longed in my mind is when I find it out like a Wikipedia on your birthday were showing like Jan 1<sup>st</sup>, 1975. That's correct?

JM: No, hm.

BZ: How it is? How it is? How that word get spread out.

JM: Um, in the internet, its best to have a lot of competing information. So somebody posted it and I never corrected it. (Ok). So somebody believes that's my birthday. That's fine. Good for them. I'm not gonna tell them they're wrong.

BZ: That's exactly what I'm doing. You know every January 1<sup>st</sup>. A lot of people say happy birthday to you. I said don't get a fool by that.

JM: Exactly. Every security person's birthday is January 1st.

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BZ: Exactly. Yeah, that's my birthday too. So that's why I'm asking here. Um. I'm very interested Thank you for telling me. You know, um your family you grow up there. I'd like to go back a little bit more like to the first computer IBM computer you got. Is that what's the age like ten or twelve?

JM: It was the IBM. It was just when the IBM PC II came out. So that was probably 1981 maybe. (Okay), eight gosh, I'd have to see, but it was right when the so the IBM PC I had 512k. PC II had 640. And that was when that was just the brand new model. And so and the school had earlier models, and I think because my friends had some computers and I and we didn't, they saw I was spending a lot of time in computer lab in with other friends and computer. So I think when they bought it, they knew I'd be interested. So it wasn't may be such a big gamble. But I probably started getting exposed to computers and um, in the bay area. There's the Lawrence Livermore labs. And there there's Exploratorium there. So on the weekends, we would go there, shoot model rockets, build little basic circuits. And that's where I think they saw my interest. So if we weren't maybe in the bay area at that time with a

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BZ: Even gave you a computer, right? (Yeah they have like in the middle of um, like the Midwest somewhere you don't have like that kind of community. (Yeah), you can turn on.

JM: Yeah. And if I remember, initially all the other people you were meeting were basically from mostly larger cities, where there was business and tech. And and you'd always find out like when you're making friends online, it was always kids of teachers, because the universities were the early or kids of business people that had enough, um, importance that a terminal at home or they were in university. You know out of university, old enough. If they were younger the teachers parents are, their parents were teachers. Um, and then as it grew, new waves, a new waves of people came on. And that's when I think, um, so many other perspectives, so many other you know, diverse opinion showed up, because now it was democratizing into the wider population.

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BZ: That's right. So sort of the computer or cyberspace is a big part of your childhood teenager. But you know

JM: The the internet only really came about for me probably that um, middle of college. Okay, you know, that's when it really started

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happening. Otherwise it was X25. Um, you know, telling that networks dial up Fido Net bulletin board networking. And then after the middle of college, you know, you could get online. And then after right for the end of college, it was just normal that you could figure out how to get your PC um, you had to buy a special piece of software to get TCP/IP on your Windows machine. I ran OS II back then. But um, once became common to be able to dial up, then it really grew. So in the early days, it was very basic dial up. And then once it's all switch to TCP/IP into UUCP that when that was the explosion.

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BZ: Right right? So you born in California. What what drive you sort of go to Spokane Washington.

JM: Oh, college.

BZ: Yeah, I know and Gonzaga university why you go there? You know, so I mean, you major in criminal justice.

JM: Yeah, but I didn't know what I was going to major in when I went to college. So, um, so I interviewed, you know, I went to several different

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colleges and I quickly realized I didn't like the really large colleges with the fraternity/sorority systems, because it reminded me too much of high school. And going to in the in school in California, junior high. It was, um, let's see, the football quarterback is selling drugs out of the locker. Okay? You know, your friends drinking alcohol, stealing it from their parents. Okay, so then you're like, it'll change when you're in high school. Ok, you get to high school, quarterback selling drugs out a locker. Your friends are going to drinking at lunch. Ok, this will change in college. The sports people are selling drugs. And it's like, I just want out of this. I've seen this movie too many times. And so, um, so when I got to a college, I picked one that was smaller, and it was it ended up being like literal arts.(religious) Yeah, not that. Well, its funny because I went to a couple other colleges that were religious, you know mandatory church. All this. I can't I can't do that, but in Gonzaga there wasn't a mandatory. Okay, yeah, you had to take some religious classes, so I can tell you about the Old Testament. But they it wasn't the same.

BZ: Um, and you left there.

JM: Yeah. And I think the judge was, well, I started the first underground newspaper the college ever had. So I had to mix things up.

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BZ: Do you remember its title?

JM: I'm I'm not gonna tell you the title. (Okay, yeah) but it was the first got me in a little bit of trouble with the school, because they, there're liberal arts and they have open ideas. But then soon as somebody else publishes a newspaper, they weren't quite sure, it never happened.

So intellectually part of them wanted to have the diversity. And the other half of the faculty didn't know what to do if the students started.

Nowadays, I'm sure there's fifty blogs about the school. But in the early days, I had a scanner, I, the the technology just reached the point where somebody could afford it. So I had a scanner, so I could scan pictures, had a laser printer. I could print the paper and copy machines. And next thing you know, welcome to digital era, anybody can be a publisher. Um, so that was a really fun, fun time.

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BZ: So you declare your major this freshman or sophomore,

JM: I think sophomore year. Yeah

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BZ: So you you sort of like a you will be in criminal (justice).

JM: I thought it was gonna be computers. I took a lot of computer classes. Um, but I started taking because they have mandatory course. And so I took a lot of sociology, psychology, and then it was the first year they've ever offered criminal justice. And at that time, I thought I wanted to be an FBI agent. So I wanted to go into law enforcement.

And so I figured, well, criminal justice will get me there, and and at that time if I had taken another class and I think psychology, I could have a psychology major, two more classes in sociology, sociology major. So it's it was basically a fusion of the two, um, and I so, it's interesting how one little, just like meeting the friend that had the modem change the course of my life. I applied to become an FBI agent. And they lost my paperwork. So I didn't there was no online form. I typed it all out on a typewriter.

So I typed it all out a second time. And now I'm trying to remember what what did I put on the form the first time? Is this a test? Are they gonna compare the two? Uh, so I type all the things, then send it in a second time. Then I get a call from the FBI agent, uh, special agent in charge of the Spokane area. And he says, uh, you know, Mr. Moss I see you applied, you know, tell me what's what's your vision? Well, I want to help people. And I, you know, I feel this thing, and I'm talking about no, no, your



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eyesight, what's your vision? I am like, Oh, okay, well, it's it's 20/20 one eye, and 20, you know, 30/60 uncorrected. So that's not good enough, sorry, click. oh, ok, then.

So I go back to Seattle and I I move on with my life. 5 years later. Um, my parents are having a Christmas party for the for the doctors um, from his. And one of the the doctors husband is FBI agent. So we were talking and I mentioned that I applied to be FBI, but I didn't have good enough eyesight. There's no requirement. He just didn't wanna do the paperwork. So because of the one lazy FBI agent that didn't want to do paperwork, my life went in a completely different direction.

So it's just, I quickly realized where we are in life doesn't have a lot to do with you know, your, It's not under your control.

18:14

BZ: Yeah, because there's so many different, you know directions here. So, uh, so all this kind of years here, your love to IT technology never waving seems to me

JM: I was a tinkerer. So I originally um, to copy games so you can share your friends games. Um, that's what got me interested in in what's now called reverse engineering bypassing the copy protection, uh, modifying

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your computer, because you don't have a lot of money. So you're gonna have to do the cheapest thing possible to modify it.

Um, so overclocking your CPU or changing a fan or something. But that made it familiar. The computer wasn't mysterious. I think just the familiarity with opening it up and moving things around. Later, when I took classes, you felt like this is approachable. It's not a mysterious thing.

Um, but I think I was always drawn more to the social aspects of it. So I operated a bulletin board that was the largest hub uh, for messaging on the west coast, in the United States actually, for a lot of for thirteen different networks.

Um, and had I had more money, I would have had a bigger bulletin board. Just did, you know, and also all my money went for my phone bill. So at one point, you know, here I am in high school with this huge phone bill. So I'm doing errands to to pay my bill where other people are saving their money for for other things. (Right right). And I realized that um, people would seek out my bulletin board to become a member because I actually moderated it and I only accepted in people that sort of would pass the test.

So you had to understand the hacking culture or the phone phreaking culture, or you had to know enough. You had to be this tall to get into my system. And because of that, other people wanted to join. Um, and then if anybody was insulting anybody, if they got in any big fights, I just kicked

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them off. Um, and so also that another reason people always want my bulletin board to become join their network because my users had such a good reputation that everybody wanted to get to my user. So they wanted me to network with them.

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BZ: Tell me a little more about this constant bulletin board. And you know I, we we won't tell me it's like it's like the today's Facebook group. You know join us and we share some

JM: Yeah different kind of, so imagine it. Um and there's many kinds of, probably a hundred different kinds of bulletin boards. So back then you would say well I'm running a V bulletin or I'm running uh a citadel or I'm running uh, uh you know I uh Telnet or know what was it called Telegard or there are all these different kinds of bulletin boards and some focused on interactive online games, some focused all about message room. So what would happen is you would create a room called sports. People could go into that room and they talk about sports. Then they might hit like the next key, and they go to the next room. (Right) But then they might go to a room. And then if you have the right access level, you might go up. And now you're in the private room.

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BZ: So sort of like yahoo chat room, Sort of

JM: yeah kind of chat, but it was um you know persistent, so you go back and you read all the messages that had happened since the last time you login, you could private message people. Um and then you could switch to file system, so you could upload and download programs.

Some bulletin boards allowed you to have different file systems per message room. Some was just a global, so some were all about file sharing. Some were all about talking and the good ones allowed the operator the bulletin board of the sys-op, system operator, allow the sys-op to customize. So I had years and years of customizing my bulletin board to be just the way the users wanted it the way I wanted it. And so if you ever lost that, um, configuration ultimately. That's what did me, and I had a hard drive fail.

If you remember back then, the backup tapes were very unreliable, my backup tapes fail. So that was it. I'm not gonna spend another three years rebuilding my system from scratch. So that's why my bulletin board systems died. I just had a double failure. Um, and so instead, the DEFCON became essentially a party for everybody I knew the bulletin board world, so to stay in touch with everybody. Um, at that time everybody was moving away from bulletin boards and moving toward

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IRC online. So IRC was sort of becoming the replacement for bulletin boards.

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BZ: How to how to spell it out IRC

JM: The internet relay chat. (Okay. Okay), so that was the online chat and there are many many chat groups and private chat groups. And so it's sort of replicated the bulletin boards but what you didn't get is you didn't get the controlled a community. So everybody lost their little community, in what return, they got one giant global community. (Right, right), um, which was exciting for a while.

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BZ: Um, so until this time, I did not ask a very big question. Are you a hacker?

JM: Yes, definitely.

BZ: Ok. But how do you define a hacker?

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JM: Well so since I grew up in the bay area, (right) Um, hackers built Silicon Valley. Um, I identify with the people who build technology, defined the technology, make computers do things they weren't supposed to do, and um, think it's 1984, Steven Levy wrote a book called Hackers. He profiled the very early pioneers in Silicon Valley. You know, the people who went on to do apple or Altair or um, some of the networking. And it was really just their their thought process in the values and how they think about this.

BZ: So how are hackers different from a geek?

JM: Well, geeks, It's interesting. So in China the, they use the word geek a lot to mean hacker. (Yes, that's right.) You know, security geek, right? Um, in the United States, um, hacking started off as a good thing and then criminals started committing crimes with computers. In the press instead of calling the criminal a computer criminal, call them, took a term from the community, hacker. And now all of a sudden hacker became a bad thing to the people who watch the news. But hacker was never a bad thing (at the beginning) to the people who are hackers, okay, It still meant the same thing to them. It's just that there's this new group, It's not part of their group. They took their term, and they're using it to describe computer criminals.

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(Ok.) Um. So as the community grew in the United States, people would say, oh, he's a really good hacker. And then somebody from the press would come along. And now you're a security professional. But really hacker really is like a mindset. Do you, are you not going to stop? Are you going to take apart the system? Or are you gonna understand every little thing and figure out how to patch it, um, which is different than maybe a professional who's to nine to five job. It's not their passion. They're gonna get do what's in the manual, but they're never gonna dig deeper. You know. And so it's really a, I'd like to think that if I wasn't born in the computer age, I would probably still have the same mentality. So I would have probably built airplanes or cars or early enough railroad, the phone system or you know something I would have taken the same mindset. And so all those people I think were hackers too, it's just now there computers. And so we call them hackers.

BZ: Are you trying trying to tell me like, and the public got a lot of biases against hackers? (Right) So they are usually say you guys breach some security system and expose something there, take advantage of the systems there, or sort of thing do not respect for copyrights, do not respect to software where sort of intellectual property. So how do you going to?

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JM: Well, so that's I think that's why it gets so confusing. You're trying to use one term which describes a skill set or a mindset when you're trying to apply it to maybe a moral system. They are different. So you can have computer criminals that are absolutely not hackers. They take a tool, they press the run button and they commit a crime. But they don't have the mindset of a real hacker. They don't understand what their tool is doing. They're just committing a crime with the tools they found.

Um, so I always try to encourage people say, just like you can have a good plumber, you can have a bad plumber, you can have a criminal plumber. We don't have a special word for the criminal plumber. We call them a criminal plumber. But for some reason in computing, we've taken the term hacker and applied it to criminal, which complicates the conversation between professionals and lay people. So um,

BZ: Thank you very much for clarifying this important term

JM: Ah, so you can get sucked into these terrible conversations. (That's good). You know, in in originally the whole ethos, um, came from the, like the ham radio ethos, um, which is uh, look but don't touch.

So it was always you could explore the computer, but you don't touch the computer, you'll modify it computer, because this is how it was with the radios. I could overhear a conversation. Um, you might be saying, I'm



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going to the bank. I'll see you later. So I know your house is empty. But if I go and I rob your house, It's an additional crime because I acted on information I learn, right? I can listen, but I can't act. I can look, but I can't touch. Um, and even with copyright, um, up until ah, maybe I was sixteen, fifteen years old. There's no software copyright. You could copy games could copy everything you wanted. The rule was you can't make money on it. So I couldn't take your work and turn around and sell it for money, but I could take your working, copy it and use it. Now, I might not get customer support. I might not get a license, but it's not illegal, until one person, ah, forget the name of the legal case. They did it on such a large scale. They took all the software they could find, and they gave it away to everybody that wanted it. And it was such a large scale. They the the software company argued that that's not personal use. That's like sort of industrial

BZ: or later on Napster, no,

JM: right? And so on. So that, because of that ruling, later on, the same thing happened with Napster, and that created the trend. And that's why we have the copyright we have today, says one guy tried to make, you know, gave it away and tried to make money of it. You had to pay money

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to join his bulletin board, But the software is free. And so they have ruled that, know that you're really reselling somebody's work.

BZ: So how did today's question is very naturally is about to your DEFCON Um, some people said, and you know, you simply find the keyboards like a DEF and you got, they're all is that right?

JM: Or did you, oh how he got to that keyboard, there was a history in it. It's a weird history of the name. Um, I I was searching for a name of of a conference, and at that time, DEF CON was the first um, open hacking conference. Everything else was invitation only.

So you had to know somebody who get an invite to go to a hacking conference. And back then they all had really fun names. So, um, during the summer there was SummerCon, and during Christmas there was HOHOCON. And during uh, Halloween there was PUMPCON. So everything sort of had a tied to a season. And um, and I wanted something that didn't have a tie to a season, and we're on the west coast. And most of all the other cons were on the east coast, or there's one in Texas.

So I wanted to be sort of neutral. And um, and so we were searching for it had to be something con. And I was at that time I was rooming with a friend who was a music producer. And he was doing a lot of hip hop

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music and rap. And and also of course, my favorite movie was uh, war games. And we were debating also right, number. the number three key on the telephone is DEF. And so and I was a big phone freak a in the early days for the trying to get the free phone calls. And so you had the def key for phones.

And then in the movie war games, it brought that term for def con. That was a big thing about nuclear war in readiness. And and I remember we were trying to explain to these rappers what we were doing, because we were kind of doing our underground thing, and the rappers as they're doing their own underground message and stories and songs. And so we're like so you guys are gonna get together and talk about how to hack into computers. It's like, oh, that sounds totally def. That sounds like the def con.

It's like def Con. def has a term in in the hip hop. right meaning really cool def. And then I was like def con war games, D E F number three on the phone, just all came together. It's like that's the name. It was part of an offhand comment from this one artist, my friend that was standing next to me, that said, that's the number three key on the phone. That's from the movie war games. And it just all happened. And then it also turned out that the character in war games is from Seattle.

And the location they choose to nuke is Las Vegas. And that's where we held DEF con. So just I would like to say that all this was a master plan.

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(Yeah) But it's not, so many things in life are being in the right place at the right time and just taking advantage of it.

BZ: So you are in, you're in college

JM: No, I was out of college.

BZ: But you have a roommate?

JM: Yeah, yeah, because you

BZ: So where was that? That's in?

JM: Seattle. Yeah, and so that was when my bulletin board died and us getting a party ready. And so we were trying to figure out where and I'd never been to Las Vegas. And I figure it's gonna take all the money I had saved.

Um, I had uh, had to borrow some money from some friends. And so if I did the con and it failed, I figured, well, I'll be broke. But it's not that much money. And I'll be in Las Vegas. So I'll sit by the pool because I've never been in Las Vegas. So I'll sit by the pool, have a drink, come home and start over. (That's right.) You know, but it worked.

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32:49

BZ: So how you let other people know, you don't have the, um, you know that kind of bulletin board,

JM: Right Well, so I still had all my other accounts and other bulletin board okay, so you'd spread the word on bulletin boards, but at that time the internet was, so we would go to all the different uh IRC channels and promoted it, and the news net was a big thing. So you know **COMP SCI** computer security, all security all information security, all, you know firewalls, all the privacy. And so every one of these groups, we would also announce. We would fax newspaper, we fax the FBI, we fax the secret service. We we just got the message out to um, little small libraries and small uh, bookstores. And we just did whatever we could. I took advertisements out in little underground magazines like twenty six hundred. (Wow), just try to get the word out.

BZ: Yeah, so that's 1993. The first time you go to the Las Vegas, and then you have the conference there. How many people attended?

JM: We had maybe about a hundred,

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BZ: About a hundred? (Yeah). You know, we're show up from different corner

JM: all over. Yeah,

BZ: All over the US,

JM: All over the US ok. Um, a lot obviously, from the west coast. (Ok).

Um. But yeah, we have people from New York

BZ: Could possibly a lot of them because of your fame in the

JM: Nobody... Well, so the people who knew me from the bulletin board.

(Yes) world that was maybe twenty or thirty. Okay. Um, and then the rest were new people or or friends of friends. And so uh, I made friends with an attorney that was an entertainment attorney at Capitol Records.

So when I went to law school, um, because my friend there, I ended up being an intern in the legal department, the Capitol Records, um, another friend, Jennifer Grannick. She went on to be a very famous lawyer, um, defending, um, people accused of computer crimes. She went to EFF, Stanford , ACLU um, and there were people that for some reason, just came up to the very first DEFCON and what happened is we created a

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community of artists, uh, and hackers and security people, um, we invited, uh, so that my point of the first DEFCON was, there's so much misinformation.

Things never change. There's a lot of misinformation today. There was so much misinformation then. So there's all these rumors about what was legal and what was illegal online. So I thought, well, I'll just get a prosecutor. The most famous computer prosecutor at the time was **Gail Fakhoury** . She just prosecuted a bunch of people for running um, operation, Sun devil was the name of the operation, for a bunch of people for operating pirate bulletin boards, because of that ruling now the piracy was illegal. And so she accepted. So she came to the very first DEFCON. Um, it just so happens in the room is one of the people she's prosecuting. And so so there's, there's the prosecutor, there's the person. And um, and also we all wanted jobs in computer security. I mean that was what we we thought would be so cool. And so our hero, that we all look up to was this guy named Dan Farmer, Dan worked at Sun Microsystems and he was a computer security guy at Sun Microsystems. And in that point, Sun was the internet. They were building all the systems that were and so he had the coolest job.

So Dan came and talked about what it's like doing information security in the internet connected company. And he was saying it's too hard now to protect each system individually, It's too hard for him to check manually.

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So he's writing all these scripts, and he's thinking that he is going to build an automated system that will let him scan the whole enterprise and visualize what's going on. So maybe he'll call it his tool a security automated testing, maybe it'll be called SATAN. Um, and he wrote the tool and it got him on the cover of Time magazine the next year, but we got to hear about it first, just like we got to hear from the prosecutor first. And so pretty soon the whole purpose was partially a party, partially meet people you only knew online, um, and then the other one, it was hear from the experts, right? Get rid of all the confusion, all the misinformation, um, as it turned out to be the winning formula.

37:17

BZ: Wow. So that first conference is like everybody need to register first with you before they attend there.

JM: No, no. It's just come cash at the door

BZ: Cash at the door and then do I pay a registration fee and to join you guys?



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JM: Yeah, it was I think we as like twenty dollars or twenty or forty dollars the first year

BZ: Covered a coffee or something.

JM: Yeah. And then I had a, I had some T-shirts I made, and and we had this one room is probably maybe a little bigger than this room, and we had it for 24 hours, a day, and so some people slept in the room, because it just managed only had enough money to get to Las Vegas and so we come in the next morning and you lift up the table and there's like two people sleeping under the table. What are you, what are you doing?

BZ: And the different ages, I guess. (Yeah), yeah, a lot of young people.

JM: And um, and it was a lot of people didn't know what you're doing, what you're talking about. It was so mysterious that they didn't know to be frightened. They didn't need know to be impressed. It was just something different. And so I I think of it a lot of like, um, imagining you were living in the bay area during the cultural revolution, rock and roll. So you're playing music in on, you know, hit street or whatever you're, you have your fans, you're uh like a local celebrity.

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And then all of a sudden, these record executives fly in and they say, we want to take your music to the world. And the next thing, you know, you're playing in London, and you're playing in Paris, and playing in Germany, and now you're on global rock star. Well, okay, now it's your job, right now, it's your profession. And so what happened is as the internet grew, these people that we were together because we loved the technology and we are passion about it, all of a sudden to your job. So you have to be professionally creative. You have to do this day in, day out on the clock. And some people can do that. And some people are like, no, this is my hobby. This is not my profession. And that was like the first big, when money entered the equation. That was the first disruption. You know, that really changed the nature of the community.

BZ: So that actually spread the word out. So sort of you began to do annually in Las Vegas.

JM: Yeah, the first year, I don't think I ever thought of doing it a second year. Um.

BZ: You're thinking about you could go bankrupt.

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JM: Well I just thought like, hey was it was meant to be a party, going away party for my, but then somebody said that was great. When are you doing it again? Right? And then I thought okay, I can do it. I can improve it and every year is always, you make mistakes, and then you always think you're gonna make it better the next year.

BZ: So that's like exactly you know when you are 17 years old. Your friends just, you know dad bring him go out, so you're trying to throw a party for him. Yeah. And that like nobody showed up you get the idea. So that's true of something there.

JM: Oh if the way for the very first (yeah yeah yeah), so so one of the board I was talking earlier about how I operated this big bulletin board hub, many networks, Well one of those networks is called platinum net and that was run by a guy. Uh I guess a kid we were all kids up in Canada, and his father was taking a job or transfer his job um, out of the country somewhere else. So he had to shut down platinum. And and so I was the biggest, I had the most users for platinum net, even though

BZ: platinum?

JM: it's platinum like the metal

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BZ: okay okay

JM: And it was a pretty good network. Um, and uh, so he said, well, all your all the all the platinum users are in the United States, and you're the biggest hub, so we should throw a going away party for platinum net.

Sounds like a good idea because it's going to be too hard for all these kids to get to Canada, because the passport. Nobody has them. But if if it's just you coming down and we just do the rest in the states, we can get a lot of these people. So where should we do it? And he's like, well, I don't know, but it should be a city that's easy to get to. So we started looking around and I had been to a hacking conference um, in Texas **abinda**. And when the lights went out was five six o'clock at night when, you know when the work day was over, um, and the city shut down, the hackers would crazy, you know, a whole bunch of bored kids and they would cause total chaos. And so it's like, okay, we need a city that's like a 24 hour city. We need like a San Francisco, we need Las Vegas. We need New York. It's got to be someplace with enough distractions that if they get bored with what we're doing, they go somewhere else and burn something else down. Not not our hotel. Yeah, you think Im joking, One place, they lit the garbage can on fire. Um, so uh, we pick I was thinking Las Vegas. And then next time I go to message him, he's down, bulletin board is gone.

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I know him going away. He will moving sooner. It's not happening in three months. It's happening tomorrow, just disappeared and never heard from him again. And so just as we're starting to plan it, he disappeared. So that's when I thought, well, I've already got it in my head. I'm already thinking about this, planning it. We didn't have the name yet, but we just we're starting to plan the idea of a party. So that's what I'll just invite everybody from all the different bulletin boards. And then if I'm inviting them, I may as well invite this new groups I found on the internet on IRC, if I'm doing that I may as well invite people on you know, **use net**. And if I'm doing that and it just, and then I realized, well, law enforcement is probably going to be interested, FBI or secret service or something. Um, so I may as well invite them.

And I, so I I sent them the fax telling them, hey, this is what we're doing. Didn't hear Back. conference is getting closer. Sent them another fax . Uh, hey, I just want to make sure everything is okay. Didn't hear back. So finally, I call up the secret service field office in Las Vegas. Um, hey, yeah, my name's uh, Jeff Moss, were throwing this party. Oh, let me transfer you, transfer me to that agent. Hey, you know just wanna make sure you're good, You know, throw this party, want to know if you're coming. We call these hackers, what we were doing. We are aware of your activities. Oh, good. So you're coming, like like, no no no, we can't we can't come. That's a policy thing. You need to get somebody from like

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a policy department, like the white house. We're just enforcement. So we can't talk, you know, we can't come and talk to your conference, like, oh, okay, well, you know, maybe it'll work out in the future. While they sent an undercover secret service agent that first year. So the conference is over, everything's done. And and this one guy comes up to me, shows me his secret service badge, like this is really fun, but I can't, you know, be identified.

I'm like, no, no, that's I I get it. So that's why we ended up starting the spot the fed contest. So try to spot, because we know you're here. So we're going to find you. And if we find you will give you a T-shirt. And so that became so popular that um, the feds started identifying other feds to try to get their buddies caught on them not caught. And so that the building of community right where we didn't, we didn't try to kick them out. We didn't ostracize them. We turn it into something fun.

Um, and I think that's another reason why DEFCON turn into this like neutral territory, where people can come and talk, uh, uh, and it's not adversarial, and the same thing. I'd like to say that was a master strategy, but

BZ: Is that one of the first, you know this type of conference is not invitation only. You know when people can talk freely, you know we can spot you know you can hide your identity even keep them privacy.

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JM: That was the first one I know of. And there are other conferences, maybe in other areas, other fields, but at that point, it was all invite only

45:24

BZ: That's very unattractive

JM: Yeah underground. And so so that the people would say oh DEF CON is not, you know, very good, because not the most elite people are there, because they're going to the invite only ones with all their other invite only friends.

It's like, that's fine. I'm really interested in learning from other people, right? You don't have a prosecutor. You're super cool Con, I'm hearing from [Dan Farmer](#). Yeah, you know. And so it just kind of Con.....

BZ: So Dan Farmer is spelt like farmer

JM: f-a-r-m-e-r yeah. Um, so that's how, you know, it's interesting. We had Sarah Gordon. Um, at the first one she uh was in antivirus. We had uh Mark Ludwig who wrote viruses. We had, um, another lady from uh computer professionals for social responsibility. And we just had a really

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good (very diverse), yeah, really good mix. It was interesting one of our first speakers who is here you should probably interview Dead Addict.

f-a-r-m-e-r Dead Addict

He gave this interesting talk because always-on-internet was coming which was DSL, (right) So you can always be connected, no longer dial up. So his talk was about what will the world be like if you're always connected. (Wow, can I imagine that?) Because he was like, viruses and other things, you didn't worry about, because there's only dial up. You're always just most of the time, you're disconnected. Um, but if you're always connected, then somebody can always find you. Somebody can always find your computer. Your computer can now be part of a bigger network.(right) And I went back for our 20th anniversary of DEF CON and I re-watched his first talk. It's like nothings changed. You know, I mean, the terms are different, the technology is different, but it's essentially all the problems, all the thing of the the conceptually.

BZ: What's his name, Again?

47:14

JM: Dead Addict, Eli. But it was interesting to how some of those talks just, there's nothing changed.



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BZ: You must feel very good. Absolutely. 24 hours conference was concluded. Yeah, It's not just like have a drink at the poolside of... more than that

JM: Well, you know, we've tried running DEF CON 24 hours a day, we tried all different permutations. Um, and people like to sleep. So we've come up with the formula works pretty well. But, um, you know, It's interesting. So if you look at the beginning of my experience, It was all about, the power of your idea in your thought, in written, there's no judgment, because I don't know what you look like. I don't know what you sound like. I don't know your religion or anything. But then DEFCON, you're face to face. So now I do see you, I can judge you, right?

But I think because we originally all started off in this sort of non judgmental online way, part of that culture made it to the early DEFCON. Right? I mean if you look at the people in some of the early pictures, crazy long haired hippies next to guy in a suit. I mean, it was just, because we had this shared interest. And that is what I helped create that culture of inclusiveness, now it's more and more people join that didn't come from that era. I I think that's changed a little bit, but I like to think

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that um, you know, we try to set the tone, I try to set the tone that it's it's just it's about your idea.

BZ: That's right. So all these years and every year you throw this and you know DEF CON in Las Vegas. Yeah, which one except the first one, you know, would be the most memorable?

JM: Most memorable? (Yes) probably the last year we were at the um, Alexis Park hotel, right around the dot. that was dotcom Boom bust. And it was the only year that we've ever not grown in size. And it was this feeling that the parties over, you know, the all the excitement, everything. And then people started losing jobs. And um, it was cool to have green hair. Characters and movies were dressed up like hackers. Then all of a sudden when there was this kind of downturn.

BZ: Oh really? I didn't realize that you know 2017 we had that kind of bad economy.

JM: This was no, this is a dot com burst bust about 2001 or 2002, the first dot com bubble.

BZ: Oh, okay. I got ya

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JM: So yeah around 2001 or 2002 maybe, and so um so a lot of the hangers on the people that were getting into it because they thought it was cool, but they weren't really into it. That kind of washed some of them away.

They lost their interest. And so it was kind of this momentary, like, ok, are you still into interested in this, even if you don't have all the media attention, even if it's not financially everybody getting jobs because this downturn, and that kind of feeling kind of correction in the ego of everybody. That was really memorable. Um, it was also the last year, we're at the Alexis Park. We've been there for many, many years. That was like our home until we outgrew it. And so we had to move on. So it was like the end of an era, end of the dotcom boom, end of everything. And then we had to go to a new location. So that was a big, big memorable change.

BZ: Okay, wow! How many people attended usually under to DEFCON?

JM: Each Well, every every year. Luckily, it's going up.(ok) So um, this last year we had probably over 25,000, 26,000

BZ: 25,0000?

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JM: Yeah, 25,000, 26,000. It's big. (Okay), you know, this year we are in three hotels.

BZ: Wow, it's really big.

JM: Yeah. So then then that has a whole bunch of challenges in itself, kind of like managing.

BZ: Yeah, so we get so many people, how you, let's just talk about this, how you organize it. How are you managing with it?

JM: Yeah, would not be possible without the help of all of our people putting in time. You know, we have over almost 400 people help run it.

BZ: It's not, you know, from your company

JM: Well, I have a company with full time employees, but somebody runs a village and they plan for that village all year long. It takes ten people. Well, they just show up and we give them space. But without those ten people, there wouldn't be a thing to do. (Right) So my philosophy has been, um, give people enough rope until they hang themselves.

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So if you want to try car hacking, and we have some space, and you sound like you know what you're talking about, we'll give you room. If you do a good job, you've got more room, people keep coming, you keep getting more room, until either we run out of room or people stop coming. Um. And so that's why there's constant kind of creative destruction of contests and ideas and villages coming and going. And as we get more space, we try new things. So we have free workshops for people. Um, we have crazy contests. Um, so in the early days

BZ: Capture flag thing

JM: Oh that yeah, when, we were in the early days, we had a WIFI was a big thing.

And so we had contest WIFI war driving. You had to drive around, and map the whole city and find hidden flags. And then it was how far you could send an unmodified wifi signal. So people build these giant antennas, amount among cars and go from mountaintop to mountaintop.

Um, capture the flag, one of the most famous contests now. Um, these were the first to ever have a capture the flag, um, that started as just people fighting each other on our network. So first we are excited to have a network to share and then people started fighting on it.

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So then the next year like well, if they're gonna fight on it, let's make it harder for them. You know. So then we had to build a better network and then they got around our better network. And so by the third year, it became like a contest who could defend and who can attack. And then they're all attacking each other. So one year, by the second year, people were writing custom tools, just a fight, on DEFCON. And so, um, I like I say I wish it was a master plan, but we just saw what people are doing and we just supported it and supported it. Grew it.

BZ: I cannot imagine that. I never never know you got so many people is it a large conference we have ever had. (Well, yeah, I mean) I never heard of like, you know

JM: Conference. Yeah, yeah, It's pretty big. I mean RSA is a bigger, RSA is much bigger, 45 thousand. Okay. But you know, we have a different audience who would think that's the the crazy thing is for us with Las Vegas, it acts as a natural barrier. You have to actually get to Las Vegas.

Las Vegas is not like Silicon Valley. There's not a lot of technology there. So you have to travel. So you have to be interested. It's not like New York. You just got on the train. You know, the eastern seaboard has sixty million people, and anybody will just show up at your door. You have to

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travel to get to Vegas. And every year, we think there's got to be the last, as many people are interested like at some point we have to stop growing. Every year. There's more conferences in every country of the world. You know, when we started, there are five hacking conferences, I think now there's five hundred in the United States.

So at some point, why do people keep coming? (Right) But they do, you know, and it's become an international destination. And even while conferences and uh, competitions are growing around the world, we're still growing. And so it's just I find it really fascinating. And so in the early days, I was really concerned that tele presence remote, uh, AR VR was going to destroy the conference business. Why travel? When you can. but people want to meet people. Yeah,

BZ: so it's like and you are, all this kind of activity and hacking villages things not like products online then I guess some other people at home can watch

JM: Some some people stream. we record everything we can. That's another thing we're pioneered is we recorded everything, we can and we give away everything for free.

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So and we don't have sponsors. So we're a hundred percent supported by the community. So if the community doesn't like us, we go broke. Um, but but we try to do things to support the community. So even if you can't come to DEFCON, we give away all the talks. And years later, we find people that say, like, I've been watching your video since I was ten years old, and now I'm old enough I can finally come. You know, It's really need

BZ: Good story.

JM: Yeah. And so I just, I'm sure I could try to sell, you know, in the very early days, we tried to sell off audio recordings, um, because you had to physically copy the tapes and put them in a box. But soon as you could download things, then we just gave it away.

BZ: So why you don't have like that? You you don't need sponsors, or you don't want.

JM: Oh, I would love to have, I would love to have the money to support the show, but sponsors change the nature of your conference. You know, they want to get involved and they want to have a speaker. They want to have a say. Um, and since we started with no sponsors, because no



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company, there was no such thing as a sponsor in '93, right? There was no company wanting to. And so by the time we've grown large enough, our business model didn't involve sponsors. (Okay)

So we never needed them where modern conferences start off needing sponsors.

56:58

BZ: so the next thing I'd like to ask you about is why does the idea? You seems have this kind of DEF CON here, why you need Black Hat. So..

JM: why what?

BZ: Black Hat? But, um, you know, 1997, you start Black Hat and you know another one there. So how how, what's your thinking behind that start? And then later on you sold out.

JM: Yeah, later on I sold Black Hat. So, um, so Black Hat was, uh, it was a brilliant idea. I had a friend, Ray capelin he was this original unix grey beard, vax, PMS, old school original pioneer. You know, and um, he's a big supporter of DEF CON, came to the first one. And uh, and at one point, he was like, you know, you should just charge a lot of money and make a professional DEF CON. Um, for business people, because nobody in business can get approval to come to DEF CON because it's like a party. And so we started changing our announcement. So we had a

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normal announcement for hackers, and then we had a professional announcement, that people can take to their bosses and get approval to come to DEF CON. we did that one year, and then the next year, I didn't want to have to rewrite everything a second time.

Um, so I borrowed some money and I started Black Hat, a year later that I could, I wish I had started it. I just didn't have the money in the time. So that I started in `97. And so we just did them back to back. One was like the (BZ: T-shirt guys) a professional, charge a lot of money. But we fed them, we tried to get sponsors, we try to make it, you know, more professional. And then people would come to that. And then there were some of them would stay for DEF CON.

And so it was like two sides of the brain. One was like hackers, from one was enterprise. And since I didn't know anybody in the enterprise world, I only knew hackers. I didn't know what professional corporate American was like. So all my speakers were my hacker friends. And so it turns out that people in big businesses wanted to know what the hackers were talking about. And so it turned into this perfect magic formula, crystal ball, where if the hackers are talking about it now, it's probably a problem in the future.

And so we all grew up together. The hackers that could be more professional could speak at Black Hat, and we elevated the whole community at the same time. Again, I wish I could tell you it was my

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master plan, but that's just sort of how it happened. And I was working for a company that I'm secure computing corporation and the professional services. I was doing penetration testing and breaking into companies for a living. And and they were selling off their services division in getting out of services and just focusing on product.

59:48

And so I had to make a decision. Do I want to go to the new acquiring company or do I want to leave? And I did the math. And I realized that if I could convince a hundred more people to come to Black Hat that next year, I could, I'd be okay financially. It would be I could eat, I could pay rent, I'd be okay. So for the next 9 months, I did nothing but try to get a hundred more people to come Black Hat. And it worked.

So then I just put all my energy in in the Black Hat and DEF CON, and grew that and grew that. But the economics in the planet conference world is a weird world. You sign contracts two, three, four years in the future and Black Hat was doing well. So it was growing. So every year you need more money to set up the conference. But every year you're making more money, but then you have to spend it all for the next year, and you have to guarantee it.

So I was in a situation where if anything ever went wrong on any conference, I was bankrupt and I was running three, four conferences a

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year. So lot of stress. And uh, in one year, there's a lightening, one in a hundred year storm, lightning hit the tower in Las Vegas and shut down the airport. And if it had happened a day before, I'd be bankrupt, it happened a day later, I'd be bankrupt. But it happened just as everybody had already arrived for Black Hat. I was like, you know, I should probably (very risky) how do you ever get out? And uh, so if I wanted to sell the business, I wanted to quit.

Well, I can't quit. I have a contract for three years with the hotel. So if I walk away now, I'm bankrupt because of the guarantees. So that means I have to do three years from now and then walk away. But that means I'll be walking away from three more years of growth, a value. So that means I'd have to find somebody to sell to in three years. And so, um, you know, it was like Monday was the trademark attorney Tuesday was, you know, the lawyers, Wednesday was the accounts, Thursday. And I find myself Friday afternoon through the weekend being able to do what I wanted to do. And the rest of the days was all a real, you know, business. And I didn't have a passion for that. I mean, I can do it, but I don't love it.

So that's when I started looking to sell Black Hat. It had I sold it one year later. It have been worth maybe twice as much. So two years later have been worth maybe three times as much. But I had to sell it, because otherwise it was going to just destroy my spirit. You know that the responsibility of impending potential bankruptcy in just, um, I was at the

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point where I'd either have to go hire 10 employees, 15 employees, um, or stop growing. And so I kind of got the best of both worlds. I sold it to United Business Media, and I got to keep running it, um, for a bunch of years, for three more years. And I'm still involved. So worked out really well. Well, yeah, they're doing really well.

BZ: Okay. Is there any competition between you guys two, two runners?

JM: No, I don't think so.

BZ: Okay. That business side.

JM: Yeah, I mean I think there's tons of conferences that are competitors to Black Hat. But Black Hat was still, you know, the Black Hat still international destination. And if you look at all the conferences, they're all essentially copies or takes on DEF CON or Black Hat. You know, all the professional conferences are kind of like Black Hat, and all them, a lot of the hacking conferences were all inspired by DEF CON.

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BZ: It's very interesting. I think like these, you know, usually the hackers will only be involving hacking, um, community, all this later on go to the

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like any you know security expert, work in business, you also involved in government, yes, you know, uh, be consultant with them. So how are you going to, you know, who how do you think about this? And some people were saying, hey, you know, since you work for government now, how can I trust you as a neutral hacker? You know

JM: Right, it's interesting. So you know, the beginning of the, back in the early days, online bulletin boards again.

Um, all anybody knows about you is your online name. So you might have a different online name at every bulletin board, but then you have to keep making friends over and over again. Or you might have one identity that you use on multiple bulletin boards. You know, some people use one identity for hacking and one identity for like their sports sites. It kind of separated the role. So from an early age, you sort of split up your personalities, but you invested all of your your reputation, everything was tied to your online identity.

So if you saw somebody **that had**, you've never heard of him, and their identity was like very young, it's like, well, who are they? But if there was a hacker that had the same identity for ten years, wow, I mean it's the same identity. He's never done anything. He he he he's kept his identity, so you might like him. You might hate him, but he's sticking with his

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identity. And so in those early days, if you made a mistake, you got in an online fight, uh, or whatever, made enemies. You just delete your identity, start fresh.

And then as long as you didn't tell anybody what your old identity was, you got a do-over. You got. And so you could practice, you could learn how to behave online and get a clean start. Like nowadays, there's no clean start. You don't get to do over. Kids have a permanent record. Right?

And I was lucky enough, I got to have do overs, right? Makes mistakes change my name. So when I picked a new name, Dark Tangent, I was investing in my, that was your credibility. That was your identity. And so when Dark Tangent was two years old, three years old, four, five, ten, fifteen years old, people knew they could trust that name.

And when I started my business, Black Hat or DEF CON, I didn't have money for attorneys. So is my word. So if I tell you I'm paying you to speak to conference, I'm paying you to speak conference, and I don't have a five page contract. I just, you know, that's what we're doing, because that's how it worked on line. We had this reputation system, and I didn't realize it, but that's what really led Black Hat grow, because, oh, Jeff Moss said, I'm speaking of speaking. Oh, he said, I'll pay for my ticket, he's paying for my ticket, and nobody had to worry about all these agreements and contracts and get legal review. It just happened.

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Years later, conferences started needing NDAs and everything. But it made business so efficient. It literally was, really was a handshake. And I would have people say, oh, I asked around about you, and they said I could trust you. And again, I'd like to say it was my master plan, but it was just because that's how identities work. And I couldn't afford lawyers. And I had to follow through with what I said. So I might take a long time to give you a decision, but if I gave you a decision, that was the decision.

Yeah. And so, sort of that level of trust. Yes, I do work um, with homeland security, or or our government, but um, I tell you what I am doing. Uh, there's no real secrets there. And so I think I've got so much in my, in the trust of my identity, now my real name, um, that why would I ever jeopardize that? Why would I ever risk that? You know, because all of DEF CON the community. It's sort of built on this trust model. Um, so DEF CON

1:07:39

BZ: how you going to sleeve your time, you know, uh, you got so many things and to do, um, what's your secret uh, to time management. So

JM: I'm terrible at time management. I'm really terrible. Um, I tend to take on more work than I can do, and then things fall off. And then I then



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I back off. And so I've been more conscious about it lately. So I'm really careful now about the things I take on. So for example, I wanted to write a book now for ten years, but I know how much time commitment writing a book is. I can never, haven't been good enough to find the time to write a book. And I keep telling myself this will be the year.

Um, so what I try to do is surround myself with people. If I'm sort of the type B person, if I'm sort of more of the creative type, I have to compensate by finding people around me who can execute, that are organizers that follow through because I'm not so great following through when I get too many things. In the early days, yes, I did it all myself. But quickly I had to find people that could make it happen. And so I work best when when I have like sort of a creative element. But then I have people actually see it through, but those nothing would happen without that.

BZ: Exactly. Okay, so, uh, here's the thing is like the, why are you in China now? So you bring this DEF and you never go to any other countries (right) here and the first countries, not Singapore. It's not like somewhere else (yeah). You have some person you come to China

JM: well we did, we did Black Hats in Singapore for three or four years. (Oh), so in the early two thousand one two, three, four, five, I think we were in Singapore and Black Hats back in Singapore now. Um, and so I

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knew Singapore wasn't big enough country to hold DEF CON, you need hundreds of millions of people, to have enough people that are actually care about security and hacking.

So it's not something for small countries, but for the, for the scale of DEF CON, to try to grow, um, and so we were always thinking, if we ever were to grow, where would it go? Where could it be? And um, Europe, there's a lot of really good uh, hacking conferences in Europe. So I don't think there's a need. Yeah, I'll go there to conferences. They're great, but I don't think I would, in central or south America, there's some really big countries, maybe Brazil.

Um, but I don't speak the language. I don't have a connection to the country and there are some good Brazilian conferences. And so while I was always fascinated with the idea of could, does the idea of DEF CON scale, can is it a uniquely American thing time and place? Or is it more universal? And we could never figure out where to go. And we kept getting, I'll bring it to Pakistan. Oh, South Korea. Oh! Bring it, please bring it to Russia. Please bring it. And I just had a list of all the people wanting us to do DEF CON.

But you, so you mentally play the game, like, how would I ever do it in Palestine? no, how would I ever do it in Russia? No, you know how? You know it just never made sense. Um, and then about five years ago, um, people said, well, maybe China and initially I was thinking no, can't work.

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Uh, and then we started coming here to go to other conferences. And then I could see that hacking scene here was growing and really good energy. It's like, okay, maybe culturally, maybe. But unlike Europe, you don't just rent a hotel or do business.

You know, when we did Black Hat in Amsterdam, we just signed a contract with a hotel and throw a conference. (That's right). You don't just do that in China. So you have to have a partnership and picking your partner, very complicated, everything in China for us. You know, it's complicated. So you can't do that unless you have trusted partners. And so it became 2 years of just trying to figure out, asking friends, what do you think if we go to China, um, go to Chinese conference do you think there's enough people that would come to DEF CON. And we start asking questions. So how much money can we charge? Nobody knows nobody is ever charged. Money, everything's free, because conferences are marketing exercise supported by big companies. So the Tencent security event is free, because it's marketing for Tencent and Baidu, or Alibaba or Qihu. Um, and so that was, will does the DEF CON model work, which is support by the community without a million sponsors. Um, will people pay? So nobody knows? Will they go to it on a weekend? Nobody goes to conferences on weekends, because there are paid by businesses. It's done during the weekday.

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So at some point, nobody knew, everything we're doing was the first time, um, so, well, maybe I'll lose all the money, but I found good partners Baidu, found good partners of X-future, I found, I found the right group of people that have been coming to DEF CON knew what they were getting into, willing to take the risk. So I figured if I lost money, they lost money. Let's just see what happens. It's like, really reminds me that first DEF CON, just on a much bigger scale. Right?

If all else fails. I'm in Beijing with some friends and (take some risks).

Yeah, take some risks. And if I'm not gonna do it now, I'll never do it.

Now is the time in China, not 5 years from now. It probably was a couple of years ago, but just like Black Hat, I took an extra year or two for me to get going from what I wish I could have, could have come.

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BZ: I i'd like to ask you, do you also get some pressure from the US side?  
this time I

JM: for coming to Beijing doing?

BZ: yeah, coming to Beijing

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JM: It's interesting. I have a lot of friends in government, in businesses and you know. And so I would ask them, so DEF CON Beijing, what do you think? They like, well, taking off my government hat, that sounds cool, like I wish I could go; putting on my government hat, you must be very careful.

BZ: Exactly happened to the internet conference.

JM: Yeah, yeah. And so you know, a lot of them, So a lot of the people I know in government wish they could come. But the government says no. You know, maybe next year, because now, It's unknown thing. But for the very first years, maybe too risky.

Same thing for a lot of our speakers. They're like, well, I'm a hacker will they let me in? Well, I'm not going to, you know, and there's so much misinformation about China. You're gonna land, and they're gonna take all of your electronics, and steal all of your information. Maybe not. I don't think so. Maybe if you're committing crimes, um, So by just doing this, and having some foreign speakers, come back with great stories. I think next year (easier) everybody (you are planning next year too). Yeah, so I think what's gonna happen is everybody's gonna feel like they missed out this year. (Ok), and they're gonna wanna come next year. These are going to hear the stories.

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But um, so DEF CONs, now, in June, um, there's a western conference uh, Asia SecEast (or AsiaSecWest according to news) from a Canadian security company. They're doing one with partner with Tencent in Hong Kong. There's another one that's um, uh, Indonesian conference, uh, Hack The Box. They're doing one in November in Beijing. So all of a sudden now, a lot of western security conferences are now gonna start coming to Beijing. So I think once those speakers come, they'll realize that Beijing is just like, or China is just like, uh, you know, a good environment for security and hacking technology that, we won't have a problem with speakers. A year from now, enough people come to enough conferences here. We won't have a problem, but Im really proud that DEF CON was first.

BZ: That`s wonderful. So that's a master plan.

1:15:51

JM: Yeah, That was my master and my master plan. Well, I'll tell you my real master plan, my real master plan, um, is that I think going forward, there's two superpowers in cyberspace, and its America and China, and maybe Europe kind of, but I I think they'll be like always the number three or number four, um. And so there's these two superpowers, then that means, and and we know internet problems are global problems. So we're

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both gonna be dealing with these problems forever, because of the technology underpinning our economies.

So that means we're going to get along. It means you have to work together, means we're gonna have to understand each other. Um, we don't have to love each other, but you know, it's time to build communities, that if something's going wrong, somebody can pick up the phone and call a friend over there. Somebody can email and get a response. And um, because the speed of the internet is so fast, things can get out of control so quickly, we need to have a certain amount of trust, in a certain amount of community to deal with problems.(Exactly)

And so far, all of the focus is government to government. You know, there's a track 1.5, track 2 diplomacy and hotline for cyber. And it's like, okay, the governments can talk all they want, but the problems are gonna be solved by the companies that make the software or run the platforms. So, uh, so my master plan is, if we can keep DEF CON here for five years, for ten years, really make it a Chinese DEF CON, not a foreign DEF CON that comes in and looks like DEF CON. But you know what? (really engaged in) Yeah, like, um, like a Chinese version DEF CON, then maybe we can build these communities that five, ten years from now

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when things do go wrong, because I never believe well with the internet.  
I'll have done my small part to try to make it a more resilient.

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BZ: That's good because we need each other. It's not like you know something that we can isolate you. we do something, it`s a global perspective

JM: Yeah, it`s a global situation. Yeah. And as the Chinese companies get bigger and go more global, they're going to have more responsibility. Right? Because if you're building the technology, responsible for the technology. So I think just naturally as China evolves and becomes more global. Um, we're gonna have to partner more and more. So, hey, why not start doing it at a party? Why not start doing it with people who love the technology? And then over the years they'll grow into more positions of responsibility.

And then we can uh, have a more, what do we call this, a capacity building, we will have more, um, shared experiences, well have more resiliency.

BZ: resiliency, (yeah), also like a moment ago you mentioned about trust. (Yeah). You know that's so important there. And you also have a



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credibility that I can trust you (right) And after five years or something there

JM: I mean I can tell you like the position of the US government is we'll never do x or you can say okay, well the Chinese government will never do x but together we can maybe do something in the middle.

BZ: So that's actually your help, like the, so many conflicts we were having, Sino US or US China conflict in terms of this area, or make some help some other areas. (right). You're set a good example, let`s resolve some tricky issues we're having (right).

JM: well, I found that the people at DEF CON or Black Hat to go on, um, grow up, get more positions of responsibility. It's really their job to explain to policy makers, how the technology works, what is and what is not possible. So what I`m hoping is enough people build enough relationships that if something does happen, they can explain to the policymakers, the government or the busi people, the reality what's really going on.

So then the decision maker can make an informed choice. It's not based on misinformation. It's based on reality.

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BZ: Right, right. So that's actually help like, and the two countries, built sort of like, you know, trust in cybersecurity, (right) or enhance cybersecurity.

JM: That's what I'm hoping. If you see the cooperation historically, It's been around anti-spam, anti-malware, child abuse materials. You know, the two countries work, the law enforcement parts of the country's work really well together, because no country likes child abuse. No country likes, you know, spam, and no country likes crime or fraud. And so those parts, I think we work pretty well together. (Right)

So then, um, but that's traditional law enforcement. Now we're dealing with things with like platforms being infected, and account takeovers.

And um, and then the larger policies on, um, you know, privacy or identity. And I don't think anyone, no one person has the answer to these problems. (Exactly) You know, and what we're finding on the internet too, machine, E learning and AI um, have built in biases. It turns out that information you use in training data, influences the result. So for example, if you train on a lot of white people, um, the camera will identify a lot of white people, but won't identify a lot of black people.

Same thing in China, if the China data set is on Chinese, that AI system won't work well in Europe or South America. Right? So to be successful, we're going to have to get more diverse, because the globe will be the

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marketplace. But that means we also need to understand their perspective, right?

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BZ: Very very good there. Um, since you are the leading figure in this community, I like to, you know, get and some comments and you your comments on Edward Snowden, or Assange or some other famous hackers. How how do you think about their status?

JM: well Snowden isn't. I don't think of him as a hacker. (ok)

What cool hack did you do, besides having the courage, right? To steal information. So has a lot of courage, um, courage of his convictions, you know, big risk taker, but I wouldn't say he's a hacker. Um, you know, when I think of hackers, I think of like like a like a marked out or a half hour flake, or somebody who pushed the boundaries of security research, that their understanding is so unbelievable, that you know, there's a joke. There's this hacker marked out. There's a joke that he's a computer from the future. He is so good that the things he finds just advances the state for everybody. And what they find they share with the world. So everybody learns, everybody's boat rises, you know, in the ocean.

Um, and so, you know, like Julian Assange, yeah, not a hacker, you know, maybe like an activist, (right) You know, like Snowden is an activist, right? Takes on a lot of, you know Assange now I won't even call an

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activist, now he's just a propagandist. But in his early days, you know he had this conviction, he wanted to change the world and he was, but he was doing it from like an activist level. Yeah, right. And he used hacking techniques and had sort of hacker mindset. But how to try to, make his change. So...

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BZ: so who was the hacker you respect, like truly hacker, you know

JM: I mean there's a lot of, Dan Kaminsky who's here. Oh, he is, in my mind, like a modern age uh, hacker. So I'll give you an example. Um, he, uh, he knows a broad base of knowledge, loves DNS. So he does all kinds of interesting tricks with DNS, finds a fundamental flaw in DNS that it affects, affected the whole planet. His bug, the Kaminsky bug is what it ended up being called. He could have taken over the planet. I'm not kidding. He could have taken over the planet.

And what does he do? He spends 9 years of his, or 9 months of his life coordinating a response with all the manufacturers he can. He's not getting paid. Nobody pays him for 9 months of his life, to coordinate a response, to try to fix it all at once. And it worked. Right? That's he found the problem. And he took the responsibility to fix the problem, right? He

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has um, know somebody who has color blindness. There's I guess 20 or 30 different kinds of color blindness, different color substitutions. Right? Ok, so what does he do? He writes an app, the iphone that based on the type of color blindness does this substitution in the camera. So when you hold the camera up, it does the substitution. So now you can see the colors. So he just goes and helps fix um, that's called DanKam. And that's just a side project, does something that all the people in the color blindness world nobody's done. He fixes it in a month, right? And then now he's doing something else.

And so he sees something, he fixes it, he goes to something else. He's fascinated by how perception of color works. He writes a filter. Now he's doing the next thing. That's the kind of, for me that is a true hacking spirit.

1:25:33

BZ: Thanks for telling me that, you know usually we were thinking, attach that kind of spirit to some good tech company. (Yeah) you like Steve Jobs so you like that you know someone yeah you bring us products we never have. Uh but you are saying hacking community is also make that contributions to (yeah) you know, technology

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breakthrough oh, I know that some apps can take a look of your skin color. They're sure there's nothing goes wrong with like a skin cancer.

JM: Right. And so so a hack would be like, um, ah, remember when we, I think is the Wii Fit came out and had that little balance board and you can do skiing games and jumping games.

So some healthcare hackers took the balance board, wrote custom software, figure out how to get it to work, um, with the, with the mobile app. Because for people who had lost, if some inner ear damage and lost balance, they would have to use essentially the same kind of system to regain their balance and learn and relearn their balance, their bodies, center of gravity. And those systems were for 5000 dollars. These people took 100 dollar. Wii Fit, it actually performed better than the 4000, 5000 dollars system.

So those healthcare hackers were like, I can make this better. I need to understand how this system works. Reverse engineer it write a new tool, apply it. And now I fixed another problem, that the market wasn't fixed, when the market fixed it, but they were charging six thousand dollars. I only care about my customers. I only care about my patients. I'm gonna do it for a hundred. Right? That's the mentality. It's like, Im not doing it to make money. I'm doing it because I love the, you know, I want to see happy patient.

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Um, that's the spirit. I think you know that. So a lot of the open source projects, you know, free BSD Linux, you know, they're doing it because they want to change the world. They want to do it. They don't have the same sort of commercial motive. They don't have shareholders.

BSD Linux

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BZ: So nowadays, like next question is like, recently Facebook, like the net, like a Cambridge analytics use their data of something there. How hacker can help this or prevent these kind of things were happening. And you know, security definitely very paramount issue in this kind of world. How do you think about...

JM: I think hackers have been saying Facebook said disaster since Facebook started, but people found more value in Facebook, you know people value, what they got out of Facebook more than they value what they thought they were giving away.

Well, It's very hard for people to understand what they're giving away.

Um, and that's the fundamental problem we have with security. So I'll give you an example. Uh, you go online and you're going to a bunch of different sketchy websites. And two months later, your credit card is, well, used, is fraud, okay? Was that because you went to a bad website two

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months ago? Was it because somebody stole your credit card at the restaurant? Was it something that else you did? You don't know,

If I'm driving too fast on the freeway, my steering wheel shakes, and that's risky. Yes, online, there's no feedback. You never know when you're making a risky decision. So therefore, you make any decision, right? You don't, there's no feedback. And Facebook, It's really, really good at making you feel that you've never made a trade off. You've never given something up, right? They make you feel like you're always getting something, but you never realize what you're giving away.

So I think the Cambridge analytica is, it's just a good example to finally try to illustrate for people, this is what we're talking about. This is what we've been trying to explain to you. There are trade offs. You know, if if you're not paying for the product, you are the product. They've found very clever ways to monetize your information, you know. And so I think that's the the biggest risk to the internet. The biggest risk to the future of the internet, I don't think is a foreign government, you know, meddling , I think the biggest risk is advertisers, the funding month the the the the way the internet is funded through advertisement is the biggest risk.

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BZ: That's actually their cash card. You know that's how the business build up.

JM: That's how they're built because you can raise money quickly. Right? Right. It's not that you're selling a product, you have to grow slowly. It's like you have to explode out of the gates. You have to grow quick. So you need to get something you can sell quick. So you need lots of users and they get lots of users to be valued. And if you take that mindset, of course, it's advertising. That's where it leads you. That's the path.

But if it's build a product and do something else or a video game or something, maybe maybe it takes you down a different road. Maybe it's make uh, exciting experience. Maybe it's build trust with your user base. Right? (Right). So that model works for Facebook as long as they keep trust. But if they lose trust, those users go somewhere else and the whole business collapses. Um. But I don't think the advertising model is really sustainable, because it forces everybody to do the same risky thing. Um, and at some point, I think it'll stop returning value for the advertisers.

(Okay), you know, so I worry about that, and the I worry about the internet is becoming more fragile. Right? Every year it becomes more and more fragile. We're centralizing the internet too much. If you look at the United States, It's Google, It's Facebook. It's you know, Apple, It's a few sites that have the majority of users. It's amazon. It's three sixty, uh, you

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know, office Microsoft. And so if you were running a blog and there are twenty thousand blog out there, um, and the government didn't like what you were saying. Ok, they're not going to shut down twenty thousand blogs.

But if there's one blog, right? Now, that one blog, advertisers can protest what you're saying by taking money away from that one blog. So they'll kick you off. So now, by getting the efficiencies of scale by centralizing it. We're actually more prone to censorship, more prone to boycotts, more prone to the... government says how convenient. There's only four companies I have to regulate now, not four hundred thousand. So it becomes an attractive target for government, for activists, for lawyers. I mean, you're making the internet less resilient. And at the same time, the protocols are changing, just the nature of the internet is becoming more fragile, because criminals are attacking, trying to monetize.

We've had to do things like, the bug that Dan Kaminsky found and fixed. We've had to move uh, to DNS security, encryption, and certificate management. Well, if you make a mistake managing your certificate, your DNS stops working. Ok. So maybe just the average person can't run DNS now, maybe just a subset of experts can run DNS. So less people can run DNS. Email spam has gotten so complicated, running an email service so complicated now, you have to be a specialist. So everybody

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who goes to g mail, right? Nobody runs her own mail server anymore. So now all the mail is in the hands of Google.

And so now, uh, routing, people, we just saw that uh, some routing hijacked out of Russia. Ok, so now we need BGP security with digital certificates. Well, if you make a mistake, you don't rout, you don't go to the internet. So one by one, to make the internet more secure, we're accidentally making it more fragile. So we're making this trade off. But society is not making a trade off, governments not making a trade off. It's the technologists. And that might have worked, I think 20 years ago. But now the sort of unelected engineer making decisions that are going to affect you know, the planet.

And I'm thinking we probably need a better way to debate these tradeoffs uh, in the future. So so also, even though everything that's all is sort of new, we really are entering a new era with the power uh, of cloud, that coming AI centralization, the monetization of advertising, uh, and attractiveness to regulate uh, or to market. It's all coming together. My child's internet is not going to be my internet, just going to be different completely different experience. Right? And so what I'm trying to fight for is to try to keep the internet sort of the way I remember it for as long as possible. Because I think that's what created a lot of this innovation. I would hate to see it turn into just a product for a company to sell. It needs a certain amount of chaos to thrive and for criminals to force us to lock it

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down, or the governments or activists to regulate it, then it will lose its appeal.

There's a great book if you read it's called *The Big Switch* in this person follows all the previous large technologies, radio, then radio to television, um, and television, you know, the internet. Um, I'm sorry, uh, telephone and the television and the internet. And at every time the innovation curve stops, it becomes commoditized, and then after some period of time, people get, you know, get frustrated and they build a new technology.

That's just been the nature of these technology revolutions. So I'm curious if the internet becomes unappealing or too solidified, people will invent another thing, satellites, radio, laser beam, something, um, and so I'm just trying to... how do you acknowledge and preserve that internet? And there's a saying that um, if we ever do fight a cyber war, um, unlike all the other domains of war, air, land, sea, space, um, cyber is the fifth domain of warfare now. It's different in that if I shoot down your airplane crashes into the ground, and I pick up the pieces, throw them away. If I sink a ship, sinks, the ocean is still there, the land is sold, their air is still there. But if we fight in cyberspace, I will be changing the internet. You'll be changing internet. And when the war is over, it will be a completely different internet, unlike space still be there, water still be there. So at the end of that conflict, it'll be a different internet, that will be totally different for my children. So there's this concept of how do we save the

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internet for the future? How do we keep the internet for the future? And the fear is that as soon as we have a conflict, it'll be wrecked. Right? It'll be the end of an era. Um, so anything we can do to prevent cyber conflict um, is a great way of trying to preserve what we've what we built,

BZ: Sort of like a nuclear war, you can destroy everything and you don't have a planet to rebuild... So I don't have a cyberspace...

JM: So I think that that that model people sort of understand that. So that's why nuclear war, so such a terrible concept. But I think people still think they can win a cyber war. They don't, they're thinking too short term and realizing that the amount of innovation, the amount of lack of trust, the amount of, like what it will do to destroy world economies.

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BZ: So that's natural bring me to these kind of questions there. I I really appreciate you share this kind of insights. I think that's fully reflect the hacker spirit. (yeah) So how the hack spirits could help reserve or protect from so many disastrous and consequences.

JM: Yeah, yeah. So hackers are we I mean, we always one of the earliest things you do as a hacker, if you are attacking other hackers, you know,

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in the early days, a lot of hacker wars, you have to protect yourself before you attack the other guy, because you know he's coming back at you.

Um, and that's the spirit of Capture the Flag. Um, there's many ways to play the game, Capture the Flag, but because it was DEF CON. And and we started it, it became, it started off as a conflict, people hacking each other, so it grew as a head to head combat. Um, other capture the flag is like Jeopardy style. Answer question, get points, figure out which question you answer in what order strategically to win the board. But that's not very realistic how it works. And so I thought our capture the flag has to be realistic, because the defensive tools you learn to protect yourself in those conflicts. Those are defensive techniques you protect yourself from the real world. So I don't want it to be just this game that's disconnected from reality. Yes, you're learning how to attack better, but it's forcing you to learn how to defend better. And those skills are useful to protect your company, right? Um, because the bad guys aren't telling us how they are attacking. Governments aren't telling us how they're attacking. So we have to figure it out for ourselves. And so, um, we record the Capture the Flag network traffic, and we release it for free every year, so people can learn from the traffic. Right? So it's, we have to become the people that are telling the citizens, like, this is the technology. This product is terrible. This is a good product. This is how you defend yourself. Don't waste your time doing this. You know. And by doing that

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over and over again, I think we inform policy, we inform people, and we make better products. Um, and so you know, so even though I'm not a very good hacker anymore at attack, I spend all my time on defense. But in doing, encouraging his behavior, I'm hoping that building an ecosystem where the knowledge is getting out and it's realistic, and um, people, you know, are learning. So for example, if you go upstairs here and you go to the packet hacking village, that's all about finding somebody who's broken into your network and tracking down the traffic, identifying it, and stopping them, um, and gamefied. It's turned into a game. But those skills very useful, useful. Yeah. And then you can teach them because that's the other thing with DEF CON to people come and they wanna learn.

So we had to figure out, well, how do you teach? It's just, (teach by doing)we don't have three months. We have three days. So we have to make things accessible and teachable. And we have to hook their interest. So they go back home and practice for the whole year. When they come back the next year, the better. (that`s very interesting). And so luckily what they learn then they can probably teach someone else.

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BZ: So do you sometimes still sharpening your own hacking skills?

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JM: Yeah, yeah. So well, I run tools against my networks.

Um, I spend a lot of time, I would still run the DEF CON network. So I spend a bunch of time protecting our mail server and our web server name server, you know, the router. Um, I feel it keeps me up to date on all the technologies of the infrastructure

BZ: Do you think you're still like a top notch hacker.

JM: Um, no no, not top notch. In the early days, you can get four or five people together and be, you know, best of the world. But the technology now is so fragmented. There's no, it's like saying, are you the best doctor?

BZ: Okay. I I think like it's sort of a gamer, you know that It's very hard to be a good good gamer.

JM: Yeah, but even with gaming, it's either on reaction speed and I coordination(?). But if you say, are you the best doctor? Doctor, what psychologist? Er, surgeon, you know, the the term doctors is so yeah, computing is like that. Now it's everything. Are you a good data forensic scientists? Are you a good algorithm optimizer? Are you, you know, so. there's people that now so micro specialize, and that's this trend, um, the last twenty years of specialization, um, the networks have gotten more specialized. To stand out in your job, you have to specialize. You have to be known as the javascript security expert. Um, so the field is actually



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losing generalists. (Okay) You need specialists. (and especially AI e-learning is coming). Right? So now everybody else. So I'm not just AI guy, I'm this micro, you know, hot network, whatever. So now, if you want to understand what's going on in the system, you might have to get twenty people, thirty people in a room, (yes), you know, and then you out sourced to a third party and then that third party, you're not sure what they're doing. So it's so hard now to even comprehend how the networks working.

And so we've entered this era of complexity where it's impossible to know now how the network will fail. (Yeah), you know it will fail. Yes, the complexity theory says it will fail, and it'll fail in unpredictable ways. So that means we have to be ok with failure. And when something fails, we have to be able to fix it, (fix it), right? And we might not ever learn why it failed, and we have to be ok with that. We have to be able to accept that we will never fully understand why it failed, but we have to be able to fix it. Move on.

You know, try to make it better, but that's the world, we're moving to, so complex with so many dependencies that your ability to feel like you're in control slipping away, you're not in control, right? (That's right). Um, and that's gonna be scary for a lot of governments. (Yeah), right. When you

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realize you have external dependencies on ten other governments, fifteen other companies.

1:43:38

BZ: That's right. Thank you very much for share like a wonderful, wonderful insights here. I I I never get tired about the listening to you. But you know, as I said you are the youngest person I have ever interviewed for this project here, but usually my last question will be like this.

And you know our our act, you know, our video will be shared with in internet archive, computer history museum there. We like to be open sourced, we like to let everyone know what we say, my question, last question is, don't say too many too long. Just one hundred years later, um, when some future internet user, or hacker or IT specialist to come to say our interview today with Jeff Moss. (Yeah) Jeff, what do you like to talk to those people? They may not come from the United States, they may not come from China. We don't know how, what kind of words, you know, what do you like to be remembered as, you know, as Jeff Moss. I'm Jeff Moss here. I'm talking to you guys.

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JM: Yeah, well, I'm talking to you guys, hoping that you've carried on my spirit of openness and inclusive and it's the idea that should count.

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And it's your trust that you build. Um, and you should be ok, you should feel ok to fail on what you do. I mean, hackers, we fail all the time. The internet is nothing but a procession of failure, you know, continuing to work, um, and I think it's that openness that I hope preserves, because that's like, I think the human spirit, and you know the internet is, if you look back at all the other people in the archive, a lot of what they're doing it is trying to sort of preserve this this human spirit of uh, of openness. Their ideas are always greater than themselves. it's always greater than their country, right? They always seem to be global in nature, humanity in nature. And so what I hope is in my own teeny, small way, I helped build a culture of security, of openness, of um, wanting to make things better, let`s become global. And that's sort of a norm. Just just it's normal to want to help out like that. (That would be a good). Oh, that would be great. You know, try to make things just a little bit better in the world.

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BZ: Thank you so much, sir. Really appreciate this kind of inspiring words and for future generations. (I hope so) it's just wonderful,

JM: Yeah, I'm really excited for them. You know, they, uh, their challenge is, they'll get access to the information really easily. (Right) But their challenge now is also have the responsibility to do something with it. (Right)

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BZ: Yeah, very very interesting. Really appreciate this, wonderful.