Mark Sanders: [00:00] How do we arrange our data and information into something we call knowledge, so that when we define outcomes for the network, it can be autonomous, meaning that the network itself acts on the knowledge it's got and decides the actions it needs to take.

DR: [00:15] So at Totogi, we call that a telco-specific ontology. Instead of relying on the judgment of different people or the hard coding of a workflow in a rules-based situation, can the AI now reason and apply judgment to make the right decision?

Mark Sanders: [00:31] I've got a big smile on my face when you use the word ontology. Not many people would understand what that means, but that's 100% what we're trying to do.

Announcer: [00:43] 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 Mark Sanders, the Chief Architect and Head of Autonomous Networks and AI Enablement at Telstra.

DR: [01:01] Hi guys. I'm DR. When was the last time you heard a telco proudly talk about disrupting itself? Not tinkering around the edges, but fundamentally rethinking how the organization works. For most operators, driving big change feels impossible. They're weighed down by legacy systems, rigid processes, and FUD: fear, uncertainty and doubt. But in this age of AI and cloud transformation, baby steps just won't cut it anymore. The future belongs to those with the courage for radical change.

[01:33] There's a telco down under that isn't waiting for permission to charge ahead. Telstra started its bold transformation journey five years ago with a vision that extends far beyond network upgrades and cost-cutting exercises. It's completely reinventing how it architects the network and leverages technology throughout the organization.

[01:54] Today I'm talking with Mark Sanders, Telstra's Chief Architect and Head of Autonomous Networks and AI Enablement, about how the company's composable architecture drives innovation, how it's transforming the network to be truly autonomous and why disrupting the status quo is essential for telcos that want to thrive in an AI-powered future. So let's take 20.

[02:19] Mark Sanders is Chief Architect and Head of Autonomous Networks and AI Enablement at Telstra. Hi Mark. Welcome to Telco in 20.

Mark Sanders: [02:27] G'day, it's good to be here.

DR: [02:28] Yeah. Awesome. We've got the Australian accent, which is totally amazing. That's probably because you've been with Telstra for 30 years and have had numerous roles at the largest telco in Australia. As the Chief Architect, you're leading some fascinating work at the intersection of IT, networks, data and everyone's favorite, AI. So what are some of the main projects you and your team are working on at Telstra?

Mark Sanders: [02:52] Yeah, it's worth saying, I don't think in my 30 years I've ever seen such significant change in technology and in the industry as we're going through right now, and the emergence of AI in our lives and what it means to our customers and how we adopt it internally. And so there's really three main focus areas that I'm helping Telstra work through at the moment.

[03:11] And the first is Telstra autonomous networks, and that's how we make our network fully autonomous and embed AI and ML and means our networks far more intelligent and self-optimizing and self-healing and capable of acting on business intent.

[03:27] The second one is what we call a composable architecture, and it's something we're very proud of in Telstra, called our Telstra Reference Architecture Model, which has really changed how we model technology and changed how we work inside the organization.

[03:40] And of course, the third one is just everything that captures data and AI and how we harness the great potential of that, and how we serve our customers better. I think through those three pillars, we're doing what we call disrupting the status quo and really thinking bold and large around how we lean into that opportunity into the future.

DR: [04:00] Yeah, that's super exciting. We're going to talk about that in a second. But diving into this, Telstra has been a leader in leveraging TM Forum standards and fostering that industry collaboration that they're really known for. And so how are you

guys integrating these standards into your future strategies and operations?

Mark Sanders: [04:18] Yeah, well, from the outset, those three priorities that I just talked about, they align to the TMF recent restructuring of their three missions, composable architecture, autonomous networks, and data and AI. And that's no coincidence because the industry, and certainly we as Telstra, feel that those are the three key pillars that we need to really drive forward as an industry, mature as an industry, collaborate as an industry, and certainly, we as Telstra and other operators, are going to benefit from them.

[04:48] But look, the areas that we've historically done really well with the TMF is the APIs, fundamentally simplifying how we all work with these industry APIs and making our ability to integrate technology far faster, reuse, they've defined a lot of great technology that we can all reuse, common problems and how we would approach it. And of course, their open digital architecture, which is the foundation of our Reference Architecture. And lastly, recently they've done some great work to kick off and really amplify the work of autonomous networks, once again recognizing how important it's going to be to all operators in the industry more broadly. So all of those is where we've been active and highly collaborating at the moment, but it's a great organization and it's really important that we all work together as an industry.

DR: [05:34] And I think once operators really start to use the ODA and the open APIs, have you guys found a struggle with that semantical meaning that's embedded in data structures that are built into these vendor systems? And even though you have that reusable code, the idea of vendor interoperability still has a struggle and it really is hard to switch out components. Have you guys encountered that?

Mark Sanders: [06:02] Oh, definitely. It's a great tension between the operator's goals and the vendor's goals. Obviously they've got business models and the telcos have got business models and they need to be very complimentary, but that's the outcome, that's the goal we want is to speed up and accelerate and simplify that integration through those open interfaces. And how we as an industry can encourage those vendors and suppliers to adopt those open interfaces so that we can all benefit from that. I think there's great progress occurring, but that is the challenge we're all trying to work to and solve.

DR: [06:33] Yeah, I think in recent years there's been a lot more adoption, especially by the vendors. The TM Forum published a cool stat, there's been over a million downloads and people certifying the API, so it's super encouraging that both sides, operators are adopting it and then the vendors are recognizing that they have to support that. And so you talked a little bit about your TRAM, your Telstra Reference Architecture Model. Was this a direct result of some of those challenges with the open APIs and some of those limitations leading Telstra to build a composable architecture? Is that kind of a result of those challenges?

Mark Sanders: [07:10] Yeah, definitely. If you wind back three or four years, we just got on with building great customer outcomes and the technology, we just kept evolving it. And over time, what you would realize is that you put unintentional complexity of how that technology's been built, and it means that when you want to adapt and change and innovate, it gets very, very hard and difficult to do so because a lot of that technology is very tightly wound together. So we were struggling.

[07:36] And so three, four years ago, we stopped and thought, we have to think about this in a very, very different way. The ODA from TMF was really starting to take shape and grow, and ODA is itself a composable architecture, very simple principles. It's about defining almost like a LEGO block type mentality. Here's a brick of a LEGO block, let's define this brick, this component, what it does and how you work with it and how you interface it. And that's the TMF.

[08:03] And then we've taken those same specifications and extended it, adopted it in our TRAM Reference Architecture. So we've defined all of those technology LEGO bricks, and now the benefit is unlike the past, we can now put the innovation into the hands of the right people to assemble those bricks together to create great products faster and more efficiently and drive a lot more innovation by composing. And that's where the word composing comes from.

[08:31] So yeah, started a few years ago and it was really because we were not fast enough and we were too inefficient and the innovation wasn't where it needed to be. And so we've, over the last few years, progressively evolved our TRAM.

DR: [08:44] Yeah, no, that's super interesting. And so you guys have also been setting ambitious goals for autonomous networks. How are you transitioning from traditional automation and now into more autonomous systems?

Mark Sanders: [08:57] Yeah, it's a big significant shift. I'll start with network engineers have been evolving, again organically, for many, many, many years. And there's well-worn practices around how you would plan your network and design your network, build it, operate it, and of course, assure it. And the big distinction between automation and autonomous is when you are automating all those functions, they're still very process driven. Behind it is still a human and network engineer that's having to write code and scripts and what those processes represent, even if they're automated.

[09:30] And then when we shift to autonomous, there's a significant shift because we don't want to define all those low-level processes. It's becoming very difficult and hard to keep and maintain them. We want to lift it up and really talk about outcomes we want the network to do. And build the underlying technology around how we, and you mentioned it earlier, DR, data. So how do we arrange our data and information into something we call knowledge? And we're working with the industry and the TMF on this concept of knowledge, but how do we arrange the knowledge so that when we define outcomes for the network, it can be autonomous, meaning that the network itself acts on the knowledge it’s got and decides the actions it needs to take.

DR: [10:12] Yeah, and I think the LLMs are coming out with reasoning models, and a big topic at MWC this year was agentic AI. And so that seems like you guys are beginning to separate the knowledge into something that an LLM could ingest. At Totogi, we call that a telco-specific ontology. It has knowledge about the telco business. We're focused in the BSS area, not in the network area, but what are the typical processes? What are the business rules of this telco? And if you could have the best person at your company or maybe even the best person in the industry making this decision, can you embed that knowledge into the agentic AI and insert that into the process instead of relying on the different judgment of different people or the hard coding of a workflow in a rules-based kind of situation, can the AI now reason and apply almost judgment to make the right decision?

Mark Sanders: [11:08] Absolutely. You described it very well, and in fact, I've got a big smile on my face when you used the word ontology. Not many people would understand what that means, but it's fantastic. It's exactly what I do. That knowledge needs to be based in a structured ontology, and that's data with the relationships between them. And we need to, I'll say, codify that knowledge.

DR: [11:24] Absolutely.

Mark Sanders: [11:24] That's the key secret that we're talking about here, whether it's in the BSS, the OSS, or in the network, how do we take that knowledge and codify that into a way that these agentic and LLMs and new technologies can interact with? So yeah, that's 100% what we're trying to do. And even a few weeks ago we discussed with various industry leaders, should we as an industry start to define what that ontology should be for the industry? So, really important. And that's exactly what we mean by knowledge.

[11:54] And I think your other point on agentic is really valid too. We simply can't throw agentic on the top of how we work today and hope for a different outcome. It's got immense power. We could do a bad implementation of agentic, so we need to be very considerate of how we introduce all the potential of agentic and solve some of the underlying challenges like the ontology and that knowledge that you just mentioned.

DR: [12:15] Yeah, and again, internally at Totogi, we had a big debate because I used the word “ontology” in my MWC presentation this year and half the team was like, "People don't understand it." And then other people were like, "No, it's super important." And so I agree that people struggle to understand, what do you mean by this word ontology? But it really is embedding the knowledge about the objects of the telco world, products, subscribers, the network, and the nouns and verbs that happen inside running a telco and running a network. And so I'm super passionate about it.

[12:51] Agentic is a station on a long train ride of AI, and I bet you in a year we won't be talking about agentic AI, we'll be talking about some other invention because the LLMs just continue to add these new capabilities. But we're just going through the stations of AI, and I think we're still at the beginning of our journey, not the end.

Mark Sanders:

[13:11] Oh, indeed. And you think of how we would've had this conversation a year ago, it would've been all about GenAI and LLMs. And look, we've all started to race and get some early wins in terms of doing that. And I often talk about this concept of the chasm. We race out, we use an LLM and we access our information and data stores and summarize and all sorts of great, great work. And then we realized that, hang on, we need to go back a step and rethink some of the underlying ways we're working. And along the last 12 months alone, we've all seen the introduction of terminology like RAG to help with that reasoning, retrieval augmented generation. And that got us another little bit further.

[13:51] And then along comes agentic, and everyone's very excited, as we all should be, of its immense potential. Then you suddenly realize, well, hang on. These agents need to interact with all that information and all those tools. How are we going to solve that problem?

[14:03] Now in the last month or so, there's an emergence of new things like MCP that's coming out around how you would potentially interact with those. And to your point, three months down the track, 12 months down the track, there'll be more innovation that's continuing to come out. And so it's a very exciting time, but also a very challenging time. We have to balance around how we're driving getting value from these now, which we can do, with trying to think around what is the right way to do it? Because we want to be able to scale this up, we don't want to do little point projects and little wins, we want to in time embed this in our business and scale it up in a big way.

DR:

[14:39] You know, I think there's a lot of people waiting on the sidelines and they're frustrated by the kind of advance on AI, and then a new model comes out and then it's a little bit worse, kind of a jagged edge of AI. And I'm like, if you're going to climb Mount Everest and totally change the way your entire telco works or a large organization is going to work, you need to get on the mountain and there's going to be setbacks on that mountain and it's going to be cold and it'll be hard. But in order to get to the top, you've just got to grab your mountaineering gear and start scaling it. And I tell that to the Totogi people and the developers that you have to keep trying, every week something new comes out and you just got to keep climbing the mountain of AI.

Mark Sanders: [15:16] Oh, definitely. And we just talked about where we were a year ago, where we are now and where we might go in a metaphor of the mountain. I mean, think of where we'll be in three, four, five years from now. And you think of not just the impact of the new technology, but the impact of how it's going to change how we work, our business processes, how work comes into what we do, how we serve our customers, how we interact with our customers. Everything is going to be quite different, different in a good way, but the change I think is going to be quite profound. So we've got to try and really climb that mountain and just keep moving along with it.

DR: [15:48] I mean, I think every job is going to be redesigned and it's not designed around the way the human has done the work. But instead, how can AI do this task with a human guiding it or handling the exceptions? And it's such a paradigm shift. I think it's really hard for people to imagine that. And so you mentioned this at the beginning, you guys are trying to disrupt the status quo, and that's totally what you have to do. And so what does that mean for you and why does having a bold vision for the future so important for Telstra and for telco?

Mark Sanders: [16:20] Yeah, and it goes back to what I said at the opening. The world is changing very rapidly, and we think connectivity is going to be a really important part of that future world for our customers and certainly how we work. And we are very mindful that it's not just going to take some incremental changes. We're trying to really think big and think bold. What are the larger changes we need to make? And embrace them, climb that mountain, as you just said before. And we're going to have some challenges and we'll get stuck along the way, but continuing to persist through that.

[16:50] And for us, there's a significant distinction between how we do great innovation as we've always done, to actually disruptive. And in disruption, it is about stopping for a moment and thinking this isn't just about the technology, it is how that technology will change how we work and how we interact with our customers. It means that when we embrace disruptive technologies, there's differences in how you think about it and how you approach it and how you drive that innovation.

DR: [17:18] Well you know, I spent some time as an HR professional and helping executives reshape a culture. And if you're going to be disruptive in the way that you're talking about, it really has to come from the most senior level of the organization, from a supportive board and a CXO team that is all bought in and willing to maybe even take some risks and have some setbacks in order to achieve this bold vision. And so you don't find those people every day in telco. So that's so exciting to hear you guys talk like that. But going boldly where no man has gone before.

[17:56] I usually end my conversations on the podcast with something I have in common with the guest. But today we're going to end with something that probably no one has in common with you, and that is you're planning a trip to Antarctica this year. And so I wanted to ask you what inspired this adventure and what are you most looking forward to seeing?

Mark Sanders: [18:13] Yeah, it's going to be great. I'm very excited. It was a birthday gift from my wonderful wife and just a place of the world that very few people have seen, as you mentioned, and it's just going to be an incredible opportunity to witness and see such a remote, pristine place on earth and I can't wait to see some of the great breathtaking landscapes. So yeah, it's going to be a very fun time.

DR: [18:36] Well, I'm jealous. I want to thank you for coming on the podcast and it was really great to talk to you about Telstra.

Mark Sanders: [18:43] Great. Thanks for having me, DR. Enjoyed it.

DR: [18:49] 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.

[19:00] Mark and I just talked about one of the biggest hurdles facing telcos, being able to achieve true vendor interoperability across your BSS estate. It takes an impossible amount of code to get them to talk to one another, and vendors aren't in any rush to make it easy to swap them out. After all, they make millions of dollars on customizations, integration projects, and upgrades while they keep you trapped in their walled gardens. But the good news is that thanks to AI, the public cloud and innovators like Totogi, telcos no longer need to rely on old school vendors to help them out. Totogi's BSS Magic adds an AI layer on top of your existing BSS systems that finally makes them work together like they should have from the beginning.

[19:42] It uses a telco-specific ontology that is 100% based on open centers like TM Forum's ODA, to help your team finally take control of your BSS ecosystem and get you ready for your AI-powered future. Want to see this game changer in action? Come find Totogi at TM Forum's DTW Ignite running June 17th through the 19th in Copenhagen. We'll show you how BSS Magic can help you achieve vendor interoperability once and for all. Send me a DM on LinkedIn or X @TelcoDR to set up a meeting. Until then, tune in to more “Telco in 20” episodes, like and follow, and leave us a five-star review. Don't forget to sign up for my awesome sauce email newsletter on telcodr.com and check out our rockstar YouTube channel. Later nerds.