

Podcast Transcript - Private Networks – What are the Key Trends, Market Drivers, & Challenges

[00:00:08] **Peter:** Hello everyone. And welcome to another edition of The Counterpoint Podcast. I'm your host, Peter Richardson, and today I'm joined by two of my analyst colleagues to talk about the subject of Private Mobile Networks. Now, earlier this year at the Mobile World Congress (MWC 22) in Barcelona, one of the hot topics for discussion was exactly this, Private Networks, especially in relation to 5G.

So today we're going to be talking all about private networks and what that implies for the industry and how they might develop going forward. But what is a private network? So for me, my understanding, it's a local area network that uses cellular technologies rather than say, Wi-Fi, to create a dedicated network that can be used in many different scenarios, quite often in an enterprise. So if you think about a factory connecting machines within that factory environment, using a very kind of high quality and secure communication environment. But let's get into a bit more of the discussion and maybe that definition will evolve as we go through the talk.

So two analysts with me, first of all, have Gareth Owen. Gareth is one of our Research Directors and he's based in north Wales in the UK. Hi, Gareth, how are you.

[00:01:23] **Gareth:** Yeah, fine. Peter, how are you

[00:01:25] **Peter:** Yeah, doing very well. And we're also joined by Senior Analyst, Charu Paliwal, Charu is joining us from Delhi, India.

Hi Charu. How you doing today?

[00:01:34] **Charu:** Hi Peter. I'm doing good. And thank you so much for having me.

[00:01:38] **Peter:** Great. Very welcome to you both. So let's get into the discussion. So let me start with Charu. So Charu, we've published a report, I think in just this week looking at private networks. So can you briefly summarize some of the key findings and the trends that you've seen in your research?

[00:01:56] **Charu:** Sure Peter, and you have put it really well that yes, private networks is getting a lot of traction these days. It is one of the most talked-about topic nowadays, and I have been tracking this market for quite some time and yes, we have recently published a report which highlights key trends and market drivers.

For instance, we have noted major vendors such as Nokia and Ericsson now sell the network equipment directly to enterprises or intermediaries. One can say they are bypassing the operators now. And then we also have new entrants, including hyperscalers that have entered the market with easy and simplified solutions you can say, which in a way creates or increases the awareness of private networks and also reduces the entry barriers around private networks for enterprises. So, yeah, not only this, the report also gives a detailed information on several use cases from different industry verticals and it also throws light on some of the key challenges. Now they can vary from your spectrum availability or a device availability, or let's say supply chain issues that have impacted the pace of rollout. So basically if anybody needs an overview of the global private networks market today to get in touch, to get a copy of the report.

[00:03:22] **Peter:** All right, great, good advertising for the report there. So you, you mentioned that there are various sort of verticals that are perhaps or application areas that are ahead of others. So can you explain which of the most popular verticals right now and where we're seeing the most traction.

[00:03:38] **Charu:** Yeah, sure. But before I answer your question, I'll just add that the importance of connectivity varies from one industry vertical to another vertical.

So we can have some vertical requirements that are limited to just low-power, wide-area IoT for connecting devices such as smart meters or sensors, whereas other vertical requirements could be ultra low latency for advanced manufacturing applications. So, certainly, there are takers that are doing better than others. And to answer your question, my top picks would be manufacturing, my main boats and utilities and energy. And there's no doubt that manufacturing has the highest number of deployments versus any other vertical, but there are not many devices to support the industry applications. So we can say all the manufacturing has hundreds of projects running, but mining energy and utilities are the verticals with large size deployments.

Therefore they are important and interesting verticals to look at. And plus the project size is also big here compared to any other vertical. The amount of learning is also huge for all the parties involved, be it your enterprise or a vendor or a service provider. And now these learning would be helpful for the market when it moves towards standardization in future.

And all of these industry verticals have also shown interest in 5G technology. It gets important because until now we have seen a lot of proof of concepts and trials, but now we expect these industry verticals to move towards the plant deployments in the upcoming year . And yes in case you need a detail description on some of these important use cases.

We have covered them in our report. To name a few, I'll say we have a covered 5G private network deployment by Roger, Kirkland a gold mine in Canada. Then there is another one by Ross Telekom in Russia. So yes, if there is a complete view of these case studies be it in terms of size of the project or solution deployed or use cases or the vendors involved, we have covered these aspects in the report as well.

[00:06:02] **Peter:** All right. Great. Thanks Charu. So let me turn to you Gareth. So picking up some of the points that the chair has made the UN maybe kind of opening this out to understand the overall kind of state of the private network market at the moment. I had some discussions at MWC because there weren't actually that many hot topics at MWC, but one of them definitely was private networks and private networks in 5G.

But when I spoke to some of the vendors, they were like years. 5G is interesting, but actually, all of the action is happening in 4G. Can, can you kind of put this into context where the overall private network market is at the moment? Are we just at the sort of the beginning of it or is it fairly well matured in some cases?

[00:06:45] **Gareth:** Yeah. Okay. Well, I think there's a lots of, as Charu suggested, lots of new players, lots of interest in the private network market, lots of new players entering the market, but also there's a lot of hype about the potential, which sort of gives the impression that private networks is the lowest of the low hanging 5G fruit, and have a bit is going to make a lot of money out of this.

And I noticed this year the Greenfield operators like, like Rakuten and Dutche for, for example, I suddenly talking about. Private networks they

should in particular seem to be banking is a big target market. So they do have a lot of spectrums. So, you know, and I think they'd been planning to target this market for a long time, but I think that really hyping the market.

So what happens if the market doesn't live up to their expectations or more likely, it takes longer to grow than anticipated? So I think there are signs that some of the market expectations are being reset. And I think it's interesting too, to look at what's happening in China right now.

You know, companies like Huawei and all these big mobile operators they spent probably hundreds of millions of dollars developing these use cases, these 5G private network use cases. So stuff like remote surgery, etc. A lot of these, they've decided to actually color a lot of these use cases because they're finding that that's too expensive that they're unable to scale them up and actually make money out of them.

So instead the focus is turned to more traditional use cases like mining. And ironically it's coal mining now is one of the biggest use cases for private networks. So right now I think the vast majority of the market is based on 4G. There are lots of so-called commercial 5G services, but I think most of them really are probably POC and trials.

And I think the issue here is device availability. And the other factor maybe is that most of the applications that these companies like the traditional companies, like mining require, can be served adequately with LTE. So, but I think in the long term, I think it will be a different story.

I think there's considerable potential with 5G, but I think it's going to get timed as it's going to take time. The only depends on a lot of things, but particularly on the availability of new 5G features and of course the devices to go with them.

[00:09:00] **Peter:** So when you talk about 5G features, are you talking about a network slicing, which, you know, was talked about for a long time, but I guess that requires roll out of the record.

Standards and into the networks, is that what we should interpret?

[00:09:16] **Gareth:** I'm talking mostly about sort of low latency, quality of service, these type of applications that should require for manufacturing, for example. So network slicing is sort of, you could even

say, is there sort of a competing technology to private networks or alternative technology.

But it's really about the low latency applications. And obviously enterprises need quality of service and all these other sort of requirements.

[00:09:41] **Peter:** All right. So, okay. That helps me get it clear in my mind. So Charu mentioned the presence of some of the hyperscale players as well. So what will they have on the market?

[00:09:52] **Gareth:** Well, I think so hyper scalers see this as a major opportunity. But I think at the moment they're sort of mostly focused on the low-end side of the market is offering of sort of pre-packaged solutions that more or less straight out of the box. So they're sort of trying to replicate, I think the simplicity of Wi-Fi and maybe trying to offer private 5G as a better alternative to Wi-Fi. So this is fine for sort of a non-critical mission, you know, compass type applications like SMEs and shopping malls, schools, et cetera. But I think in terms of impact, I think, you know, I think there could be a sort of a useful market catalyst and help to develop the market.

So I think it'll be interesting to see to what extent they can take the cost and complexity out of private networks. I know the other thing, I think maybe, you know, the main interest I think here for them is really, it's really sort of leveraging that their compute and storage and analytics capabilities.

So I think it's probably more about the digitalization enabled by private networks rather than providing the connectivity or even sort of developing sort of specific vertical applications. So I think they'll have to partner with other companies to do that. But I definitely think, you know, I see them as a, sort of an important catalyst to the market.

[00:11:05] **Peter:** Okay. So maybe they're using private networks as a way to kind of add capability to their existing suite of services.

[00:11:13] **Gareth:** Yeah and of course they have a massive install base of enterprise customers as well to sell.

[00:11:18] **Peter:** Very true. Thanks, Gareth. So moving back to Charu. So one of the technologies that's been sort of talked to her about quite a

bit, particularly in, I think North America is CBRS citizens, broadband radio service. So where do you see that featuring here and how is the market developing within the CBRS space?

[00:11:37] **Charu:** Yes. So CBRS has, has played an important role in the uptake of private networks. So see until few years back, the build-out of 5G was limited to mobile broadband in consumer segment. And we can sit, there was relatively a little traction around 5G demand from industries and enterprise segment. But then we saw a successful CBRS option that in the 228 bidders won a total of more than 20,000 licenses. So it is interesting to note that more than 60% of the license holders are local telcos and wireless internet service providers.

So we see CBRS as a catalyst, which created a fertile ground for five to private networks, especially in the US market. And we have seen a number of network trials in 2021. And expect many enterprises will shift from their proof of concept or the trial stage to commercial deployment in 2022.

[00:12:39] **Peter:** Okay. And what about device availability? Is that a problem for CBRS, particularly in unlicensed spectrum?

[00:12:46] **Charu:** This is an important topic to discuss. We see Private networks has a lot of traction in the market as many new players are entering. It does also within, from the number of licenses distributed in CBRS spectrum option.

Everyone wants to grab an opportunity, but do we see the same level of enthusiasm when it comes to device availability? I doubt know. I would say CBRS is fairly doing better as there are a number of consumer devices available in the market, be it your handsets or laptops but then we have on-go certified network equipment available in the market as well.

And the other range of vendors catering to this, to your Nokia or a CommScope, or let's say ASPAN or Ericsson. Now, if you look at the unlicensed spectrum, such as multi fire, I see Nokia did launch a NFA certified router and access point in late 2021, but there does not seem to be any other development.

And now it appears even before the device ecosystem could have developed from Aldi fire. The focus has rather moved to unified. For

instance, NFA has also published one uni 5G blueprint last quarter. And I expect it would take time to see any progress in this area.

[00:14:13] **Peter:** All right. Very interesting. Thanks cherry. So coming back to you, Gareth, you've touched on some of these, I think already, but expand this again back out, where do you see the most pressing challenges right now in the growth of the private network market?

[00:14:25] **Gareth:** Well, I think there's still a lot of challenges and I think that's going to remain the case for some time. I'll just go maybe through two or three of them. I think one in particular is the need to offer solutions, not just technology. So the enterprises, they want solutions to specific problems or you something that fulfills a need. The service providers must offer complete solutions, not a technology, not a set of technologies that the end user, the enterprise have to put together themselves kind of thing.

So at the most basic level of, for example, you know, if you considered a simple campus network for a school or a university or hotel the IT manager there. And you want something that works straight out of the box does what it says on the box is reliable and will last for five years or whatever.

But some of these verticals tend to be quite specialized and you need a lot of expertise. No service provider has the capability to cover all these verticals. So even the biggest like Verizon or Vodafone. So they have to choose carefully and focused on two to three sort of broad verticals and perhaps leave the rest to others.

So the other one is obviously devices and Charu mentioned that, I mean, there are things sort of sort of issues with the cost of 5G devices, economies of scale. So industrial devices will, won't sort of benefit from economies of scale likes or consumer devices, for example. But I think one of the other sort of really important sort of challenges is the ecosystem and this go-to-market strategy.

So especially for, for these campus type private network deployments. So unlike the public networks and maybe some of the large private networks, which is a utilities or public safety networks, the campus segments, this is sort of a business where sort of distribution channels and different types of partnerships is really the name of the game.

So when you've got. I don't know, hundreds of thousands of different enterprises around the world. There's no way a single operator event. They can tack it, all these different enterprises, different vertices on their own. So it's important for everybody to develop partnerships. So the operators and the vendors, and with sort of industrial tech companies with device, so we have.

It company systems integrators, et cetera, and across a range of different verticals. So I think at the end of the day enterprises want to talk to people that have their own vertical expertise and understand their business, they don't want to talk to telco people really. So I'll give you a couple examples.

Nokia recently announced a strategic Alliance with cutting through. I think, I think the way you pronounce it, which, and this is the old IBM infrastructure services business. So this has been spurned out. And so they act as a big systems integrator. So it's a very big company with global reach and they deal with some of the biggest companies in the world, and they have a sort of an installed base of around 80,000 enterprises.

So that's a very good sort of match for, Nokia. Ericsson has got acquisition Cradlepoints which again is focused on the wireless edge and traditional private network market. So they deal, they have an installed base of 28,000 enterprise customers. So, you know, all these operators and vendors as well, they need access to the enterprises.

And the only way of doing this is to partner with the right companies. Now there are the other issues we don't have time to go into like. Setting up KPIs and SLAs for industry specific verticals. Some customers will want to roam from a private network to a public network.

So that's not quite so straight forward. So I think all these sort of issues are things that are being worked on at the moment and will be sorted out in time.

[00:18:12] **Peter:** All right. And turn it to Charu. What challenges do you see for growing the market?

[00:18:17] **Charu:** Well, I would say that it has a governor some of the most important ones. And I'll just add some points here. Yes. There are some macro-environmental challenges as well that are affecting the

market group. Now these could be specific to 5G private networks, or some of them could affect the market in general. Now they could range from your spectrum availability for captive use, for example there is an ongoing tussle between enterprises and operators on the allocation of a spectrum for captive use in India market.

So another challenge could be your delayed release of standard. Since we have seen such a delayed release of 3GPP standards, which has hampered the development of devices and the rollout of 5G private networks, then that is chip shortage due to the pandemic, the rising geopolitical tensions, and now the ongoing war.

So such factors hamper the production of device and network equipment, which. I'm good. The rollout or the pace of the 5g private network. Roll-outs I'll say.

[00:19:34] **Peter:** All right. So we're kind of coming to the end of the discussion now. So I, I think you guys have done a good job at sort of summarizing the developments that we see at any final words of conclusion.

Charu, do you want to go first and then I'll come to you Gareth?

[00:19:45] **Charu:** Sure. I would say private networks market is growing. But quite fragmented at this stage, we have seen so many players entering the market. Then there are players that are still experimenting and developing new solutions. And in another few years when the market matures a bit, we expect there will be some standardization in terms of market leaders or important verticals to services.

Then the most demanding features or the attributes required from the solutions and we see LTE, private networks would continue to dominate until around less. There is a global ecosystem and established scale of 5G devices. And then the shift happens from 4G to 5G, plus getting from a proof of concept or the experimental stage to commercial stage. That is the full rollout of commercial private networks. So this shift will positively impact the private networks ecosystem by driving incremental revenue for multiple players that are associated with the entire value chain.

[00:20:59] **Peter:** Great. Thanks Charu. Gareth, do you want to add some final thoughts?

[00:21:03] **Gareth:** I, pretty much agree with everything that Charu said. I think the Private Network market offers a lot of potential, particularly in the long-term in the short-term. I think most of the truly commercial deployments will be based on LTE. And I think LTE will continue to be around for maybe up to five years from now. But undoubtedly private 5G will offer a lot of new capabilities and take private networks to another level as the new technology features and particularly the devices become available.

But this is going to take time, I think, and, and those companies that are in the game for the long-term I think will be the ones that ultimately benefit.

[00:21:40] **Peter:** Alright. That sounds like a good place to, to wrap it up. Thank you very much, Gareth. Thanks, Charu. If you found this useful, please do reach out to us for access to the report that we've been discussing.

And it just remains for me to say thank you very much for your attention and join us for the next Counterpoint Podcast. Thank you very much. See you next time. Bye now.