DR: [00:00] I'm DR, and this is Telco in 20. Over the last four years, I've been working relentlessly to educate telco execs on the awesome benefits of the public cloud. From cost savings and faster time to market to game-changing software and generative AI, someone has to espouse the benefits of the public cloud, because not everyone is sold. It's going to be a big part of telco's future. But things have shifted since I first became the industry's number one public cloud evangelist. Telcos are starting to get it, like the announcement from Telefónica Germany that they will build a new 5G network that will run entirely on AWS. Or the news from Microsoft at MWC this year, that e& otherwise known as Etisalat, will run their 5G core using Azure Operator Nexus.

[00:56] But there are still operators out there like Verizon in the US that are doubling down on on-premise workloads and building their own private cloud. Boo. Who better to keep me honest on what the state of cloud is in telco than my friend Iain Morris, International Editor at Light Reading. Like me, he talks to a lot of different telcos about what they're up to and he has written more than a dozen articles on the industry's cloud transformation. Today he joins me to talk about where telcos are on their move to the public cloud, where the line is on shifting network workloads to the cloud, and whether or not AI is changing everything. So let's take 20. Iain Morris is International Editor at Light Reading. Hi, Iain. Welcome to Telco in 20.

Iain: [01:38] Hi, DR. Nice to be here.

DR: [01:41] I know this is so awesome. I was a guest on your Telecoms.com podcast back in 2021. Can you believe that was three years ago?

Iain: [01:47] It doesn't seem that long ago.

DR: [01:48] Yeah, it doesn't, right? I came on. I brought some pom-poms and I brought you guys a little Yeti cooler, which I think you guys still use.

Iain: [01:55] We do still use it. I'm sitting right next to it now, in fact. It's a permanent fixture at the studio.

DR: [01:59] Well, Yeti is an Austin company. I'm in Austin, Texas. So it was a really easy gift for me to bring you guys.

Iain:	[02:05] It's very generous and much appreciated. It's been incredibly useful.
DR:	[02:09] Yeah, you got to keep your beer cold. And so, today we're going to talk about where the public cloud is in telco, and I'm obviously a public cloud evangelist, and you report on the conversations you have with telcos and with vendors. And so, I thought I'd start by reading a few of your headlines about the public cloud.
Iain:	[02:26] Okay.
DR:	[02:27] Here we go. This is going to be hilarious. Telcos have no easy escape from public cloud lock-in.
Iain:	[02:33] I remember that one.
DR:	[02:35] The public cloud is starting to look like a rip-off.
Iain:	[02:38] Is that one of mine, really? Wow, okay.
DR:	[02:40] Yes. And the latest from January, The public cloud has failed to crack telecom.
Iain:	[02:47] Ooh.
DR:	[02:47] Yeah.
Iain:	[02:48] That's pretty hard. Those make me sound really opposed to the public cloud now, don't they?
DR:	[02:53] They do. Again, not to judge a book by its cover or its headline, but I can pretty much guess what the article is about. Like I said, you're a super well-regarded telco journalist, so who are you talking to, because I've got to go convince them to use the public cloud?
Iain:	[03:08] I think this is what journalists do, isn't it, to some extent. You obviously try and generate a bit of attention and be provocative in a headline. And there are obviously lots of sides to the discussion and debate. I mean, I don't want to be perceived to be anti-public cloud per se, and I don't think I am, because when I talk to the telcos, I don't really hear anybody actually these days just dismissing it outright.

[03:29] Everybody realizes how good those companies are at what they do, and everybody realizes they have technologies that are of incredible value. I think there were concerns. That's the thing. And I think that the headlines get to that.

DR: [03:42] I mean, you're in the business of creating clicks, and so yeah, you have to have a good headline that draws people in. But I do think there was a time where people were very much staunchly against it. I remember those days back in 2018 and 2019. Maybe the pandemic started to change people's minds. But now in 2024, what is your perspective of the public cloud sentiment, getting a little bit more serious? Where are we?

Iain: [04:05] Looking back to before the pandemic, it's interesting you make that point. Because I agree and I think some of it maybe reflects concern about the big tech companies. I mean, if you go back a long time, DR. Obviously, the telcos at the turn of the century were some of the biggest companies in the world. They had these enormous stock market evaluations. Google was a startup in those days, and it's only really in the last decade that they've emerged as this unstoppable force. And I think the telcos—there's still some kind of residual worry there about where they sit in the picture. They don't want to be perceived to be utilities, do they? They don't want to have that perception that they're just a water company or an energy company.

[04:39] They want to be seen as tech companies themselves. So I think there's a certain amount of envy, I don't know, but they kind of feel like they're giving up to some extent, by going into the public cloud. I think some of what we were hearing in 2018, 2019 probably reflects that.

[04:53] But when I talk to telcos at the moment, I think it has changed a bit. You still hear some of the concerns being thrown up, but I think some of it's not being driven by the telcos themselves. I had a really interesting chat with an executive you might know called Laurent Leboucher, who is the Group CTO at Orange.

DR: [05:08] Yeah, I follow him on Twitter.

Iain: [05:09] Yeah, so any telco in Europe is obviously looking at the cloud and what to do about hosting basic IT workloads, but also what to do about the networking future as well. I almost expected him actually to come across and say, "Oh no, no, we

don't want to use the public cloud for the telco side of things." That seems to be the resistance point at the moment. People are happier about moving customer relationship management and some of this stuff into the public cloud, but when it comes to the core network and the telco workloads, they're a little bit more worried about it. But even there, he said, we could see a case for doing some of this on the public cloud, and one of the main problems they have actually is not coming from within Orange. It's regulatory and its security laws within France and within Europe. That's the kind of stumbling block for a lot of these companies.

[05:52] So it's concerns about things like data sovereignty that stop them from doing it, and I think it's pretty much the same in the UK as well. I mean we're not within the EU anymore, but Europe's always worried about oligopolies and US power, and I think some of it reflects that. So I think some of it's not driven by the telcos, it's the regulators saying you're not allowed to do this. And I heard this at a conference last year as well, where Deutsche Telekom and Three were chatting, and very much a point that was emphasized was it's the regulators actually stopping us from doing things. It's not something internal.

DR: [06:22] For a while there, it was a lot about the fear of the big tech companies, fear of vendor lock-in. What is the big concern?

Iain: [06:28] When it comes to telco workloads, I think that is one of the big concerns. There are some concerns about what you can do from the public cloud when it comes to the core network or the radio access network, that's not just about security, it's more of a technological thing. Concerns about latency and whether you get the performance that you need if you're doing it in a hyperscalers' facilities. And that's where I'd say that headline I wrote where it says the public cloud is failing to crack telecom. To a certain extent, I think that's true, but I don't think the public cloud providers are failing to crack telecom. I think what's happened is we've seen those companies adapt their message a little bit. So if you talk to Microsoft in particular, they really emphasize this point. In telco, we're not a public cloud provider, we're a hybrid cloud provider. I think we talked about it a bit before, but Nexus platform— they come along with their technology stack as I understand it, this is how they're working with AT&T in the US, and they take it into your facilities. So it's a different model from something that Vodafone's done very recently with Microsoft to outsource a lot of its IT, its CRM

applications. That's a very kind of traditional hyperscaler facilities being used for stuff that would've been on x86 servers on premises before. This hybrid model that Microsoft's pushing is quite different. They're doing what companies like Red Hat, and Wind River, and VMware have done in the past. They're kind of moving onto their turf.

[07:47] So doing a kind of private cloud for a bit of the network that just wouldn't suit going into a hyperscaler facility. And I think that that's something telcos will consider. I mean, Three UK has actually put its core network up for tender. So they use Nokia at the moment, I think full stack. So they're using some Nokia's soon-to-be jettisoned platforms because they've got that arrangement with Red Hat now. But they want to go to something that's more cloud-native, what they've got at the moment's virtualized, but it's not as cloud-native as they want to be. And so, this is all up for discussion and they've not ruled out using people like Microsoft and AWS. What they have ruled out is a kind of user hyperscaler facility. So they'd very much want Microsoft to do what it's done with AT&T, and come along with this technology stack that it calls Nexus, and support them that way. And they're very prepared to consider that.

DR: [08:35] So do you think that there's consensus in the industry in terms of there are workloads that are safe and then there's this magical line somewhere that says, "Okay, anything on the network side, we're going to stop there, and not use a public cloud data center?" Where's that line?

Iain: [08:48] I think it's a blurry line. I think there's some things that they're very, very happy to put into the public cloud. And by public cloud, I mean in the strictest sense, so I think-

DR: [08:57] A region, yeah.

Iain: [08:58] Yeah, anything that's traditional IT, the CRM type applications. I even think when you're going towards things BSS and OSS, those are things that people would be very happy to put into the public cloud. Where the line starts to get blurrier is when you get towards things like the core network and the radio access network. And radio access network, I think in particular, you mentioned the word regional, you just couldn't really do that. You think you have to have some kind of local presence.

DR: [09:22] Yeah, I can see that point too. I mean there's an element of physicality of these networks, that absolutely and latency matters. And I think the hyperscalers do have some options that bring it to the tower and bring it hyperlocal. AWS has local zones. Azure has the same thing. Google has an element of that. But yeah, there's definitely a line. It's not the whole thing, but I'm always advocating that you should do as much as you can, and I think it keeps shifting. Like I said earlier, I remember when it was, "No way Jose" and then it was like, "Okay, well back office. Sure, yeah, we're doing that."

[09:57] And then it was, "Okay, BSS, makes sense," and now we're moving into more of the network stuff, and so let's talk about that. DISH very famously is building their brand new 5G network in the United States completely on AWS. And then you mentioned both AT&T and now Etisalat, e&, have signed with Microsoft to use their Nexus product. And so, certainly, DISH will say their network works. I think they have some commercial and financial struggles, but I think technically if you talk to Marc Rouanne, he's like, "It works."

Iain: [10:28] Yeah. I think their issues are not to do with the relationship with AWS. They have financial challenges and that's not surprising. I mean, they're trying to build a greenfield network in a massive country. You look at companies doing a similar thing in smaller markets, Rakuten in Japan and 1&1 in Germany. They're not using the public cloud as far as I'm aware. I think Rakuten is doing it on its own. It's a Robin.io platform and it's the provider of the technology to 1&1. So 1&1 will be doing a similar thing, but they're having very, very similar challenges to DISH. It's just the difficulty of building a greenfield network from scratch. Yeah, it's not a public cloud thing. I think if anything that the public cloud in DISH's case has probably been a helpful factor in terms of trying to keep down-

DR: [11:06] I think it brought down their network build-out costs.

Iain: [11:10] Yeah, because that's the appeal, isn't it? Yeah, that's why you do it.

DR: [11:10] Yeah, tons cheaper.

Iain: [11:11] And this is something I get, I think when I put my articles up that are raising questions. Obviously, I think everybody can buy into that idea of it being economically advantageous to use

the public cloud, and also you can tap into all these other services you have. And this is why I think this hybrid model is really interesting with them coming into markets that maybe people like Red Hat and Wind River have dominated to some extent in the past, although it's early days, but I think it's going to be quite hard for those companies when you've got someone like Microsoft knocking on the door saying, "Well, we can do the same thing."

DR: [11:40] Bending over backward. Exactly.

Iain: [11:41] Yeah, but we've also got that link to the public cloud, and by the way, we've got all of this generative AI stuff that we can throw into the mix at the moment. And where's IBM with that thing? It's not really in the same game, is it?

DR: [11:53] No, we just interviewed Charles Fitzgerald who does the CapEx report on how the hyperscalers are investing, and he tracks IBM's. And IBM's CapEx is just not nearly as large as the big three. It is a massive cash outlay to play in the public cloud game to start, and then in a generative AI game, it's just a whole other trillion-dollar investment. I mean, the table stakes are super high.

[12:16] But on the hybrid thing, I think you're totally right. I see all of the hyperscalers kind of like, okay, your big beef is you don't want to use our regions. Okay, great. I'm going to build a sovereign region for you. AWS has Outposts where they wheel in a 42U rack into your data center, and now you're connected and you can use not the whole catalog of services and software, but you can use a good portion of it. And so, I can't tell if this is a concession on yeah, you guys need hybrid or if it's a sales tactic because they know once enterprises start to dip their toe into the public cloud water, they're just like, "Oh my God, this is amazing. I don't have to deal with keeping up with the chips. I got Graviton, I got Trainium chips for AI, I got software that I can use." And so, maybe it's a sales tactic that yes, I think we'll absolutely crush something like Red Hat. It's impossible to keep up with them.

Iain: [13:06] Yeah, I think it's going to be really hard. I mean, to that point, you asked about locking as well earlier and concerns there, and you can be locked into anybody's products, obviously. You can be locked into Ericsson's network, you can be locked into a Red Hat, you can be locked into a Wind River. So I don't

think there's anything specific about the public cloud when it comes to lock-in. I think that's a factor with a relationship with any supplier. What I do think is maybe some of the concern is these companies, they just do so much nowadays and they have such a broad set of products. If you're taking your data lakes with Google at generative AI, and you are using it for the public cloud as well for the hybrid cloud, I think there's a little bit of worry about becoming overly reliant on one or two big companies and then not really having alternatives, and then lock-in becomes a concern because you've put so much investment there that it becomes extremely hard to change it and to go somewhere else. But I don't know what the answer is to that.

DR: [13:55] Well, I don't know what your alternatives are.

Iain: [13:57] Yeah, this is the question.

DR: [13:58] Yeah, let's talk about generative AI, building these huge server farms with NVIDIA. I mean, these are expensive servers and you need a lot of them, to start to build your models, train your data, get it all ready. And the beauty of the public cloud is, AWS and Google announced new versions of their AI-specific chips. Azure has come out with this AI-specific chip. They have software that helps you train, and AWS has Bedrock with multiple LLMs, so you can figure out which is the right LLM for your business. So these things are evolving and Claude 3 came out on top of ChatGPT 4, everyone agrees Claude 3 is probably better than ChatGPT 4. So my perspective is I think gen AI is yet another reason to keep moving stuff to the public cloud. And so, what do you think?

Iain: [14:41] Yeah, the story so far really with generative AI has been people buying lots of NVIDIA GPUs to put in hyperscaler facilities. Plus, as you mentioned, using some of the in-house silicon that's been developed by people like AWS and Microsoft, and it's very hard to see that working in a different environment. I know there's been some talk about inference and whether that changes the rules of the game a little bit, and whether we can move away from that InfiniBand technology that NVIDIA has for connecting GPU clusters, and maybe do it a little bit more economically with Ethernet. But it's still very much a hyperscaler story, isn't it, in terms of the training of the models. And I think this gets to the lock-in point. I do remember talking to Scott

	Petty at Vodafone, who you probably know, they're quite in with the public cloud in terms of the-
DR:	[15:23] Their Google data project.
Iain:	[15:24] Yeah, their Google data project. They're quite keen to split things between them is the way he's approached it.
DR:	[15:29] Yeah, they signed a big Microsoft AI deal.
Iain:	[15:31] Yeah, they've got a big Microsoft deal, the data lake is all Google, and then they do other things with AWS with services. And I remember him talking about generative AI, and one thing he was keen to avoid was a situation where you are sort of being forced towards a certain type of large language model, because that's what the hyperscaler is backing or that's what the hyperscaler supports.
DR:	[15:50] Well, that's certainly the Microsoft situation, right? With OpenAI.
Iain:	[15:53] Exactly.
DR:	[15:53] Whereas AWS has gone a little bit of a different direction with Bedrock, where they give you choice, and Andy Jassy published his shareholder letter where he is talking about really supporting enterprises in the choice and then obviously focusing on keeping the data private and not making it part of the training models, which has been a little bit of a concern with OpenAI.
Iain:	[16:13] Yeah, for sure. And generative AI is an interesting one to keep an eye on and see how it evolves.
DR:	[16:18] Well, it's just changing so fast.
Iain:	[16:19] Yeah, it is.
DR:	[16:20] NVIDIA's doing a little bit of a dance of I need the hyperscalers, but also I don't want to be dependent on them, and so are we going to build our own data centers and build our own cloud around AI? And so, Jensen is a smart guy.
Iain:	[16:32] He is. Yeah. This is what I'm interested to see really is this pitch that NVIDIA has about selling GPUs to other

companies, including telcos actually because you do hear some interest in this. I mean, they have this story about using some of their chips to do some radio access network acceleration and having them double up for that and AI at the same time, and then you can make the economic stack up. But I know SoftBank's going down that route to some extent and they have a couple of other deals, but it still seems quite an expensive way of doing it.

DR: [16:57] Yeah, I think YTL out in Malaysia is doing a deal with them.

Iain: [17:01] Yeah. Well, maybe the other way it works though is AWS comes and does something like Outposts in your facility. They're doing AI applications, but they're also supporting some of the radio access network workloads as well through a hybrid cloud approach. This is what I envisage happening to some extent. I don't know whether I'm happy about it or not, but I see the telcos retreating a little bit from ownership of the telco workload assets, and more and more of that gets done by other companies, whether it's somebody actually kind of renting out base stations, like a CellMate, like a private equity player, or the kind of hyperscalers bringing their technology stacks into telco facilities and just taking on more responsibility for the technology, and you have more of a pay-as-you-go relationship with them in future. I can see that being a trend, yeah.

DR: [17:47] And I think you should absolutely outsource those commoditized elements and then really focus on what differentiates you. You need to focus on what makes you unique in this market and attracting subscribers, and building the relationship with the consumer and with your end customers. Yes, you have to have a high-quality network and who are we if we're not managing the network? But if you don't have revenue and you're not figuring out a way to grow your revenue, then you are a utility and I don't see us focusing on that as much. Here's one thing we can agree on, which is— tennis is the best sport ever.

Iain: [18:21] Yes, a hundred percent.

DR: [18:22] It's amazing. I found out from just being friends with you that your son is an excellent tennis player, and I think he's now in university.

Iain:	[18:30] He is, yeah.
DR:	[18:30] So journalists typically fair and balanced, but brag a little bit. Is he playing on the team and how's that going?
Iain:	[18:36] Yeah, so he was good in the UK. He was one of the boys the LTA was watching, I think it's 16 and under. He was top 10 in the country.
DR:	[18:42] Yeah. Wow.
Iain:	[18:42] Yeah. Then you get the US colleges taking an interest and we thought we'd go down that route rather than putting him onto the ITF Circuit. And so, he's gone over to Denver. They're actually the only Division One team that hasn't lost a fixture this season.
DR:	[18:54] Oh, wow.
Iain:	[18:55] So they've played 20 and won 20, so they've had a really good last few months. He's doing really well. But yeah, he's juggling that with the academics and finding it hard. I think he thought he could go over there and read a couple of books every term, and just play tennis, but yeah.
DR:	[19:06] Yeah, no, I was a collegiate tennis player.
Iain:	[19:07] Yeah. Well, you're very good as well, Danielle. I've seen you on video playing against my former boss.
DR:	[19:11] Yeah, I guess. I don't know. But no, it's definitely hard to balance the academics and the tennis. But also considering turning pro, you had to play all these satellites and it's very expensive, and I think you had to crack the top 200 to get invited to the better tournaments, and then you get better sponsorship and obviously better money, but that's amazing. I'll keep my eye on him and hopefully, they have a really great season and make it to the NCAAs.
Iain:	[19:35] Well, if you're ever in Denver, let me know if you want to watch a college match, he'd love to have the support.
DR:	[19:40] Yeah, I will do that. Well, Iain, this was an amazing conversation. I had so much fun talking to you, catching up on

where telco is on the public cloud, so thanks so much for coming onto the podcast.

Iain: [19:49] Thank you for having me. Thanks, DR.

DR: [19:50] Yay. Stick around, because we're ending each podcast with a Telco in 20 takeaway. I have 20 seconds to tell you something you need to know. Iain and I talked about how telcos are starting to move their network workloads to the public cloud. This is the last bastion of the debate. Telcos need to let go of commodity chores like managing infrastructure and tech stacks, to focus on what matters most—revitalizing their growth and reducing the cost it takes to build and run a high-quality mobile network. The news about Telefónica Germany building a new 5G network entirely on AWS is huge. One by one, operators around the world are recognizing the value of running network workloads in the public cloud. Japan's NTT DOCOMO, DISH and AT&T in the United States and Etisalat in the UAE are leading the charge. It is happening and it will continue to happen over the next few years.

[20:43] Want to talk more about this? Come find me in Copenhagen with Team Totogi on June 18th through the 20th for TM Forum's DTW Ignite. We'll be in the AWS stand as a featured partner, so be sure to stop by to catch an awesome demo of Totogi's BSS Magic. Send me a DM on LinkedIn and X @TelcoDR and we can set up a time to meet. In the meantime, tune into 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 subscribe to our rockstar YouTube channel. Later, nerds.