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Modernizing telecom connectivity and networks with AI

Podcast Transcript

Ajay: Welcome everyone to the Telco Tech Trends podcast where we're going to dive deep into some of the biggest shifts shaping the telecom industry. I'm your host, Ajay Chankramath and today we have an exciting conversation lined up for the role of AI in transforming telecom networks and connectivity. With 5G adoption skyrocketing, the industries at crossroads telcos are striving to evolve beyond just being a connectivity provider and becoming more of that central force in driving that digital transformation.

AI is playing a pivotal role in that shift, maybe from improving that customer experience and reducing that operational efficiencies to enable that autonomous networks and unlocking new revenue streams. To help us explore this transformation, I'm joined by three amazing industry gurus. First, I have Sean Cassidy, a thought leader in telecom security and AI driven customer experience.

He's currently the Managing Director of Communications and Media Business at Brillio. Welcome Sean. I also have Hari Srinivasan, an expert in network optimization, cloud strategies and predictive AI. Hari is currently Managing Director and delivery head of Communications and Media at Brillio. Welcome Hari. And last but not the least, I have Prashant Maloo, who's the current CTO of our telecom business here at Brillio.

Prashant specializes a lot on the autonomous networks, interoperability and the trust building telecom in essentially the whole business within the telecom space. Gentlemen, welcome all, let's jump right in here. Sean, I'm going to start with you. Let's start with some of the aspects around customer expectations. So with consumers demanding faster, more personalized and seamless digital experiences, how do you see these expectations shaping the future of telecom services?

Sean: Great question. First off, I think it is important to realize that the telcos are going through a massive transformation where previously they've been the all encompassing provider of a digital experience. From the digital solution down to the infrastructure, all the way down to the various applications that will run in this digital world, they've now really kind of positioned themselves to really be at the core the connectivity between two consumers or consumers and businesses.

To that end, those consumers want everything faster, very tailored to themselves in an effortless experience to make the choice of which provider they want to go to. In terms of speed, it's not just about high bandwidth, it's about near zero latency for streaming, gaming, immersive experiences. This pushes telcos to invest heavily in advanced network technologies like 5G and

eventually 6G, bringing real time capabilities to everything from remote work to augmented reality.

In terms of personalization, this really becomes the differentiator for the telcos, their ability to leverage the massive amounts of data that they have at their disposal and leveraging that into the analytics in AI to deliver a customized recommendations, tailored pricing plans and proactive support. For instance, AI chatbots can learn user experiences over time, offering suggestions that feel unique to each customer.

This level of individualization fosters loyalty because it shows an understanding of the customer's specific needs and wants. In terms of convenience, this is paramount to the telcos being able to deliver the frictionless interactions, whether it's signing up for new services, resolving billing issues or upgrading their devices. This demand is driving the adoption of self-service platforms, enabling users to manage their own subscriptions anytime, anywhere, anyplace.
As a result, telcos are rethinking their service design from the ground up, optimizing every touch point online or offline to be more intuitive and responsive. In essence, telecoms that meet these expectations for speed, personalization and convenience aren't just future proofing their networks. They're strengthening customer relationships and unlocking new growth opportunities in the process.

Ajay: Thank you Sean. I know you covered a lot of ground there. So the way I understand that is that it sort of touches, right? I mean AI is probably going to touch that whole spectrum of things. The content generation, content delivery, the personalization, the overall experience, right? It's really fascinating to see the impact here, so thank you Sean for that.

So Hari, moving on to you. So AI is sort of driving those major efficiencies in telecom networks, right? I mean, so can you share some practical AI driven use cases that you are seeing? Whether it's on the network optimization or predictive maintenance or customer insights. A lot of things Sean also touched upon.

Where do you actually see that revolution happening?

Hari: Thanks Ajay. It's an excellent question, right? A is everywhere, isn't it? And if in a telco world, in a landscape of oss, bss, if network tops the area where A is playing a big part, followed by the customer experience which is on the churn analytics, another real time feedback.
So what AI can do here, right? It can value add a lot. It can leverage data driven insights, automation and predictive capabilities to improve efficiency. It can also reduce cost, enhance reliability and improve customer experience. Let's take two examples on all these three major areas. First, the network optimization.

I see two key use case in network optimization. One is your digital twin. The second is your network capacity planning. The digital twin. Right.

And it's an age old concept where you create virtual replica of network infrastructure to simulate and analyze performance under different stress Scenarios AI can play a crucial role here by handling data integration and processing. Predict future outcomes using analytics. Generate models for various scenarios and a use case can also detect anomalies here.

And if you take the capacity planning, AI can analyze all your historical and real time data to forecast network demand, helping in planning infrastructure upgrades or expansion. If you take a practical typical example right now, which all the telcos are trying to solve, how do you

determine what coverage and how much of coverage is required to expand your 5G?

That's one big example AI can solve for you. And if you take the predictive maintenance, that's very key here. You don't want the systems of equipments to go down when an enterprise or a retail customer are in the middle of a critical meeting or anything. So one example is your equipment failure production.

By analyzing data from network equipment, AI can predict when maintenance is needed, reducing downtime and expanding the life of equipment. The second critical use case I see is your asset health monitoring. That was very key. You don't want the asset to just go down in the middle of a life cycle, right?

Continuous monitoring of asset conditions allow for early detection of anomalies or degradation. A can assess performance metrics like your packet loss, latency and throughput to predict hardware issues to maintain router and switch it. The last area which is the most critical is your customer insight. The new mantra is retention is the new addition, right?

So the churn prediction, right? To prevent customer churn, AI can analyze customer usage patterns like data consumption, type of services used and come up with a dynamic pricing. AI can also help providers with a detailed behavior analysis of customer to prevention. The last is your real time feedback. That's very key.

When a call center executive is talking to a customer, you need real time data to ensure the customer experience is a tool monitor customer interactions in real time and provide instant insights and enabling quick responses.

Ajay: Thank you, that's fantastic. And I'm sort of starting to hear a theme sort of building out here. There is a lot of aspects of reliability that you spoke about, a lot of aspects around customer experience. And again, as you really start building that customer experience, I'm also hearing the aspects of not just what the customer actually gets from the system, but as you're really trying to provide the kind of support or provide the kind of additional support to the customers.

Even for the people who are providing the support, how do they actually make that a lot more enabled? So fascinating area. Prashant coming to you, right? We know that autonomous networks are the real game changers here. But we also know the fact that the success of those things depends on that interoperability between different equipment vendors and cloud providers and global markets.

So we keep talking about 5G and the kind of whether we keep hearing, some parts of the world are far more advanced when it comes to 5G. So the global markets, if you really look at all the evolution, it is still sort of coming together to be had and a lot more consistent than it used to be.

Right. So how critical is this? What do you see as the bigger roadblocks as you try and do this?

Prashant: Networks are layers of complex architecture and autonomy. In this network is an evolution which is happening as the networks evolve. While earlier we used to look at automations and innovations in the network space in each of the layers to see how it evolves, now with a lot of AI coming in, there's much more autonomy that can be achieved within these networks.

And what we call as autonomous networks fundamentally hinge on the idea of moving, you know, what, what Hari said, from an insight to an intent to an action. And that is what we call in the

autonomous network world as closed loop controls. Right.

Implementing this closed loop controls is, is not that easy because you need to look at how the networks are layered, how it comes up from a bottom up and a top down.

And that's really crucial for accelerating this true autonomy. Telcos are on their path of achieving autonomy and with AI advancing day over day, there are much more levels of maturity that can be added here. Just take the example of a bottom up layer. We have the network resource layer, we have the services layer and the business layer.

Each go through their own closed loop mechanism, their own way of, you know, automations. There are a lot of intents within these layers, but what's most important is how these loops interoperate with respect to intents being traversed across and the actions being able to top down and bottom, bottom.

The same applies if you look at the layers from a different perspective of today, what we call as infrastructure, platform applications, you know, with a lot and a lot of things running on the top, the larger the scope of the closed loop control that we do here, the complex becomes the end to end handling.

And when we talk about heterogeneous networks, we talk about multiple vendors, we about multiple clouds or even different regions, the data coming in from there and as Sean was saying, you know, customers look at speed, they look at convenience, frictionless interactions and how do we enable this across these layers really forms the path to maturity for autonomous networks.

Ajay: Well, that's fantastic. Prashant I think we should probably have deeper conversations on each of those topics. So this is fantastic for the listeners to actually take it in. So, Sean, sort of switching topics a little bit onto more in the security side of things. Right. So with quantum computing and edge computing rapidly evolving right now, what's your recommendation on what telcos should be thinking about from their security frameworks?

Sean: To obviously protect critical data and infrastructure, which is a huge problem that has been around forever, but it's so much more important today than ever being right.
Before we even get into the quantum and edge computing discussion, I think it's important to note that I think regulation is going to be a key consideration for the security frameworks. I think the ability to manage the complexity of a distributed network, a network that sometimes even spans multiple providers that they don't control, is going to require them to think differently about how to put in place security frameworks across the network end to end.

So ensuring that data remains within specific geographical orders while still enabling this low latency edge processing is going to call for policy based orchestration and careful placement of edge nodes. So I think first and foremost it will be driven a little bit by regulations as opposed to just the technology.

On the technology side, with the rise of quantum computing and edge computing introduces a dual challenge for telcos. Post quantum cryptography on one hand and distributed security on the other. Quantum computing could break many of today's encryption algorithms. So telcos must start integrating quantum safe or even post quantum cryptographic methods to future proof their systems.

Although practical quantum computers may still be a few years away, adapting cryptography cryptographic agility now, where systems can be quickly updated to new standards, will minimize risks as soon as quantum threats become real. At

the same time, edge computing pushes processing closer to end devices outside the control, sometimes of even the telcos, dramatically expanding the potential attack surface.

So ensuring that there is a continuous threat evaluation and management requires a robust zero trust approach where every node, every device and workload is treated as potentially hostile until verified techniques like micro segmentation and consistent encryption of data in transit and at rest. Become critical. AI driven security monitoring can detect anomalies in real time and automate responses before threats propagate.

Ultimately, adapting these security frameworks in the quantum and edge era means embracing cryptographic agility, zero trust principles and holistic orchestration to protect both data and infrastructure in a rapidly evolving threat landscape.

Ajay: This is so apt considering that Microsoft just came out with their announcement of their quantum chip like, you know what, a couple of weeks back, right. I mean, this is something that people should be really starting to think about. So thank you for that, Sean. Hari. So one of the things I've been thinking about is that telecoms increasingly migrate to the cloud, right? Adopt multi cloud strategy. It's nothing new. I mean it's been going on for what, past at least seven, eight years, if not more. So how can they actually sort of again, keeping on this same thread of security, right? How can they maintain that robust security, ensure seamless workload, orchestration and ultimately that data sovereignty.

Hari: Right. I mean, because all the problems that we typically talk about when you do that migration is sort of exasperated in my mind when it comes to telco. Right. Because of the kind of challenges that you have. So how typically approach that? Good question. Thank you. I think one size doesn't fit.

All right, so telcos, they have on prem single cloud, multi cloud, they have all possible combination, right? So balancing is very key here, right? So they have to balance among security, seamless workload, orchestration and data sovereignty. Sean touched a great point, right? Zero security breach, right? Zero trust. If you want a zero breach, you need a robust security sats with the zero trust approach.

That's very key here where every user, every device and every service must continuously verify its credential. This includes your encrypting your data when it is at rest on your servers or on your cloud. Also when it is in transit between clouds or between your services or APIs. Enforcing strict access controls and regularly auditing cloud services for vulnerabilities is very important.

By combining these measures with automated threat detection and response, stakeholders can stay resilient even as they scale. Second one, the seamless workload. Orchestration is achieved by standardizing on containerization and policy-based management. Platforms like Kubernetes can give unified different and cloud environments under a single orchestration layer, ensuring that applications can be deployed quickly and consistently.

AI driven orchestration can further optimize resource allocation by dynamically adjusting workloads to balance cost, performance and reliability in real time. Finally, data is very key. You don't want data to reside in wrong places. Managing Data sovereignty is about understanding where data resides and complying with your regional data protection laws.

Telcos can work with cloud providers that offer

geo redundancy and data resiliency options. Ensuring sensitive data never leaves certain geographical boundaries. In some cases, on premises or edge deployments may be necessary to comply with strict regulations. By layering all these elements, security, workload, orchestration, uncompliant telcos can confidently harness the power of multi cloud while respecting both legal obligations and customer trust.

Ajay: This is great because one of the things I remember reading recently is that I've been working on cloud migration related activities for so many years, is that if you really look at some of the biggest footprints on the cloud, across the board, across any of the CSPs, you always see that it's usually telcos, right?

That sort of validates the point that this is one of the most complex and the most compute intensive, not just from a compute point of view, the data and compute intensive footprints that you can think of. So thank you Hari for that. Prashant coming back to you. Right, so we know that AI is playing a bigger role in telco operations, right?

I mean, whether it is sort of maintaining that consumer trust or is it something that is more on the technology side of things. We know that these telecom operators need to ensure some level of transparency and accountability while leveraging all these great insights that you could get out of AI.

How do you see the telecom operators doing that?

Prashant: Building and maintaining consumer trust in today's complex digital environment is a multi pronged approach, right? And definitely it fundamentally revolves around transparency and accountability. Firstly, telcos must communicate clearly on how they collect, store and use customer data. This is by providing easy to understand privacy policies and real time notifications to customers so they feel control of their information.

Now communication holds the key here. And secondly, now as we implement the robust security measure, we may go ahead and implement quantum cryptographic measures. We implement a lot of robust security mechanisms. We also need to have systemic approaches in those frameworks on how frequently we audit them and it is just not the security measures.

We'll also have to look at frameworks for AI tourism, the trust, risk and security management of AI and regularly auditing the networks, regularly auditing the AI systems. Telcos need to identify vulnerabilities and respond decisively whenever breaches or issues occur. Swift and honest disclosures of what has happened, of any incident and with clear mitigation steps.

It's vital to preserving consumer confidence and also that telcos hold a larger accountability to the consumers collectively. Finally, it's all about user centric experiences where we communicate, we build a trust and then we prioritize security and privacy that lasts over a period. By demonstrating empathy for users by aligning the products and the services with real time user needs, keeping it minimal, building robust systems.

I think this is what would make the data protected and consumers being protected. In the end it's all about consistent transparency and accountability and they're just not legal. Checkbox they serve as strategic differentiators. They help Delbo stand out and earn that consumer trust in this crowded digital marketplace.

Ajay: You put it so eloquently, right? I mean, so consumer trust is north. It's a checkbox. This is something that is the true differentiator and those are the players that are actually going to survive

in the long run. So it's been a fascinating discussion. So I'm going to come to my final question.

I'm going to go around the room and ask each and every one of you and maybe I'll start with you, Prashant. Right. And each of you should probably give it a shot or hopefully we'll get somewhat different perspectives. Right, so this is the question. So if you really talk about all the things that we covered today, right, the actual customer experience, the kind of challenges with respect to the security aspects, the kind of delivering the content, I mean there's so many different aspects to that, but eventually it's all about that ecosystem collaboration.

So if you really look at the telecom industry transitioning from those utility providers to more of experience enablers, that's how I would look at it. Because a lot of you, I mean, I think all of you touched upon that experience side of things. So how important is that collaboration between telcos and the technology providers and the regulatory bodies?

And I know, Sean, you touched upon those things, right? In shaping that overall landscape of 2025 and beyond. When we are really looking at, we are at the tipping point if you ask me, with respect to AI coming in. You know, we're not even talking about generative AI in 2024.

You're already starting to talk about agentic AI and all that. So how do you see those, you know, that ecosystem collaboration happening? And more importantly, right, how do you see the AI sort of helping the operators monetize their infrastructure beyond connectivity and move into value added services? You know, this is another topic you all touched upon and to me that is ultimately a super important activity, right?

Because you can do all the things the right way, but if you are really not having a viable business model around it, it isn't going to be sustained over time. So I'll let you start Prashant.

Prashant: Telcos are no longer the service providers who offer you voice file connectivity and some bytes of data for, for the last five years and now if you're looking at the future of the next five, 10 years, telcos are the connectivity platform providers. They moved beyond telcos, holding a lot of this consumer data.

They are the platform that define the human centric experiences platform that allow you to use AI to build those human centric experiences. And as it's traditionally been, it's always been an ecosystem of telco, be it the OEMs, the software vendors and now what we call as the AI platform vendors, the disaggregated softwares that are coming into the network space.

It's always been an ecosystem play for the telcos and then now getting in the new experiences, new ecosystem players, be it from the hyperscalers, be it from the tech boards or be it from the new industry verticals that come in. I think this is going to go larger and larger that telcos become the enablers of connectivity, enablers of human centric experiences, enablers of users consuming AI on their devices within their enterprises.

And this is just going to get larger and larger and more interesting.

Ajay: Thank you Prashant, well put. Hari, over to you.

Hari: Yeah, I think you brought up a great point. The collaboration between telcos and technology providers incredibly important in today's fast moving, fast evolving digital landscape, right? See telcos rely on technology providers for infrastructure, their software cutting edge solution needed. They have to deliver a high

speed connectivity that's critical.

They rely on them, right? Think about the 5G networks, the cloud computing, the IoT platforms. Telcos need them all. They need a strong hardware like your base station from Nokia Huawei, your software like your AI driven network, you name it, right? And if you take the other side, the flip side, the technology providers need telcos to bring their innovations to life.

Groundbreaking piece of technology like a new chipset or a cyber security solution, you name it, right? So the collaboration is super important, right? Mistakes are also very high. The customer expectations are relentless. I mean customer needs everything now and they need on top of the, you need to be on top of that game.

People want low latency, constant uptime and new services like your smart home integration or your, the trend is your AR VR experiences. Take 5G rollout as an example, right? Tyco is like the key players like Verizon or AT&T partner with tech lab giants like Your Qualcomm or Cisco to make it happen.

Right. So it's not just about survival anymore, it's about your opportunity. Your joint effort can unlock new revenue stream like your edge computing services or your enterprise solution. Right. So it's not all rosy. There are misaligned priorities. Slow decision making can stall progress as well. Right. So when it works, this collaboration can shape the backbone of our connected world and we can do wonders.

Ajay: Yeah, I mean, the promise of collaboration is fascinating. Right. Again, sometimes, like you said, some of the results that we see are sometimes suboptimal, but there's tremendous opportunity to do better there. Sean, you have the last word. Sean: Thanks, Ajay. Yeah, I think largely Prashant and Hari addressed a lot of the key points. I think the key for the telcos in this new world is they become the, the point of success or the point of failure for whatever experience the world is trying to experience. So you look at some of the recent involvements of shows that have broadcast fights and then there's a poor experience.
It all gets blamed on the telcos.

Right.

Or there's a Twitter feed that goes off and the world goes nuts looking at this. And people get to see that information in real time and they get to enjoy that experience. And it's because of the success of the telco, but it really becomes a collaboration end to end of the telcos, the applications, the technology partners that all make it work.

And the really important part of this is that the telcos become the enabler for all of the successes of those. And I think it's a great opportunity for the telcos to be in that driver's seat. And they're going to take advantage of it by bringing together a network that guarantees uptime, guarantees the ability to handle peaks and valleys of demand.

And they're setting themselves up for success into this new value added world of services and solutions that will spawn new solutions within each of the verticals.

Ajay: Awesome. Awesome. This is such an insightful discussion. Right? I mean, we all now learn and read about this all the time. That AI is clearly redefining telecom, whether it's enabling smarter networks. And these are some of the examples the panelists talked about today, right? You know, sort of enabling smarter networks and improving their overall customer experience, enhancing security.

We also talked about things like unlocking new

revenue streams, you know, so. But what's really evident is the fact that telcos cannot do this alone. Right? I mean, the future depends on that collaboration, innovation and that AI driven transformation. So a huge thank you to Sean, Hari and Prashant for sharing your expertise today and to our listeners.

If you enjoyed this conversation, definitely reach out to us. We are happy to have one on one conversations with you or with your organizations, but until next time, stay connected and stay ahead.

Thank you.