

Episode 80 | What's up with Totogi? How Totogi is bringing AI to charging

Cyrus Mistry, Totogi

Released November 28, 2023

DR: [00:00] I'm Danielle Royston, and this is Telco in 20. Guess what, guys? It's time for another, "What's Up with Totogi?"

DR: [00:20] What's up? It's been a minute since we dropped a "What's Up with Totogi?" episode and I'm super excited about this one. Today, we're going to talk about how Totogi is bringing AI to charging. Charging—which is really just a fancy telco word for pricing—is how telcos monetize every subscriber's interaction with the network, whether it's a voice call, a text, or even using your phone to watch a movie. But telcos have struggled to monetize the unstoppable growth of mobile data usage. And when I talk to telco execs about this problem, I get a ho-hum, shrug of the shoulders, response back: "What can we do about it, DR? We have unlimited plans. Why do I even need a charger anymore? Everything we offer is one price."

[01:09] Basically, they're resigned to the fact that their network has become a commodity. But let's look at other industries with a similar problem—like aviation and hospitality—that sell seemingly commodity products, like airline seats and hotel rooms. Instead of pricing everything the same, they use all the available data they can get their hands on to algorithmically tweak prices based on things like demand, availability, timing, even customer attributes. By taking this approach, they're able to maximize and optimize their revenue. Up until now, telco has missed out on this opportunity—mostly because their data is in shambles, spread all over the enterprise in different data models and in different databases. But thanks to the public cloud and new AI tools like Totogi, our industry finally has what it needs to unlock the power of telco data in order to use it to drive new revenue.

[02:00] It's a huge opportunity. Helping telcos monetize their network by applying these kinds of dynamic pricing techniques has been Totogi's vision from day one. Today, Cyrus Mistry, Totogi's Chief Operating Officer, joins me to talk about that vision and what it means for our industry. He has a deep background in enterprise software, AI, and you guessed it—revenue optimization. Cyrus and I talk about why hyper-personalized pricing is the single best

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lever for telcos to use to improve revenue, how the convergence at the public cloud and AI make this the optimal moment for telcos to take advantage of new revenue strategies, and why Totogi is so different from all the other software vendors in the industry. So, let's take 20. Cyrus Mistry is Chief Operating Officer at Totogi. Hello, Cyrus. Welcome to "What's Up with Totogi"?

Cyrus: [02:51] Hello!

DR: [02:52] I'm so excited to have you on our podcast.

Cyrus: [02:54] Love it.

DR: [02:55] It's time to introduce you to Telco. You got to listen to this guy's resume: four degrees from Johns Hopkins, with master's work in natural language processing, machine learning, and AI, which might come in handy. We go back 1,000 years when we were both part of the "Trilogy Mafia" - that's literally what they referred to us as. And then you went to Disney where you ran the pricing strategy analytics team, and then you became an exec at Google in product management. So, you're off the charts amazing. Cyrus, introduce yourself to Telco.

Cyrus: [03:23] Thank you so much for the kind words. Yes, I have done quite a bit at Johns Hopkins. I was very fortunate to work on early natural language processing. The guy I worked with actually went on to start the Microsoft Natural Language Labs, which was very cool to be in the early parts of all of those technologies. And at Disney I was very fortunate to see firsthand how enormous companies use pricing and how powerful a lever pricing can be. They were obsessed with the more data you have, the better results you can get. They created detailed price elasticity charts for every single product. So I got to really, really get into pricing. I loved it. And similarly at Google, I did a lot of pricing stuff for a lot of different products.

DR: [04:08] And so, now I've dragged you back into doing more pricing for telco. And so the first product Totogi debuted was Charging-as-a-Service and charging is basically pricing, right? It's figuring out how we're going to monetize every interaction with the network. Why do you think

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revenue optimization in telco and using telco's network data is such a big idea?

- Cyrus: [04:27] I'm so passionate about this area. I really wish people knew how important pricing really was. In my opinion, at least, pricing is the single biggest and easiest way to improve revenue. And if you think about other industries—like the airline industry, hospitality industry—they don't have a few people that think about pricing. They have enormous revenue management organizations, and they do hyper-personalized, minute-by-minute, dynamic pricing. Exact forecast models. You all know this—you sit on an airplane and the person next to you is paying something completely different than you, right?
- DR: [05:01] Totally.
- Cyrus: [05:04] So, it's that kind of thing. So, when you talk about Totogi and using the public cloud with big data and AI, you've now got all of these things together that telco can finally harness, that same power that airlines and hotels have had for decades. And I think that's just awesome.
- DR: [05:20] And I don't think we could have done this with Totogi maybe even five years ago, or certainly not 10 years ago-
- Cyrus: [05:26] That's right.
- DR: [05:26] ...because the public cloud wasn't there yet. Some of the AI tools weren't really available. The time is so perfect for this vision of applying AI to charging.
- Cyrus: [05:36] It's literally like the stars aligned to create this perfect storm. Everything is right there: the technology, the AI, the data, all of it.
- DR: [05:45] It's perfect, and so Totogi is taking charging in a totally different direction than everyone else out there. We want to apply AI concepts to charging. But as you know, we see a lot of other vendors claiming they do hyper-personalization or they're building their own churn models or they're applying AI to their products. And so, it's a little bit of buzzword bingo out there. It's hard for telco

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execs to figure out what's real and what's just a bunch of talk. And so, Cyrus, what do you think is different about Totogi's approach?

Cyrus:

[06:12] I mean it's so different and I think that's probably the best part. From the day I joined, I was so happy that Totogi had set up its tech foundation literally to be built for the future. They thought it out, and I absolutely love that. Now, you think about it this way—almost no company that would start today would start by creating some on-premise software that requires seven 2U servers and complex installations and upgrades. If you were making a CRM system today, we'd make it in the public cloud. And yet there are still so many of these ancient on-premise systems. Of course, the right way to use the public cloud is not just to put your on-premise software there. You have to have true multi-tenant SaaS offering, and multi-tenant means no specific installation for each customer. That's the best way to explain it. You're a new customer. You get a login and you're up and running. It's one of my favorite parts, and Totogi was truly built that way, right from the beginning.

[07:07] And then the other piece is—it's not that you're just a multi-tenant. You're SaaS. You're built on the public cloud. All of that is foundational. But it also means that you get tons of highly structured data across every customer. You need to have each piece before in order to do the next piece. And it's exactly because you are multi-tenant. You're SaaS. We have this highly structured data. It's basically purpose built for AI—is the way I think about it. And I think what drives me crazy is when software vendors know the public cloud is the future. They know they're behind and they can't really get there. So they say, "Well, yeah, we can host your software in AWS or Azure or GCP." That is not a true SaaS offering. In fact, if you really want to know whether it's a SaaS offering and you want to make sure you're in this next generation—if you ever hear a version number at any point, it's not a true SaaS offering. SaaS offerings mean we take all of the work to make those seamless upgrades every single day. You just get new features.

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- DR: [08:07] I love this point that you make about version number, and I think that's what's different about Totogi's system. It is truly multi-tenant SaaS, and so when you put a new feature on the platform, everyone gets it while they sleep. You don't deploy it.
- Cyrus: [08:20] That's exactly right. Upgrades are painful and you don't ever want to do it.
- DR: [08:24] And the other thing I think other vendors do is they really treat the deployment like it's a choice that a telco can make in terms of a location.
- Cyrus: [08:32] Exactly.
- DR: [08:32] And for us at Totogi, because we had the vision around hyper-personalization and using data to drive revenue for telcos, we had to build it in the public cloud. You couldn't do it on the ground because we knew we needed tons of data to make this work, and we needed the data of all the people using Totogi to be able to build on the AI vision. We couldn't do it customer by customer.
- Cyrus: [08:57] 100%. In fact, if you look at the older on-prem vendors that are out there—to do the true powerful AI, they literally have to extract it out and then use the public cloud. And of course, they don't have enough data and it's not real-time and it's incredibly costly.
- DR: [09:15] We were intentional about how we built Totogi from the start. It's perfectly set us up to execute our AI and ML strategy for hyper-personalization. And our approach is to have one model for all customers. But we get a lot of questions, as you know, about having a single ML model versus building custom ML models for each customer. And so, how do you field that question when we get it from prospects and customers?
- Cyrus: [09:39] Well, I would start by saying—creating a state-of-the-art model for telco monetization to use it for precise price targeting or churn or ARPU optimization, it is not easy to do this, but it's also very costly. You need trained data scientists to constantly work on the models. And by the way, a strong data scientist in Silicon Valley is

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easily going to cost you three quarters of a million dollars. ML models—they don't just sit there—they need constant maintenance as your data changes, as the technology changes, as the chips change. Totogi is not only taking on that expensive cost, but we get to distribute that same fixed cost across the entire customer base. So, every single customer gets the value of the incredible genius Silicon Valley minds we have and the churn experts that we have and the AI experts that we have. I wish you could see some of the resumes of these people.

DR: [10:32] It's insane and expensive (laughs). And so again, if you really want to have a best-in-class model, I think the other piece is we're focused on one. There's no such thing as, "Oh, the big customer gets all the attention and gets all the resources because they're super important to Totogi and we can't screw up that model."

Cyrus: [10:52] That's right.

DR: [10:53] But because we're pouring all of our effort into one, it literally is the best for everyone. And so, this is really attractive to MVNOs that certainly couldn't do it on their own, but they're getting the level of a Tier 1 ML model.

Cyrus: [11:07] That's right.

DR: [11:08] And so, I think that's another really great point—not only Totogi being able to focus all of our resources and our investment, but also the customers get all of the benefit. And it's shared. It's awesome.

Cyrus: [11:18] That's exactly right. Just to add to that, this is not a side project. We have a full dedicated team of experts working on this every single day, and I think that's the kind of focus you need.

DR: [11:28] Well, this is the vision of charging. I think a lot of people get confused. They're like, "Oh, you have a charger," and they kind of put us in the old charger way of thinking. And I'm like, "Well, sure. Yeah, we can do charging the old way, with plans that you design for everyone, but we're trying to do that airplane model, that hospitality model."

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Cyrus: [11:47] That's right.

DR: [11:47] And so, the vision around charging is the AI side, and now with GenAI kind of exploding and it's incredibly exciting.

Cyrus: [11:55] I love it.

DR: [11:56] And so, a common objection we get from customers is, "Can I build this myself? I have a ton of data." What are your thoughts around what it takes in terms of the data requirements to train a world-class model?

Cyrus: [12:07] If you talk to any expert in AI or ML, I would be shocked if within the first sentence they don't say the word data. Right? Data is king. It absolutely rings true in this scenario. There's two dimensions here: there's the quantity of the data and then there's the diversity of the data. So, quantity basically means you need to get as granular as possible, something that charging data is extremely rich over the longest period of time possible. And Totogi literally has incredibly detailed records. That's one of the benefits of a charger. This will easily measure in billions and billions of records. And I shudder to say, but you're actually going to get to trillions fairly soon, which means you'll need the computational power to process all of that, and by the way, that's where you need the public cloud. This is not even feasible on-prem.

DR: [12:58] Can't do it on-prem, for sure.

Cyrus: [12:58] No, you cannot, and then diversity of data. The diversity of data is incredibly important to create the best type of model. Imagine if you were a provider and just looking at your tiny set of Ohio subscribers. You would never think to do that. You would be like, "Of course, I want to look at all my subscribers for my churn model." We're taking that to the next level. We are looking at a diversity of subscribers across different networks, different GEOS, different diversity of types of transactions. All of this helps you to create the absolute best model.

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DR: [13:26] That's awesome. I think besides just building it yourself, there's vendors out there saying, "I'll do it for you," and I think unless they're pulling in all the data from all their customers and building a model across their diversity of their installations, again, it'll be a subpar result because you're just focused on that one telco and their data.

Cyrus: [13:46] That's right.

DR: [13:46] Again, this was thought from the beginning. When we first started working on Totogi, this was the vision. If we're going to really do hyper-personalization, we need all the data. We wanted to add and really build this epic, uber awesome telco model around churn prediction and revenue optimization to really drive it for telcos.

Cyrus: [14:07] And I want to take it one step further, there is absolutely no vendor out there that is doing what we can do. There is no one out there that is sitting there with real-time data coming in across all these different customers and is able to create one uber model across all of that. That does not exist.

DR: [14:27] So, then now the next objection or question that we get from people is, "Okay, if we're all using the same model, then where's a differentiation? How am I different than my competitor?" And so, again, this is where we agree. It's so much more than just the ML model that gives high impact, real business results. How do we address that concern for people?

Cyrus: [14:49] I think that's 100% right. Look, the differentiation doesn't come from having your own custom model. It comes from three different things. First of all, you need to have access to a world-class model, like Totogi. Secondly, you need to be able to apply the insights that you get quickly.

DR: [15:06] In a system of action.

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- Cyrus: [15:07] Exactly, and then how pervasive are you using this? Where are you applying them? Are you putting them in your chatbots, in your CRM, in your support desk? Does everyone have access to see this all the time in any workflow? Humans are actually the rate limiting factor here—not the systems, not the ML.
- DR: [15:25] No, they intervene. They don't believe it. They override it. And so, I think even though we're giving you this amazing answer. We're seeing people say, "I don't trust it. Let's limit it. Let's not go broad just yet." And so, I think there's going to be a lot of differentiation between the MVNOs and the telcos that you just said—that deploy it in different ways. Do they take the insights and roll them out? Do they go really broad or do they take the route where they're like, "Nah, I'm going to go build my own model. I don't want to share in on the Totogi investment and I don't want to contribute and be a part of that ecosystem." So, I think there's still a lot of ways that telcos can mess this up, even though we've built this killer ML model for them.
- Cyrus: [16:03] (laughs) Humans are very good at messing things up.
- DR: [16:05] I know, and so maybe with GenAI now we're starting to trust it a little bit more and people will be a little bit more open to the suggestions.
- Cyrus: [16:11] Yes.
- DR: [16:12] So, I don't think people really understand how far back you and I go. We go back to the last century.
- Cyrus: [16:19] Yes, we do.
- DR: [16:19] So last century, there was a PBS show in the late-'90s called *Livelihood*, and they contacted Trilogy to do a show about the work culture at our company. And, they came down to Austin. They followed us for a couple of days. You're the star of the show. I'm kind of like a

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supporting actress. I'm 28 at the time. And so it was all about life at Trilogy and how we both lived and breathed work 24/7. I kind of come across as a psycho, but if you know me—it's totally, exactly me. So one thing that comes out loud and clear, you and I both love to work hard, and so why do you love working so hard, Cyrus?

Cyrus:

[16:55] I've truly been obsessed with this for so long. Every type of life hacking—doing the most possible in any given amount of time. Literally, I gave a TED Talk on my work in this area. I used to run Google Calendar, so constantly thinking about how people are spending their time. I do think when you've been in tech for so long like we have, we're working hard even later in our life because we really want to make big things happen. It is so energizing and exciting to think that we could shake up an industry and really add massive value. I'm so excited about that. I always tell my kids. They're like, "What should I do? Should I be a doctor?" And I say, "Nope. Do tech, trust me." It's always changing, so you're always learning and moving forward. You're never bored. There's always more to learn. And I think being at a company, like Totogi, that's literally always at the front of tech—that's just so exciting and inspiring, so I'm super happy to be here.

DR:

[17:48] If you told me when we filmed *Livelihood* that I would have a startup—that I was driving and kicking off when I was 50—I would've said, "No way, surely I'm retired or something." But no, I'm so energized by this work and driving change in this industry. I see so much opportunity. We've had a huge impact already with the public cloud now. It's no longer: if it will happen, but inevitable. And to hear those words is amazing. And now with AI just exploding—let's go after it. Let's go change telco.

Cyrus:

[18:18] Love it.

DR:

[18:19] I know, it's so amazing. Well, Cyrus, this is such a great conversation and thanks for coming on the podcast.

Cyrus:

[18:25] Thank you.

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DR:

[18:26] 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. A lot of people think of Totogi as a charging company. If that includes you, you've got it way, way wrong. Totogi started with charging, but we're really an AI company. We're applying AI concepts to every area of telco software that we can. We want to throw away the bajillion lines of code that the industry uses now and start all over with a public cloud and AI-first mindset. When we started Totogi in 2020, we knew we would have to use the public cloud because we needed its scale and constant software innovation to fulfill this vision. The other telco software vendors out there don't have this mindset. They're trapped in the past—in their walled garden, still putting deployments out there on-premise. They treat the public cloud as an infrastructure provider or a data center. Totogi treats the public cloud as a software ecosystem.

[19:25] With our approach, you can't speak cloud agnostic, hybrid cloud, or even private cloud. You have to be all in on the public cloud. Our public cloud of choice is AWS, which is hosting its annual cloud conference, re:Invent, this week in Viva Las Vegas. It's running now through December 1st. I'm here. Are you here, too? If so, shoot me a message on LinkedIn or X at TelcoDR, so we can meet up and talk more about how Totogi is changing telco. And be sure to tune into more "What's Up with Totogi?" episodes, like episode 38 where we talk about the future of charging, and episode 49 where we talk about how Totogi's Charging-as-a-Service is so easy to get up and running. Be sure to share them with your colleagues, like and follow, and leave us a five-star review. When you're done, sign up for my awesome email newsletter on telcodr.com and visit our killer YouTube channel and hit that subscribe button. Later, nerds.