Roy Chua: [00:00] I was just talking to a couple of startups here in the Valley and they're like, "Roy, when we interview now, we actually give them access to any tool that they want. Then we give them a problem that's so big that they can't solve it without a tool. We watch how they use the tool. So that's actually the interview process."

DR: [00:14] Absolutely.

Announcer: [00:20] This is “Telco in 20,” a podcast that helps telco execs achieve a competitive advantage with AI and the public cloud. It is hosted by Danielle Rios, also known as DR. Today, we're talking to Roy Chua, founder and principal of independent analyst firm AvidThink.

DR: [00:39] Hi guys, I'm DR. Two and a half years ago, the best AI model scored in the single digits on software engineering benchmarks. Last month, Anthropic released an AI model called Mythos that scored 94%. That's a huge leap and it's already changing how software is being built. Startups in Silicon Valley aren't testing whether job candidates can write code anymore. They're testing whether they can direct AI to write code, but most operators are still running the same old interview process and complaining that candidates are cheating with AI. Guys, that's not cheating. That's the skill.

[01:17] Today, I'm talking to Roy Chua, founder and principal of the independent analyst firm AvidThink. Roy started his career writing software at Cisco and now advises everyone from Silicon Valley startups to the world's largest telcos. We're going to dig into the new playbook for building software, why the $50 billion professional services industry may soon be out of a job and whether operators are ready to take control of their own software. So let's take 20. Roy Chua is founder and principal at AvidThink. Hi, Roy. Welcome to “Telco in 20.”

Roy Chua: [01:54] Hi, DR. Glad to be here.

DR: [01:56] Yay. I actually am super excited to talk to you because very rarely do we have someone that is telco and software and you are both of those things, also enterprise, and so I think it's going to bring a really interesting perspective to the conversation we're going to have today about AI and how it's affecting the industry. And so you started your career writing

software at Cisco. Anthropic just announced this new model called Mythos, which is amazing. It scored 94% on the SWE-verified benchmark for solving real software engineering problems on real codebases. It's surpassing human capability. Just a short two and a half years ago, the best AI models were still scoring in the single digits on this test.

[02:42] And so I've written code, you've written code, what is Mythos going to do to the world of software engineering?

Roy Chua: [02:49] Yeah. So I think the way I look at Mythos is there's two elements to it. I think the SWE-bench numbers are impressive.

DR: [02:55] Yeah, very quick evolution.

Roy Chua: [02:57] Yeah, very quick because Opus 4.6 was already around 80 and what actually alarmed me or impressed me was what Mythos is being cited in the press for is finding bugs and exploits that no one else was able to find for 20+ years. For instance, OpenBSD is used a lot in network equipment historically because of the security and the 27-year-old bug was unearthed by Mythos along with something in FFmpeg, which is a library that's used in many media streaming equipment. And so that was a little scary and very impressive. So I think that's definitely one angle.

[03:29] And with Project Glasswing ongoing in terms of trying to find bugs across all the underlying software infrastructure in the world, I think that's one of the biggest impacts Mythos has. On the engineering side, it definitely does have an impact. I think that's been ongoing. What I'm seeing right now in the Valley as I work with some of the clients here is that a lot of mid-to-senior engineers are not writing code anymore. They're directing the Cursor IDE.

DR: [03:52] Correct.

Roy Chua: [03:52] They're talking to it, tweaking the output. The good news is that they actually have the experience to know what's wrong. The AI is not perfect yet, it's getting there, but they are able to direct the agents appropriately to do what tasks they want, but they're not actually handwriting code anymore in general. I think that's great for them, but I do worry about junior engineers trying to look for a job. And so I think on one hand, productivity is supposedly improved on the engineering side. On

the other hand, I don't know what that means for the future. We'll see.

DR: [04:20] Yeah. It's really interesting what Mythos can bring to enterprises that do run these very old codebases that have been tested and pounded on and hardened and to find a bug in them that test harnesses and humans have looked at for decades, it's mind blowing and exciting like you said. And so you work both with telcos and enterprise companies. You're watching AI hit software in both worlds at the same time. How are operators progressing with their ability to adopt, like you were saying, engineers that are directing agents? Are operators making that transition or what's going on there?

Roy Chua: [04:59] Yeah. It's hard to compare some of the leading Silicon Valley startups that I walk into and look at the engineers versus a telco.

DR: [05:05] For sure.

Roy Chua: [05:05] It's not a fair comparison. At the same time, what I've learned in my work with telcos over the last 15 years or plus, it's that they're not a monolith. There is usually a forward-looking cohort that's experimenting carefully and rightly so, given compliance and regulated infrastructure that they have to live in. And then there's the challenge cohort, which unfortunately is quite big fundamentally. So I think, as a class overall, they do move slowly and it's not new. We saw it with virtualization. We saw it with cloudification. It's a DNA problem.

DR: [05:36] A culture problem, for sure.

Roy Chua: [05:38] It's a cultural problem. And so I do see some of the more forward-looking carriers in Asia and Europe, usually some of them are smaller ones, interestingly enough, but I'm not seeing the telcos move forward dramatically on that front yet. And I'll just give you a case in points. I was just asking a friend over at a telco. They're still intervening the same old way and they're like, "All these engineers are now using AI to cheat in their software interviews," and I'm like, "Yeah, okay."

DR: [06:03] Is it cheating or is it demonstrating a skill?

Roy Chua: [06:05] It is demonstrating a skill because I was just talking to a couple of startups here in the Valley and they're like, "Roy, when

we interview now, we actually give them access to any tool that they want. Then we give them a problem that's so big that they can't solve it without a tool. We watch how they use the tool. So that's actually the interview process."

DR: [06:21] Absolutely.

Roy Chua: [06:21] And I think that's very forward-thinking. The operators will get there at some point as a class. There are a few little speed boats out there, but the ocean liners will eventually turn hopefully.

DR: [06:32] Yeah. I think what's so interesting about virtualization and cloudification is AI is moving so quickly. And it's one of those things where you really do have to get on the train and start building that muscle of how to use these tools because something new is coming out, what feels like every day their building blocks. And so if you don't have that foundation or you're waiting for the world to slow down and then, "I'm going to start to use AI," you're going to be so far behind. It's like saying we insist on punch cards. You've got to throw away the punch cards or writing if-then, loops and code blocks and now orchestrate, be the conductor of a set of agentic pipelines that are creating code.

Roy Chua: [07:12] Exactly. And you would think of all companies out there that telcos actually need it. The margins are so weak in general that the benefits can be enormous, but we'll see.

DR: [07:21] Yeah. Well, let's talk about the opportunity. There's a huge professional services industry in telco that has been generating all of the software they use. They bank on the fact that it's hard to understand. They code a lot of business logic into the customizations and integrations and it's walled off. It's kept inside vendor's ecosystem and they don't really let people in. And so if AI now can read, understand and actually generate and rewrite telco software, what's going to happen to the SIs and even the incumbent software vendors in our industry? How are they going to hold telcos back from just regenerating their own BSS?

Roy Chua: [07:59] Oh, yeah. It is definitely one of the threats. And my view actually 18 months ago was that the GSIs and many of the firms based in Eastern Europe and India would get hit the hardest fast. The reality is it's actually taken longer. It's surprising. Actually,

the Indian IT companies, their earnings are up. Revenue's grown by 6% in the last year. I saw that little article in The Economist. I'm like, "Wait, they're still alive. They're growing actually." And so the services they set are very popular right now are AI transformation services.

DR: [08:26] Yeah, for sure.

Roy Chua: [08:27] So they've adapted, right? But at the same time, the market agrees with us that they will be challenged at some point. So in India, the Nifty 50 and then there's the Nifty IT. I was just looking at The Economist article and they're like, "Nifty IT has dropped about a fifth of their stock prices," so they expect the same. So I do see at some point that, if you're doing BOP coding, basic coding, basic QA suite, I think that's going away. I think creative engineering stays, and the OSS and BSS stack, a lot of that actually belongs to the BOP coding. And remember they were writing adapters on the OSS side, "Now let's write an adapter for this, adaptive for that." You don't hand write adapters anymore. You shouldn't be. If you are, that's a problem.

[09:05] And so I think there is an opportunity for the forward-thinking telcos with the right in-house expertise or the right partners basically to reinvent and reinvigorate the software stacks. Some of the ancient stuff in there can be rewritten. Some of it can be thrown away. And we know that AI is particularly good at things like converting COBOL to Java and Microsoft did a test and said 93% accuracy on AI-driven COBOL to Java. That's great.

DR: [09:28] And there's still a lot of COBOL in telcos. We're talking to Telcos that like, "Hey, this guy used to manage this little system. We don't know what it does. Can you help us rewrite it?" We're like, "Yes. There's this dusty server under someone's desk. We think it does this. Let's go break that down." But there's such a huge opportunity. What we're seeing now on the software side of the world is trading off human people inside of an organization for higher spend on token budgets, really tracking people who are consuming a lot and producing a lot, compared to someone who's spending a 10th of that, let's take the budget that we're spending on that one person and give the super powerful guy bigger token budget.

[10:12] And I think that's what's going to start to happen inside SI organizations and then certainly inside of telcos.

Roy Chua: [10:18] Yeah, that would be my expectation as well. And token usage is not necessarily a predictor of productivity or outcome because you can just spend and not be productive. I think the measurement has to improve, but I do see, a lot of engineers run out the budget here, they run out budget there, so they're actually switching systems.

DR: [10:34] Yeah, switching models. You run out and then your work stops.

Roy Chua: [10:37] Exactly. And so you need to do work. You need to find those tokens.

DR: [10:39] Yeah, for sure. And so now moving into how we make this actionable and useful within the telco, you were recently at Future Net World and you said something that I really liked. We talked about this at MWC-

Roy Chua: [10:51] We did.

DR: [10:52] ... that the industry needs an ontology layer so agents can actually get useful data for inferencing. And so I think, when people hear the word ontology, their eyes glaze over. I think there's multiple definitions out there of what people mean by ontology, but you're saying, without ontology, AI is not going to work. So explain what you mean by ontology.

Roy Chua: [11:11] Yeah. So you are absolutely right. The word ontology is used by just about every OSS/BSS vendor that I speak with, including Totogi. You have the nicest graphic on that one, so I'll give you that.

DR: [11:21] Yay.

Roy Chua: [11:22] And it works. Customers are using it, so that's good. But the way I think about it is that there is a layer that's necessary in between the underlying telco systems and the agentic layer above, whatever you're going to call it, ontology or make up a new word. And that layer encapsulates domain-specific knowledge, equipment-specific knowledge, even the telco-specific knowledge and the operational practices, your services, your products, your MOPs, whatever it is.

DR: [11:47] Business context. Yeah.

Roy Chua: [11:48] Business context, right. There's operational context, business context, technology context that's specific to the telco domain, it has to capture. It adds value in terms of two directions. One is that it adds value on reads. So when an agent tries to pull context from a network, the ontology is a place where you translate it into something that it can reason with or reason around or reason about. And without that, the AI is guessing. You don't have any context to set it and it's not going to give you good outcomes. And then on the right operations, when the agent wants to act, the ontology restricts actions to what makes sense for the equipment, for the domain, for the telco operations, the compliance and so on and so forth.

[12:24] It's kind of like a guardrail, but also a translation layer. It takes your intent into concrete actions that can actually execute underlying layer. So it's an important layer, that ontology layer. It embeds all the context that you need, and without that, you don't get reliable, accurate outcomes. And I know you said this too, so I'm actually preaching to the choir.

DR: [12:40] Yeah. I think when people talk about context, they think about data and data does have context, but you also need to have, like you said, that operational process information. And then the second thing that you said that I really liked was taking action. It's not just a chatbot making a recommendation and there's a human receiving that information and deciding what to do and adding the context and making the decision. You really want the AI to be able to make that decision in a trustworthy way. And it's so much more than guardrails because guardrails just guide, but really just don't allow the wrong decision to be made. And I think that's really what makes an ontology super powerful.

Roy Chua: [13:20] Yeah. It's important.

DR: [13:20] So you've coined this idea of Move 37 for telco, the play that no one is expecting. And so I have been thinking about this. A lot of people think it's all about AI optimizing the network. I think it's maybe AI rewriting the entire software layer with full understanding of the business, so it makes great decisions and helps guide leaders to build a better telco. And so what do you think Move 37 for telco is going to be?

Roy Chua: [13:46] I think the rewrite of all the telco software with AI, some of it I do think that's inevitable. Obviously, different rates of different operators, but I think that's happening. So maybe a Move 36 and a Half and I think the 37 is one that we're both going to look at, it's like, "Oh my God, I didn't see that coming. Oh, I didn't expect that." So something crazy like, I'll just give an example. Say AT&T went out and bought McDonald's or bought Chick-fil-A and everyone in the room's like, "What did they just do?"

DR: [14:10] It doesn't make sense.

Roy Chua: [14:11] And then you look at a reason like, "Oh, I see why, because if you eat more Chick-fil-A, you're likely to subscribe," whatever.

DR: [14:17] Yeah. Some insight.

Roy Chua: [14:18] That would be a Move 37. We would not expect it when we see it, and when we see it, we'll know it.

DR: [14:22] Well, maybe it's Allbirds deciding to move into AI.

Roy Chua: [14:25] That is a Move 37, right?

DR: [14:28] That's a Move 37.

Roy Chua: [14:28] It doesn't have to be a good one usually, right?

DR: [14:30] That I did not see. I did not see Allbirds moving into AI data centers.

Roy Chua: [14:34] I did not see that one. No, no. And what would be scary if it succeeded and be like, "Oh my God, buy BIRD now, B-I-R-D, NASDAQ. Let's do it."

DR: [14:41] That's hilarious. Well, we've been talking about how AI is going to impact the telco industry and we both have children that are in college. You have a child at Stanford. I have one at Rice. They're both majoring in computer science. You always were told, "Major in computer science and you'll be able to get a great job that pays great money and get ROI on that very expensive degree." And so in the age of AI, what are we going to tell our kids now?

Roy Chua: [15:05] I'm telling my kids, "I have no idea what to do," because I know graduates from very well-respected schools. UC San Diego, out of work for a year, CS degree, right? It's not that they're not good. It's just that no one is hiring entry level. Every posting is five to seven years' experience and the data is there. Stanford Digital Economy Lab basically set the software development employment for age 22 to 25, which is where some of my kids are, is down 20% from its 2022 peak and CS graduate unemployment is 6.1%. That makes no sense. I would say I think fundamentally that CS is still needed. I think you still need to understand the fundamentals.

DR: [15:41] Absolutely.

Roy Chua: [15:41] You still need to understand the theory because you'll be working with these AI agents and you better understand what they are. So I think instead of running away from it, we should be running to it. And I would say that you have to be more creative. You have to learn how to use AI and work with AI, not avoid AI, not fight AI. I think, fundamentally, the tool is here regardless of what happens where you hit singularity or whatever it is. I think the most pragmatic view is to say, "AI is a tool, take an engineering mindset at it, learn as much as you can about it, figure out how to use it and hope for the best."

DR: [16:10] Well, I think both of our kids are right there in the sweet spot where, before they went to school, AI didn't exist and they're going to graduate with it now existing. And so what I'm telling my son is, "It doesn't matter what they're teaching you in computer science. You're going to have to teach yourself outside of class how to master agentic AI." And so I sent him through a really great program here in Austin called Gauntlet AI-

Roy Chua: [16:37] Wow.

DR: [16:38] ... and they just announced on Twitter or X that they are focusing on junior developers, junior engineers.

Roy Chua: [16:47] Nice.

DR: [16:47] He's going to do another round of it this summer and that might be the trick to get him to stand out from the crowd. We'll see. I don't know.

Roy Chua: [16:56] You could always pay him 200k and have him write half of Totogi's software with AI.

DR: [17:01] I know, it'll be great. Well, Roy, this was a great conversation about AI and telco and some industry perspective and so I really appreciate the conversation. Thanks for coming on the podcast.

Roy Chua: [17:11] Oh, you're very welcome. Thank you for having me.

DR: [17:13] Awesome. Stick around. We end each podcast with a Telco in 20 takeaway. I've got two minutes to tell you something you need to know. Jensen Huang said it best at GTC, "If your $500,000 a year software engineer isn't burning at least $250,000 a year in tokens, something is wrong." Let that sink in. Token spend isn't a line item anymore. It's the new comp package. So where does the budget for tokens come from? Your unaligned headcount, specifically the people who are fighting AI, refusing to learn and blocking their own organization from moving forward.

[17:59] Use this group to fund the token budget for engineers who are actually producing. Silicon Valley already gets this. Startups have redesigned how they hire, pay and measure engineers to stay centered on AI. They're not running an experiment. It's how they operate. Roy put it simply, "Telco margins are thin and productivity gains from AI powered engineering can be enormous, but only if you take action." So token max your team and fund their AI efforts aggressively. That's how you get AI off the dashboard and into your P&L. Want to talk about how to get started? DM me on LinkedIn or X at TelcoDR and we'll set up a time to connect.

[18:38] Until then, tune into more Telco in 20 episodes. Like and follow and leave us a five-star review. Sign up for my must-read email newsletter on telcodr.com and check out our awesome YouTube channel. Later, nerds.