



TELCO EDGE DATA CENTRES: HOW MUCH CAPACITY WILL BE BUILT IN THE NEXT 5 YEARS?

Webinar: Questions and answers

October 2022

Telco edge data centres: How much capacity will be built in the next 5 years?




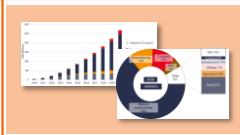
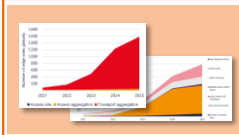
This document outlines the questions and answers received from the STL Partners webinar, **Telco edge data centres: How much capacity will be built in the next 5 years**, which was hosted on Tuesday 27th September 2022.

In this document, we seek to address the questions raised in the webinar that we were unable to address in the time available.

You can also watch the recording of the session, and also access the slides, using the link [here](#).

The full market forecast and accompanying report the webinar was based on will be published for our Edge Insights service subscribers on 13/10/2022. If you want to find out more about accessing the service – do get in touch:

STL Partners’ Edge Insights Service provides a combination of five tools to support telecoms operators and technology companies in developing their edge computing strategies

1. Research reports	2. Use case directory	3. Ecosystem tool	4. Market sizing forecast	5. Edge capacity forecast
<ul style="list-style-type: none"> Access to all STL Partners thought leadership reports that focus on edge computing: strategies, use cases and business models Including existing back catalogue 	<ul style="list-style-type: none"> Over 50 edge computing use cases across 16 verticals Details on key drivers, potential partners, industry mapping Case studies on real world implementations 	<ul style="list-style-type: none"> Interactive tool charting over 200 companies Analysis of company’s edge products, and role in the value chain Deep-dives on companies’ strategies and partnerships 	<ul style="list-style-type: none"> Size of edge computing market (in revenue) from 2020-2030 Broken down by vertical, use case, type of edge, country Forecast updated every year 	<ul style="list-style-type: none"> Total capacity in network edge data centres Broken down by application, country and type of edge Forecast updated every year
Sample content				
				
All subscribers can access our analysts on demand via quarterly analyst calls				

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Webinar questions and answers

The below questions were received from the webinar audience during the live session, this does not include the questions asked to our panellists.

- 1. Let's look at the automotive market: In last year's report, the Automobile Edge Computing Consortium (AECC) stated: "By 2030...a fleet delivery vehicle will pass among dozens of nodes daily and a typical 45-minute commute will involve at least a handful of edge nodes". Are MNO ready to invest in hundreds of MEC sites, or should there be other investors? Are MNOs ready to share MECs, as it will be required to accommodate diverse fleets of connected and/or autonomous cars gathering data, for HD map update for example? Are MNOs ready to secure widespread and numerous MEC sites against malicious behaviours?**

To reach a point of maturity with edge computing it's highly likely that it will require investment from a range of parties that includes but is not limited to telecoms operators. We've already seen examples of new funding models such as [Atlas Edge](#) – the joint venture between Liberty Global and DigitalBridge.

We have seen increased acceleration in telcos looking to explore how they can interconnect edge platforms – we explored this in more detail in a recent article [What is telco federated edge?](#)

- 2. Question on the SK Telecom edge deployment..... Have those 3 msec RTT values been already achieved in a commercial mobile network?.. 4G? 5G NSA? 5G SA?**

Not clear exactly which deployment you are referring to but I believe that most SKT deployments have either been done with 5GNSA or SA. You can find out some more [here](#).

- 3. What are the key use cases from enterprises or consumers that require Edge deployments? And are there other use cases where the edge needs to be closer to the user, say on prem?**

We have a lot information on edge computing use cases and which type of edge they are likely to leverage on our [edge hub](#). This [article](#) in particular might be useful.

- 4. Do you see the metaverse use case have a significant need for Edge infrastructure (compute and storage)?**

Yes – although it is still very nascent and a lot is still to be seen in terms of when the inflection point for adoption of the metaverse will be. More in our recent article [How edge computing can unlock the Metaverse](#).

- 5. Do you have an overview on the typical size for an edge data centre? I assume that is also depending on the type of edge DC and region?**

We have broken down the typical characteristics of different edge sites in the table below.

	Device edge	On premise edge	Network edge	Regional edge
Location	Smart devices (e.g. in vehicle, street lamp, IoT)	Enterprise site (e.g. retail, factory floor, IT closet)	Site owned by telecoms operator e.g. central office	Tier 2/3 city
No. racks available	0	0-4 racks	5-20 racks	20+ racks
Power	Up to 1kW	Up to 20kW	Up to 200kW	Up to 4000kW
Estimated roundtrip latency	Up to 5ms	10-20ms	10-40ms	20-100ms
Estimated distance from end user	0km	Less than 1km	5-30km	5-100km
Tenancy	Single tenant	Single tenant	Single tenant / Multi-tenant	Multi-tenant
External environment	Controlled (within device), harsh and rugged	IT closet, commercial and office, harsh and rugged	Harsh and rugged, conditioned and controlled	Conditioned and controlled
Passive infrastructure	May or may not have power and filtration, no cooling etc.	Has power with limited cooling and filtration, etc.	Tier 3+	Tier 3+
# of expected deployments globally by 2030	Millions	Hundreds of thousands	Thousands	Tens of thousands

Source: STL Partners

6. Are there different views on the specification of what an edge DC is, so compared between telco and hyper scalers?

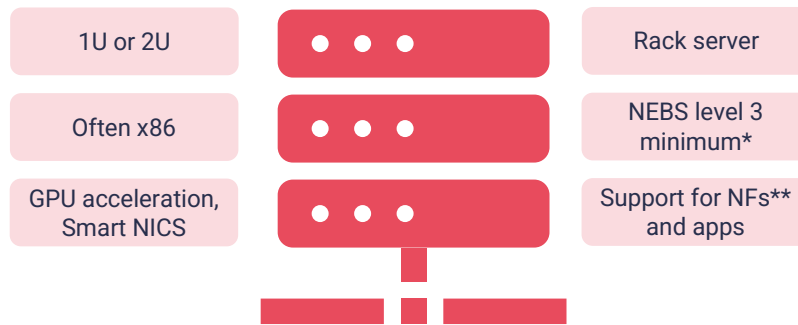
The table pasted above is also probably helpful for understanding what a telco edge data centre is likely to look like in comparison to hyperscale datacentres.

7. From an enterprise view, the network edge is at an unknown distance. How do operators plan to go about to package this?

There is still a lack of clarity around exactly how telecoms operators will price their edge computing solutions. We’ve discussed some options in the following article [8 edge computing pricing models](#).

8. Do you differentiate between HW types? CPU, compute accelerators, etc.

We have assumed a “typical” edge server as per the below diagram in our forecast.

Figure 3: Types of servers assumed in the model

*NEBS is a compliance level that confirms the reliability, safety and quality of a vendor's telecommunications equipment. NEBS Level 3 is considered carrier-grade.

**NFs = Network functions

Source: STL Partners

9. Is there a preference for x86, ARM or RISC-V CPU architectures?

See the above diagram for the assumption on server architecture in our report. Edge applications vary in requirements so it will sometimes be use case dependent. Most telecoms operators are using x86 architectures.

10. Hi, how is O-RAN is going to impact edge DC numbers?

O-RAN will see telcos deploying many distributed virtualised network functions. We track this separately in our telco cloud practice area – more information can be found [here](#).

11. What are some disadvantages or challenges associated with edge computing?

We've discussed this in a recent article: [Edge computing challenges: 5 reasons why we still do not have large scale deployments](#).

12. Is it possible to use edge computing without using cloud services?

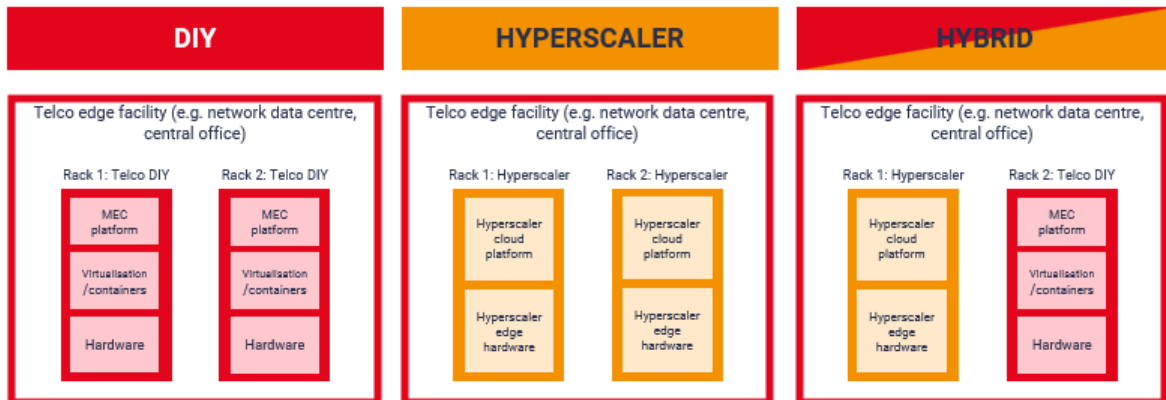
Almost all edge computing applications will also leverage the cloud. You can find out more in our article [Edge computing vs. cloud computing: What are the key differences?](#)

13. Does the business model of telcos include the WACC expectations, which are assumingly higher than the profit you can make in MEC?

It's obviously important for telcos to have an accurate business case when investing in the build out of edge infrastructure to ensure they get the returns on investment that they expect. The MEC business case and WACC is largely offset by investments that have already been made for NFV – e.g. renovations to sites.

14. Could it be we need to discuss "real options" in the second and third stage with a perspective of today as the primary perspective is still "difficult"? - and then, which path to follow toward the valuable 3rd order options?

Another key aspect is who will build the data centre capacity – telco and partners or hyperscalers?



Source: STL Partners

I would agree – for the majority of telecoms operators I think that you are correct that they will likely follow Vodafone’s position of both exploring their own “DIY” efforts (which could still be achieved through partnerships like Cox Communication’s with Stackpath) and working with hyperscalers.

15. Interestingly "federation" between national or local telcos was rated in the poll not as an issue, which I would see different. But will federation as an old telco model will ever happen anymore?

We discussed this somewhat during the webinar but you might also be interested our recent article [What is telco federated edge?](#) We interviewed some key individuals from the Bridge Alliance and GSMA for it.

16. Assuming you don't have an owned location for MEC, what is the model for housing? Colo/Containers/ Hosting in 3rd party Telco sites/TowerCos?

There is a range of different options for how those that don't own the physical sites might still be able to deploy edge infrastructure. This includes colocation (particularly for those who have more significant deployment footprints and who want to own and control their own stack), bare-metal-as-a-service or full IaaS propositions.

17. Would you jump onto the open sourced systems and model of Google (formerly stemming from MobileXedge)?

I think this question was meant for Naren and Elizabeth but we will just flag the article that we wrote when MobileEdgeX got acquired by Google: [Google's acquisition of MobileEdgeX: What does it mean for the edge ecosystem?](#)

18. In pure economic terms, we're talking about creating supply, but this often seems to me to be an academic exercise if we're not doing more to educate "developers," right? Should the industry be doing more to educate the demand side, even going so far as to provide market development funds / non-recoverable engineering to stoke demand and prove out the value?

This was discussed somewhat during the webinar especially by Elizabeth (you can see more on Vodafone's developer programme [here](#)). It is certainly true that one of the big differences between telcos and hyperscale cloud providers is that the hyperscalers already have a large customer base in the developer community. STL also wrote a report which is free to download called [What edge developers want from telcos now](#) which explores some of these themes in more detail.

19. Do you see these edge DCs being installed at existing network sites, or is new backhaul capacity needed?

Naren and Elizabeth both confirmed during the webinar that they were deploying at existing sites.

20. How important is it for telcos to support multiple hyperscalers at the edge?

Elizabeth answered this question on the webinar itself but generally we do expect this to be a requirement in the future and as of today its not clear how exactly this will work. Potentially the hyperscalers themselves will make it easier than it is today to do this – [Azure Arc](#) is an example of this.

21. Have you seen the UPF present at the tower location in any of the existing installations?

Today, we have only really seen telecoms operators distributing their user plane functions as far as the transport layer of their networks. There have been some pilots/POCs but, without demand from applications, we do not believe this will be mainstream for the next five years. In the US, tower companies like American Tower have been investing in edge but even this has been focused on larger edge data centres for the majority of the time. Activity at the towers themselves is still in more of an experimentation mode.

22. We see a little fear in the network vendors regarding hyperscalers new positioning with CSPs. is it a right fear?

There is significant evidence that the hyperscalers are verticalising around telco and are making real strategic investments (e.g. Microsoft's acquisition of Affirmed and Metaswitch) in order to do this. It therefore makes sense that the network vendors are highly aware of this and considering how they can defend existing market shares.

23. When are you going to include RAN in your forecasting?

24. O-RAN will see telcos deploying many distributed virtualised network functions. We track this separately in our telco cloud practice area – more information can be found [here](#).

25. How will the new ecosystem look like for around telcos?

Great question – we have created a whole tool looking breaking down the edge ecosystem. You can see a sample of it here [Edge computing ecosystem & value chain](#).

26. Latency has proven a bit of a red herring for CDN, and CDN (the original 'edge computing' application) is now really finding its edge in the operator network. There are very very few applications that really require the ultra low latency that is currently being marketed. Voice and video real time calling works at 120ms + which really doesnt need 'deep' edge. So it seems that all these edge compute services are emerging for M2M - but what are they? Why can't these applications be run 'on-site' rather than 'in network'?

Agreed that there are many M2M edge use cases – some are explored in our [10 edge computing use case examples](#) article. Many M2M use cases will run on customer premises but there are a few reasons why this won't always be appropriate – for example smart city and connected car applications will not have one fixed premise and so will run at the network edge. Another example of an M2M application that may leverage the network edge would be those related to the smart grid. We explore this in more detail in the following article: [How can smart grids benefit from edge computing?](#)

27. How much is energy / sustainability a factor in slowing roll out?

Its certainly a significant consideration for many players, not in the least because of the energy price crisis going on at the moment. There are some that say that by processing data closer to end users that edge computing may be able to reduce energy usage associated with backhaul in the networks, however. We've discussed this more in the following article [How to make edge computing more sustainable](#).

28. How will big enterprise charge for the edge services?

We've discussed some options in the following article [8 edge computing pricing models](#).

29. Where do fixed access providers (fibre networks) fit in?

Hopefully Naren from Cox Edge gave you a good sense of what some fixed / cable companies are doing in this space. These types of operators often tend to be particularly strong in delivering edge services for the media and entertainment industry vertical.

30. In the US, telecom providers often build into colocation providers in tier 2 and 3 cities. Are these included in your forecast? Or just the specific telecom builds?

The forecast only takes into account edge sites where the real estate is owned by the telecoms operator themselves. Deploying colocation at internet exchanges would for us fall under regional edge

computing (rather than network edge). Also just to remind that we are not talking about distributed network functions within our edge model.

31. Given the distance metrics stated what do you think the quantity of Edge DC in the UK is likely to be within 5 years?

This is something that we have captured in our forecast model but aren't able to share specific numbers with those that aren't subscribed – so get in touch to discuss this in more detail!

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