

DR: [00:00] I'm Danielle Royston, and this is Telco in 20.

[00:14] Not long ago, telco stocks were a golden ticket, the key to knockout returns. During the late 1990s, telco companies experienced rapid growth and saw their stock prices soar as the internet and other technologies became mainstream. But in recent years, telco stocks have been seen as stable and reliable. Basically, your grandpa's dividend stock. Boring. Compare that to the tech stocks, Amazon, Netflix, even Twilio, these companies are turning in double-digit growth and getting revenue multiples on their stock in return. Could telco ever return to its heyday?

[00:51] Today on the podcast I talk to Recurve Capital Founder Aaron Chan. His hedge fund specializes in the technology, media and telecommunication sector, and he's at the forefront of investment strategies and market trends in telecom. I can't wait to talk to him about his thoughts on what the industry needs to do to breathe new life into the sector, how he thinks consolidation and differentiation will be key, and of course how we can use the public cloud to get it done. So let's take 20.

[01:22] Aaron Chan is founder and managing partner at Recurve Capital, and today we're going to talk about investing in the telco industry. Before we get started, he wants me to say that the information he shares is not investment advice, but spoiler alert, he's going to tell you to not invest in telco, which I guess is investment advice. So, hi, Aaron, welcome to Telco in 20.

Aaron: [01:44] Hi. Thanks so much for having me.

DR: [01:46] Oh, I'm so excited. This is going to be a great conversation. And so to start, you're a technology media and telecom investor, and you started your own TMT hedge fund, Recurve Capital. But today I want to talk to you about investing in the telecommunications industry. When was the heyday of telco investing?

Aaron: [02:03] Probably the real heyday was before my career began, when all the networks were being built out in the late nineties. But for me, I entered the business in 2004. At

that time, 2G had been built into the networks. You had 3G coming soon, you had carriers riding the penetration curves and mobile penetration rising across the world. And you had business models that were charging for buckets of minutes, charging for buckets of SMS, soon to be buckets of data. And so as an investor, it was pretty exciting at that moment in time to look forward and see the growth in users and subscribers, growth in usage and you could pencil out pretty attractive math on what the earnings power of those companies could be. And what was interesting about telecom is that you could look at what's happening in the US or other developed markets and you could apply the same learnings and the same trends to other markets globally. And obviously there's nuances with competitive ecosystem and regulatory stuff, but that was the most exciting time for the industry. And then it all fell apart.

DR: [03:07] And so what do you think has been most responsible for killing telco stocks?

Aaron: [03:10] The simple answer is it's too competitive to me. And the competition is too concentrated. And at some point, and it's probably about 10 years ago after the LTE deployments were maturing, some of the smaller guys like T-Mobile and Sprint introduced unlimited plans. And when everything went unlimited, it took away the participation of the industry in the consumption growth of the industry. So this is obviously a critically important utility like services that the global economy relies on for all of these services, for everything these days in mobile. But they have a fixed pricing on a consumption model. It's an unmetered utility service. It's a really bad business, because of that. So how did that business come about? It's because it's too competitive. Switching costs are very low and the services are pretty undifferentiated, to the consumer at least.

DR: [04:01] Yeah. And so as you look at these stocks and consider investing in them, what would you need to see as a potential investor to bring you back and get you excited about investing in this industry again?

Aaron: [04:11] The first is consolidation. This has happened throughout history in this industry. Consolidation heals a lot

of the competitive pressures, but it's generally bad for consumers and it's already a very concentrated industry. So I think it's unlikely to happen, but that can unlock a lot of efficiency gains, increase the cash flows of the companies and things like that, which are potentially interesting. But that doesn't solve the longer term problem of the disassociation of consumption growth with revenue growth. So these companies need to find ways to innovate, to differentiate, to add new revenues to the whole ecosystem, because the application layer has killed them. Shouldn't have been the case that Uber, Meta, Google, Amazon, everyone is riding on these networks and selling products and services on top of their networks and these guys get none of the benefit. It's an embarrassing development for this industry. Imagine if AWS gave an unlimited plan to their biggest customers and said; just use as much as you want. Don't worry. We'll pay the tens of billions of capex for it. It doesn't make any sense.

DR:

[05:11] Would you advocate unbundling? We saw this in cable, a little bit of all you can eat plans around cable packages. They had different levels, similar to the plans that we see on consumer mobile, and then there was the big unbundling of cable. Do you think we need to see the unbundling of telco unlimited plans to restart that growth again?

Aaron:

[05:30] The genie's out of the bottle on unlimited, and I also think you can have a base layer of unlimited services, but I believe in more for more business models and go to market strategies, so can they do more? Can they differentiate added premium level? There's all this new technology developments that's unlocked by 5G, whether it's IoT or network slicing or low latency. You can provision different service levels across the network for different applications. Is there a way to go to market very differently, rather than just throwing it all in the bundle and never participating in the growth of those services?

[06:05] So I really think there's an opportunity for them to innovate and capture some of that growth. It doesn't have to be one-to-one, it never will be, because the technology improves every year. So you're riding costs per megabit, deflation over time, and a lot of that has to be passed on to

the consumers. But it doesn't mean that there isn't a business model out there where they can participate in some of the consumption growth per user, which is what they need to do.

DR: [06:28] So there's the Metaverse, which was a buzzword before. The new buzzword, which is generative AI. But these are new technology opportunities, and again, they need big compute. They need huge scale. Metaverse especially needs low latency. And so if we can't unbundle the unlimited bundle that's already been established, do you think these are new ways for them to differentiate themselves in their markets?

Aaron: [06:52] If they're not thinking about business models for the Metaverse, then they're toast, because if you think about the network demands for Metaverse, 4K interactive VR, on the last data I saw, it requires two gigabits per second and less than 10 milliseconds of latency. And there's no network that could handle that kind of capacity and that kind of latency at scale, at 8:00 PM across the country. It's an impossibility right now, whether you're a cable company, you probably don't have the capacity. You have to have fiber fed everything and nobody's there yet. So who's going to pay for that investment? Are they going to pay for it with flat [inaudible 00:07:27] and declining growth? Probably not. But if you're the application layer and you're Apple trying to put out your new Metaverse headset and you're Meta trying to do the same, do you want the telcos to be the bottleneck for your application and platform development? Of course you don't.

[07:44] So there's probably something to do there on the B2B side, where they can get some revenue streams from some of these application platform developers. And then on the consumer side, if you want to use that kind of capacity, you need to pay for that kind of capacity. And the management teams really need to stop discounting so aggressively, because mobile consumption is growing 25, 30% a year forever.

DR: [08:07] Forever.

Aaron: [08:07] There could be massive step changes in the next few years, around something like Metaverse, and if they don't get in front of this and figure out their business model, to not just tread water but actually make money on this, then it's going to go from a pretty mediocre business today to an actively bad business, that's value destructive in the future. So they gotta figure it out.

DR: [08:27] And there was something interesting you said there. You kept referring to the Metaverse application developers. I'm like you, I don't expect telco to develop these applications. They're not software shops, I think leave those to the technology firms that are really good at imagining and building these different applications. But the key to the Metaverse is the network. You absolutely need an amazing, low latency, high bandwidth ability to do all the things the Metaverse is going to demand. And what I mean by the Metaverse is applications that make you feel like you're near people when you're not. And we've been having really flat experiences with Zoom, through the pandemic. Zoom is not a great experience and it could be so much richer. And so I think there's tremendous opportunity, especially with the move out of offices to remote. Telco should be championing that whole move, because that drives bandwidth to the home and that drives need for better networks on the go, and so should be applauding the demise of the office building and be so excited. This is a huge new opportunity for B2B Metaverse applications. And I guess maybe also B2C, but for sure B2B.

Aaron: [09:40] I agree. I remember that going into my first Cisco TelePresence room, which was pretty cool, where you had the table arrangement, so it looks like you're sitting literally across the table from someone-

DR: [09:51] From people.

Aaron: [09:51] ... in a similar room. And the Metaverse, like you're talking about in business applications, I think is probably one of the most obvious ones that will get traction pretty quickly. Although if it is a thing, it's going to explode across entertainment, education, B2B, what have you. Everything could change. And to your earlier point, the telcos should

not concern themselves with the application layer at all. Where have they ever succeeded there. AT&T bought Time Warner and then divested it.

DR: [10:19] Yep. Nope.

Aaron: [10:19] Verizon bought Yahoo and look what happened there.

DR: [10:22] Nope.

Aaron: [10:23] Why are they wasting money there? Why are they wasting time there? If anything, if I could recommend something to management teams and to the boards, I would say create a venture arm with some of your cash flow and invest in some of the applications early stage, but don't try to build it in-house. That's crazy to me.

DR: [10:38] Yeah. Well, I think instead they should create ways that make it very easy to program with their networks, right?

Aaron: [10:45] Absolutely. Yeah.

DR: [10:45] Expose APIs and hooks, so that these application developers don't have to go talk to a telco and negotiate each package by package, but expose an API, [inaudible 00:10:59], AWS, so that you can consume the networks. I think it freaks them out, because they're like; oh my God, we have no idea what the capacity needs are and you might bring down the other parts of the network. I think that's where, I'm going to say it, the public cloud really helps the telco out, being able to have bursty compute and bursty storages if needed. And so to that end, on my podcast, on Telco in 20, I like to talk about telco moving to the public cloud.

[11:21] And I know that you're starting to research what hyperscalers are doing in telco. And a lot of people think that for telcos, hyperscalers are potential competitors and that they shouldn't use them. They should not even move any workloads to the public cloud. And I obviously am not one of those people. I think operators should use the hyperscalers as a way to differentiate their services to their

customers. I think they should give up managing compute and storage in that infrastructure layer and instead focus on unique customer experience. And so as you've been starting to research this, what do you think about that, Aaron?

Aaron: [11:54] I couldn't agree with you more. Honestly, I think that carriers and the traditional telcos should focus on the last link to the customer, whether they're fixed line or wireless, whatever that connection is, the network layer. And they should focus on customer service. That's their primary business, and they should make it very easy to work with them and they should satisfy and delight their customers on those fronts. The core networking and the middle junk of the business is undifferentiated, and they should just go to the fastest, cheapest, most agile infrastructure that they can. They can't compete with the public cloud. They're already so far behind. Those guys are innovating at a pace that blows away anything that's happening within a telco.

DR: [12:31] Exponential, it's just unreal.

Aaron: [12:32] It's not competitive at all. And to be competitive, how much capital would it cost? How much engineering talent do you need to even catch up? And why would you bother catching up?

DR: [12:42] And how much time? Amazon and Google and these guys, they've been basically working on public cloud technology since 2006. So we are 15, 16 plus years into this. The telco executives that I talk to, there's two kinds. There's the kinds that get it and they're like; it's so much more than infrastructure. It's the Lego pieces, the building blocks that allow us to build applications so much faster. But there's still a lot of telco execs out there that look at the public cloud as just a data center, as really just a place that has servers I can run workloads on. And I don't really see the bigger piece of it. And I think the telco executives that are starting to really understand; oh my God, this can improve and increase my rate of innovation where I can experiment so much more quickly, those are the telcos that I think that are really going to start to differentiate themselves in the market, because they can do so much more. And we're just beginning to see the results of that.

- Aaron: [13:36] Yeah. And the ones that embrace that and get on a faster innovation cycle and ride those curves that the public cloud guys are pushing forward, they're going to be able to open up these new revenue streams that could net new revenues to the ecosystem, whether it's enterprise 5G, network slicing and premium service layers, Metaverse, IoT. Those will be the market leaders in those new segments, not the guys that are trying to upgrade their old dinosaur technology.
- DR: [14:03] Well, it's totally true. And the problem with this shift to the public cloud is that it takes probably about five years to really get your culture aligned, start to move workloads, get applications running, you're going to make mistakes. It's going to cost more than you thought. Okay, now we got to optimize. All of that work is going to take five years, and so if you're sitting around, as a telco executive, saying; well, I don't want to be first, but I can see my competitors starting to experiment, or a guy in another country is starting to experiment, I'm going to wait and see, that wait and see is a five-year wait and see. And by the time you get going, I just don't know how you're going to catch up.
- Aaron: [14:39] If you are one of these guys and you're trying to push and you get it wrong, is it a fireable offense if you get it wrong? And if so, these guys make a lot of money to stay flat every year and to lose shareholder value every year. So if you're an executive making \$8 to \$20 million a year, you're unlikely to-
- DR: [14:59] Take that risk.
- Aaron: [14:59] ... take a lot of personal risk on a platform change, and it's a lot safer and more comfortable to just stick with what you're doing.
- DR: [15:06] Well, I always tell people you're like; gosh, we got to change, but how do we change without changing? And I was like, it's just not possible. You just gotta start taking some calculated small risks and dip your toe in the water. And when that works, do it again. And that flywheel of change starts going. But yeah, you're absolutely right. They are not necessarily even incented or compensated for radical change. And so we'll see what happens. But



speaking of radical change in crazy people that try lots of experiments, what do you think about Elon Musk's Starlink and his low earth orbit satellite business coming into telco? Do you think that's going to start to eat into that telco rule build out, because that cost per bite is going way, way down? What do you think about that?

Aaron:

[15:49] I think Starlink is like Thanos in the Avengers. He's like the destroyer of worlds. Every dollar of capital that's been put into the sky or into space that serves the communication industry is basically junk. You have to write it off. And even the newer stuff that's still in development, that's not Starlink, I don't know how you can compete. So I think in that world, they've been so disruptive. The vertical integration of SpaceX and Starlink, having owners economics on launches is game changing. And on the old launch cost model, you could never launch something like Starlink economically, but now they can. And that changes everything for the hard to cover areas of the world. Last time I saw some speed tests, it was doing 150 to 200 megabits per second on the downstream and what, 15 to 20 or something on the upstream.

[16:41] This is terrestrial service. Maybe your latency isn't as low, but if it doesn't eat into those rural build out economics, I would be very, very surprised. And I know the rural builds get a lot of government subsidies, so maybe they can make the math work. But at the end of the day, there's also the other point that we just talked about on Metaverse, if you're talking about two gigabits per second and sub 10 millisecond latencies, Starlink's not going to cut it either. So if we want those super applications to be consumed in the rural communities, we need that fixed infrastructure to be built out, also. You need fiber very, very close to the home.

DR:

[17:19] And just comparing it to the rural build out, what are those economics? I think you've done some math here in terms of how much it costs to connect a home.

Aaron:

[17:27] I think Charter recently said that they're spending \$3,000 a home to build in rural. So that compares to Verizon. I'll always remember, I think it's 2010, they talked about 30 million homes for Fios, \$30 billion. So a thousand

dollars per home passed. And still, I think Frontier is building around a thousand dollars a home passed. So it's tripled the cost to build in rural, because obviously you don't have population density and it's expensive. And a lot of guys have to use unionized labor, it's very expensive. The cost to build a home in Mexico is I think sub \$200. So the difference in labor is pretty significant. So anyways, Starlink is just blowing up with capacity in space and can serve all these homes immediately. They have a time advantage. They have a cost advantage. It's got to be disruptive to the rural broadband market.

DR: [18:14] Yeah, insane.

Aaron: [18:15] Yeah.

DR: [18:15] So one thing that we have in common is you went to Stanford and so did I. I majored in computer science, which always everyone is surprised by when they get to know me, but you majored in management science and engineering.

Aaron: [18:28] I did.

DR: [18:28] Back in my day that was called industrial engineering, IE. I didn't realize they renamed it. And so tell me about your degree.

Aaron: [18:34] Yeah. Well, I entered Stanford in the fall of 2000, and I thought I wanted to be a computer science major, and I thought I was good at computer science before I got there.

DR: [18:43] Me too.

Aaron: [18:45] And then what I loved about CS was the logical problem solving and just breaking down a problem into the logical blocks and then all that. I just hated the debugging part of it so much. So the reason I liked my major and I chose my major was it's just like problem solving across a lot of different disciplines and bringing in some multidisciplinary stuff. So it's a combination of the old IE curriculum plus finance, business classes, stuff like that.

DR: [19:12] Well, I think it's the closest thing we have to a undergraduate business degree. I had a bunch of friends, I used to hang out with a bunch of IEs, and by the time we were seniors, I was way well into my CS degree. I was like; I should have majored in what is now called management science and engineering. I'm such an optimizer. I'm just very operationally oriented. And so I love to solve problems and solve them efficiently and measure them against two different ways. And so it would've been perfect for IE, but it just was not meant to be and I majored in computer science instead.

Aaron: [19:43] Yeah.

DR: [19:43] Well, Aaron, it was great talking to you about investing in telco and things that need to change, so that maybe you come back and invest again. But thanks so much for your time. It was a great conversation.

Aaron: [19:54] Thank you so much for having me. I really enjoyed it.

DR: [19:56] Awesome. Stick around, because we're ending each podcast with a Telco in 20 takeaway. I have 20 seconds to tell you something you need to know.

[20:08] Aaron Chan thinks we need differentiation to kickstart our growth in telco. Innovations like the public cloud, OpenRam and generative AI have the potential to revolutionize the way CSPs do business. But here's the catch. In order to use them, you're going to have to radically change the way you operate your business. They demand that telco leaders step out of their comfort zones and really test the new tech. You need to do this now, because it can take years to see the full effect. These are big changes, and it will take some time for your team to learn how to use them and optimize them for your business. This shouldn't deter you. It should do the opposite. It should be the kick in the pants you need to get going. Ask yourself; what if your nearest rival tries these new ideas first and succeeds? It would take you years to catch up.

[20:53] Don't be caught flat footed like you were when the iPhone launched in 2007. Experiment with these new technologies now and get your team off on the right foot. Want another kick in the pants? Listen to my hilarious podcast episodes where I yell at telco execs about moving to the public cloud. Pick any episode. I do it in every single one. Remember to follow us on Apple Podcasts and Spotify and leave us a review. And while you're at it, follow me on Twitter @TelcoDR and on LinkedIn, and be sure to check out our killer YouTube channel and sign up for our awesome email newsletter on telcodr.com. They're great. Later nerds.