CCS Insight Podcast: The Role of Data in the Future Telecom and 5G Universe

Nick McQuire:

Welcome to the CCS Insight podcast. I'm your host, Nick McQuire, and today, I'll be joined by Matt Olson from Splunk and Kevin McBride from Lumen Technologies. We're going to look at the role that data and data analytics is going to play for telcos over the next three to five years. Now, we hear a lot in the industry about data and data transformation, but it's actually becoming a huge topic in telecoms right now, particularly in light of a lot of the change that we're seeing today, but also the change that's coming down the line in the telecom space. On one hand, we've got this really fascinating transition to 5G happening, and at the same time, telcos all over the world are migrating to the cloud, both from a network perspective, but also from an operations perspective.

Nick McQuire:

You've got the evolution of the edge, and new kind of experiences, both consumer and enterprises, that are unfolding around the edge. And obviously, we're going to see an evolution there down the line. And of course, you've got a lot of the change happening to the operator business model, whether that is around how you monetize data, or indeed, how do you improve the customer experience? So, there's a lot of change happening, and obviously how operators will not only monetize data, but also get value from data, both from a strategic perspective, but also from a business opportunity perspective, I think will be very much determining their fortunes over the next number of years. So, these are some of the core topics we're going to dig into today. And before we get into it, though, I want to actually give my esteemed guests the opportunity to introduce themselves and their organization as well. So maybe start with you, Matt. Over to you, introduce yourself and your organization and role.

Matt Olson:

Thank you, Nick. My name is Matt Olson. I am a strategist for communications and media at Splunk. So really in this role, I'm just bringing the power of data analytics and data science to the needs of the communications industry. And I'm coming out of, well, a little over a few decades actually, working in telecom, primarily focused on data analytics and data science, and also on OSS capabilities for virtualized stacks. So, I'm very pleased to be here today.

Nick McQuire:

Fantastic. And over to you, Kevin.

Kevin McBride:

Hey, good morning, guys. My name's Kevin McBride. I'm from Lumen Technologies. I've been here at Lumen for 15 years, and that's just hard to believe because it feels just like yesterday that I started with the company. But I've had the opportunity to be in all different areas of the Lumen network as it's matured over the years and grown to become this global footprint of networking and companies that make up the Lumen Technologies. So, I have an experience that comes from IP and Internet background, data store and management, got to work through the exciting times of IPTV, and then now into NFE and edge computing technologies. And so today, Lumen, I work primarily on proximity-based edge

computing and how our customers are leveraging the edge computing for deploying things like 5G mobile edge compute technology.

Kevin McBride:

As we have this discussion today, I know one of the title items is 5G. So why is Lumen here since we don't operate a mobile network? We'll get into that during the discussions today, because we empower all the mobile network operators with our network services. And that's going to continue to be really fascinating as compute technologies and beyond x86 comes into play with 5G and other networks. So, excited to be here today, thanks for the invite.

Nick McQuire:

Yeah. Great. We absolutely will get into that. And before we do, I should also say that the chat today is largely based on a report that my organization, CCS Insight, did with Splunk in partnership. And we looked really closely actually at some of the more immediate opportunities that operators can unearth, and ultimately achieve some significant operational excellence for their organization through data analytics. So please, for those of you, we'll put the notes to that report and give you a chance to take a look at that report, please do take a look at it when you do get a minute.

Nick McQuire:

But today's actually about looking a little bit further down the line. And maybe before we think about the three- to five-year trajectory and the role that data's going to play in light of 5G and a lot of these transitions: I think it probably is fair to say, Matt, and bring you in for the first question here, but I'd just be curious for you to level-set to our audience today about where you see operators are today when it comes to the level of transformation that they're facing, 5G as well, and where you see data analytics playing in light of that transformation. So maybe we'll start with you, and if you can frame us out there, we'll get going.

Matt Olson:

Absolutely. I think, taking the 30,000-foot view of things in the present state, all the major carriers are really focussed on 5G consumer roll-out, and then the introduction of SDN, NFV and virtualized network services. But I think it's really in the very, very early stages, where, though there are transformation initiatives underway and new technologies being deployed, really, the vast majority of the communication service industry is still somewhat in the legacy sort of architecture mode. And I think that really, the substantial transformation is yet to come.

Matt Olson:

And I think that the current focus is really on available of 5G for consumers. But I think, as we'll delve into in greater detail here, really what's just beginning in the very, very early stages is the introduction of virtualized edge compute-enabled capabilities that are far broader and really touching on industrial applications and IoT capabilities. So, I think just to sum it up, I would say, very, very early stages. Every carrier recognizes the need to transform, and has begun to engage in a transformation process, but early, early stages.

Matt Olson:

And I think that data is absolutely key. I think that data is absolutely central to all of this. We've already seen with 5G and virtualized stacks, it introduces so much more data in real-time fashion. This has been really critical to driving strategy and securing and providing service assurance, but also enabling a lot of new capabilities.

Nick McQuire:

It's really interesting hearing you frame it in that context, Matt. And before I bring in Kevin, because I'm very keen to hear a little bit about the Lumen experience directly in this area, when you look across all your customers in telco, Matt, specifically, where do you see some of the innovation happening with data at the moment? Where do you see is the common source of activity for the operators?

Matt Olson:

Well, I think the first thing is leveraging data in near-real time. Ideally, leveraging data in motion really at the point of need, where you need to drive those inferences. So, it's shifting from a centralized stored model of data analytics and inference to a streaming and more real-time derivation of inferences and insights. And also, not only driving those insights, but driving automation and action on the basis of the data and the derived insights. I think this is one of the most exciting things about new technologies in virtualized stacks, is that you have the opportunity to automate, to orchestrate with exposed APIs.

Matt Olson:

So more and more, we see data not just providing insights, but actually driving action within the networks, within the services. And again, I think it's very early stages, but this is, in my mind, where the most exciting developments are. And of course, this goes hand-in-hand with the application of machine learning, which allows then predictive and prescriptive inferences, and the execution of actions in anticipation of needs.

Nick McQuire:

Fantastic. Kevin, a lot going on in Lumen at the moment, over the last couple of years, public acknowledgement of the level of transformation happening. What role, maybe frame that out a little bit for us as well, the level of change that you're seeing in your organization, and also the role that data analytics is playing for you as part of that transformation effort.

Kevin McBride:

Yes, absolutely. So, the main transformation at Lumen has been adopting the platform model: providing that platform for not only our internal use cases, but our customer use cases, and leveraging the same common generalized platform for both internal needs, developing new managed applications and services for the customer, but also, just letting the customer consume it and do what they need with that platform. What that's really enabled is, if you think over the years since 4G rolled out, and 3G to 4G evolutions, there was a move to leverage the networking, our layer-two networks within our metro networks. And now what you're seeing is the introduction of compute, storage and networking at the edge, to be able to host these applications.

Kevin McBride:

And like Matt was talking about, this is enabling a brand new paradigm of applications that have proximity needs, or low-latency placement, to be able to execute on their decision-making. One of my favorite companies, their motto is "data has gravity". I'm not going to mention who they are, but data does have gravity. So, when you're thinking about the network and the compute and storage aspect, you don't want to be moving all the data around that's making decision-making. And what we're seeing now is this evolution of being able to leverage the close-proximity edge computing, five milliseconds for a mobile network operator as an example, as the first example, able to host their CU and DU functions for their 5G network in our edge compute.

Kevin McBride:

And then enabling our customers that have fixed networks and enterprise networks that are their IT area, to be able to connect to those operating technologies out on the 5G network. That could be anything from in a transport logistics company, the vehicle, the person with the scanner and the packages. In evolution, it's going to be drones and robotics delivery. But what we're seeing is the embracing of the 5G technology plus the fixed network and the edge computing. And for the customer benefit, we're seeing really game-changing... There's a reason why Lumen's focussed on the fourth industrial revolution: because there's a pivot now to using these robotic systems on different types of environments. It could be anything from a robotic juicing facility to a package sorting facility. Programming control logic is moving into edge compute to drive down the cost of the robotics gear, and it's a super exciting time because as the price of those technologies come down, and the intelligence is moved into edge compute with 5G and fixed networks being able to stitch together, that's what actually enables the next generation of things.

Kevin McBride:

And then the data inference and streaming: we'll talk about that more, but I'm totally on board from a hardware perspective underneath, that's really my area of focus. Matt and I have worked together for a long time. But I'm really excited about the hardware level, because now that the applications are really into that compute close to the network, there's new acceleration technologies to be able to unlock the data without interfering with performance. So that's our role in this, and hopefully, that's a good explanation to set things up.

Nick McQuire:

Yeah. There are so many dimensions to the picture you're painting there. And I want to draw us back into a little bit of the immediate trends we're seeing around the network and what that would mean from an operator, from a service perspective down the line, say three to five years, and the role that data is going to play in that environment. I'm curious to get your view. Maybe ask you on this, Matt, we'll come back to Kevin on it in a second. You hear a lot about network slicing and mobile edge compute and MEC services. Dare I say, dare I say that there's 6G conversations already surfacing. Please, give me a bit of a tap for that. My apologies, but they are starting to surface. And I feel that the technology is overshadowing the importance that data is going to play around these kind of service transformations coming.

Nick McQuire:

Matt, what do you think? I mean, where do you see this going from a data analytics perspective? What do operators need to be thinking about with these services and how they can think about what they can do with data in light of those services as well?

Matt Olson:

Well, I think that's the key, is that the new network technologies enable capabilities. But really, without data, it's unrealized, because fundamentally, I think what's really exciting about these architectures and technologies is that you have the ability to infuse them with intelligence, with service-aware dynamic resource allocation and architecture, and building in intelligent resilience, service assurance and service-aware capabilities. And all of that is essentially an unrealized sort of latent value without data to drive the use of those intelligent capabilities.

Matt Olson:

So in my mind, though 5G, 6G, more bandwidth, all of this is fantastically good, what is really exciting and transformative is the ability to infuse those network fabrics with the intelligence, understanding the state of the underlying architecture and infrastructure, understanding the nature and needs and service quality of the services being provided over that infrastructure in the networks, to then dynamically, ideally, predicatively make orchestration changes and adapt and change to provide optimal service with optimal efficiency.

Matt Olson:

And to Kevin's point earlier, this is really a double whammy, because you have the opportunity, leveraging these capabilities, not only to drive exceptional services, to enable new services and to provide high quality. You have the ability as well to operate with high efficiency and to drive substantial cost out of the business. And in my mind, the data is not just a significant piece of the puzzle. It's data and the ability to take action on the basis of inferences and insights derived from that data that is actually central to what makes this transformative. And frankly, when you layer in then the ability to employ machine learning to drive inferences in a predictive and prescriptive manner, it becomes truly transformative.

Matt Olson:

But the key is that those insights and the actions need to be executed in very low latency at the point where they're needed, at the time that they're needed, in an efficient and very low-latency fashion. And that in turn is driving changes in the architectures and approaches employed in the data realm.

Nick McQuire:

Kevin, give you the opportunity to jump in on this as well. I mean, responding a little bit to Matt, but also, your observation specifically from your organization's perspective, where you see the role that it's going to play in light of these transformations over the next three to five years.

Kevin McBride:

Right. So, the biggest thing that we're seeing from our customers is the idea or notion of using shared services, because as you're trying to do a wider deployment, you can't always... If you try to do a private infrastructure, that's just not going to work out. So, what we're seeing, and related back to some of what Matt was saying about data streaming and whatnot, is being able to marry the network as closely as possible to that computing, where the data's being analyzed. And that could be beyond x86, with GPUs and other accelerator technology. But what we get back to with customers is that they have these great ideas, but when you look at the capital that it takes for a retail customer, or pretty much any customer of ours that has a wide footprint of operating locations, in America, internationally as well, is: there are opportunities to run less infrastructure and shared infrastructure but doing it securely.

Kevin McBride:

So, we're just starting to see more enterprise customers get into the space, because there's more definition around how to encrypt data at rest, in transit, etc. And back to that, data has gravity and data's also vulnerable in transit unless it's heavily encrypted. That's where we're working with customers to understand. How could we provide more composable back-ends to things that would all you to have compute that you need to do the data storage, and then mutate the different kinds of analytics devices and GPUs and other accelerators that you need to work on those workloads, without actually moving the workload and working with the data at more of its at rest state, encrypted hardware, and whatnot. That's what we've been experiencing with customers too. There was this whole notion of cloud since 2008 and plus, where enterprise customers wanted to adopt it, but it was so dangerous.

Kevin McBride:

But now that network is so fixed to compute without transiting other networks, if a customer doesn't desire to transit other networks, like public Internet, that's where all this is becoming key. And we'll be able to do more data analytics because there won't be a huge cost infrastructure from those customers to have all these little silos of deployments. They'll be able to have their innovative ideas running out there, because it's just consuming additional capacity in their large-capacity kind of models, pools of resources.

Nick McQuire:

Got it. I think both of you've painted some really important observations around where we're going in the industry, and also the opportunities coming down the line. I'm curious for those that are listening that would be early on in their journey, and we have to hark back to obviously what Matt was saying at the beginning about we're at the early stages of a lot of these transitions happening. What would be your guidance to operators around, what are some of the... As they plan for this future, what are some of the pitfalls that they need to be thinking about to avoid, to make it easier for them to achieve this progression and this transition over the next number of years? Maybe start with you, Matt, because obviously, you're seeing a lot of patterns across a number of different operators globally.

Matt Olson:

Absolutely. I think number one: far and away, to Kevin's point, is think platforms. Think shared ecosystems and infrastructures. And avoid I think a key pitfall, which is the tendency to identify point solutions or particular applications to solve a problem. And adopt instead, wherever feasible, extensible platforms and ecosystems. I think, in my mind, that's absolutely paramount, not only because it drives

greater efficiency and flexibility and elasticity, but also because it's inevitable that solutions will need to be adapted and evolved ongoing. And by really focusing on ecosystems and platforms, you establish the greatest flexibility and degrees of freedom in terms of the ability to adapt and evolve. So, I think this is, in my mind, centrally important.

Nick McQuire:

Great points. Kevin, what would you say are obviously real-world, war-torn experiences? What would you say are some of the pitfalls that companies need to avoid as they look on this transition ahead of us?

Kevin McBride:

So, one of the biggest frustrations for the industry, and this is some guiding light to help people, is don't just forklift things from their physical state into virtualization. We learned that in NFE. It doesn't scale well. This new frontier requires this notion of building services that are resilient to failure and with failure in mind. The other thing too is we're in a new era, especially in the last year plus, that you cannot think behind four walls only, and all these little Fort Knoxes of we're performing your OT and IT operations. It's everywhere now. And the zero-trust models of security need to be embraced. There's definitely reasons to keep things in four walls for some use cases. But embracing more over-the-top services and shared services... I just see companies failing if they don't do that, because other companies that are embracing that model versus the static privatized style are going to succeed and be able to offer lesser-cost services to customers. So that's my one advice that I would wrap up on.

Nick McQuire:

Awesome. Final thoughts to... I'm looking at the time, my goodness. Where's it gone? It's fascinating listening to both your observations. Maybe just quick, short, sharp perspectives in terms of what you'd see as your top recommendation, Matt, for operator CxOs, as they look towards this transformative future that they have ahead of them.

Matt Olson:

Absolutely. I think I would just say: absolutely focus on driving data-driven innovation and transformation, accepting the fact that there will be failure and experimentation in this. But above all, ensure that there are approaches that provide a runway for the innovation to then drive change within the business as a whole. So, I think the number-one priority from my perspective would be encouraging the innovation and experimentation, but with clear linkages to the core business and core operation, so that you have a path to scalability and a path to production viability of the new services and technologies.

Nick McQuire:

Great stuff. And Kevin, what would be your top tip?

Kevin McBride:

Number one, couldn't agree more with Matt, with what he just wrapped up on. I guess my one wrap-up would be: don't be scared to embrace this new technology. We've seen a lot of customers since even 2013 that are just still on the fence. And be ready to explore this and embrace it. It's here, and it's going to be an exciting next couple of years.

Nick McQuire:

Well, with that, I want to thank both my great guests again, Matt and Kevin. Thank you so much for joining us. It's been a real pleasure. The time has absolutely flown by. Clearly, we've got quite a journey ahead of us. We're only just scratching the surface on some of these important topics for the telco industry. But obviously, we really do share and appreciate you sharing your insights with us. It's great, great stuff. Finally, where can the listeners get ahold of you if they have any questions, Matt?

Matt Olson:

Thank you, Nick. Well, on LinkedIn. I very much look forward to ongoing discussions and more virtual networking.

Nick McQuire:

Kevin?

Kevin McBride:

Definitely on LinkedIn. And if you're interested in learning any more about Lumen: lumen.com, and everything's out there explaining what our customers are up to too.

Nick McQuire:

Fantastic. So last word, do check out the report on how operators can achieve operational excellence with data analytics that my firm, CCS Insight, produced. It can be found in the... Actually, information on the report can be found in the dedicated notes to this session. But it also can be found on splunk.com under a dedicated page under communications, so do check that out. And then finally, I want to thank all our listeners of the CCS Insight podcast. Do check out our website, ccsinsight.com, for more information. And if you do have any other further questions on this topic or any other topic that you'd like to explore with us, please feel free to reach out to me at nick.mcquire@ccsinsight.com, or on Twitter, @nickmcquire. So, I want to thank all of you again, and we look forward to seeing you next time.