



## **5G and edge computing: why does 5G need edge?**

4G and edge will drive 5G coverage and applications. This would boost service demand and offer growth for telcos at a time when there is still scepticism for the 5G business case

Dalia Adib, Edge computing practice lead

## 5G and edge computing: why does 5G need edge?

5G and edge computing are two inextricably linked technologies: they are both poised to significantly improve the performance of applications and enable huge amounts of data to be processed in real-time. 5G increases speeds by up to ten times that of 4G, whereas mobile edge computing reduces latency by bringing compute capabilities into the network, closer to the end user.

We argue that 5G needs mobile edge computing for two reasons.

First, it is inherent in the 5G standards as it is the only way to meet the latency targets that have been set (1ms network latency). Improvements in the radio interface alone will not achieve these.

Second, the gradual approach operators are taking to deploy 5G – the 5G go slow cycle – will mean coverage of “full 5G” will be insufficient to cultivate an ecosystem of new applications. However, edge could seed a 5G market even before widespread coverage.

## What is the 5G go slow cycle?

Operators in different markets have diverse approaches towards 5G. research shows operators in the US, China, Korea and Japan are chasing 5G most enthusiastically and back that enthusiasm with real investment.

This is characterised by T-Mobile’s CTO Neville Ray: *“We are all in on 5G. Every dollar we spend is a 5G dollar, and our agreement with Nokia underscores the kind of investment we’re making to bring customers a mobile, nationwide 5G network.”*

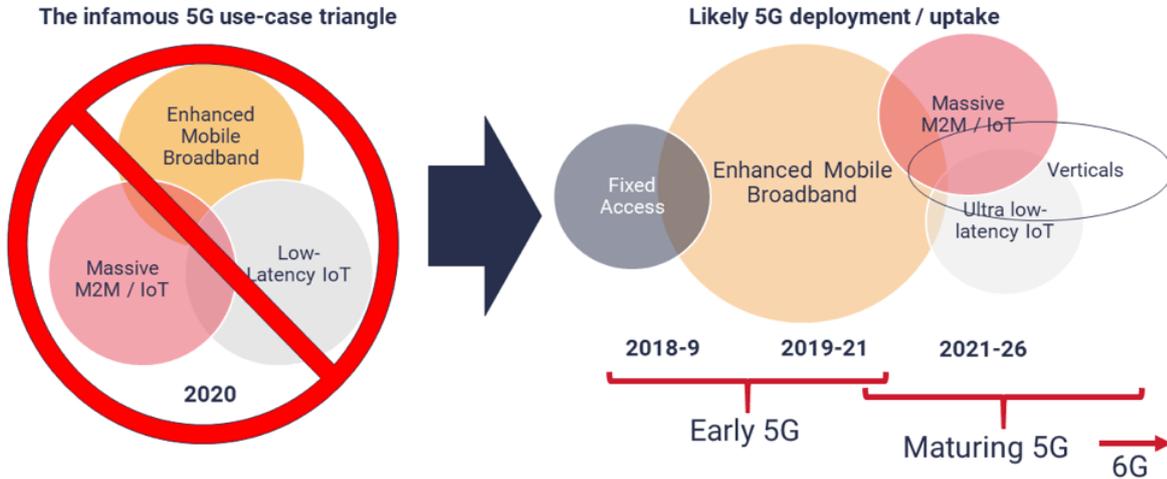
Initially, operators in Europe, such as Orange, Telefonica, Veon, Deutsche Telekom, BT, Telenor and Vodafone, did not hold back from taking part in the 5G jamboree but were more muted in their approach. Most importantly, they continue to invest heavily in their LTE networks (for example in LTE-A Pro) in their pursuit of a “glide path” to 5G. More recently, some have announced early 5G deployments in major cities, such as BT (EE) and Vodafone.

BT’s Consumer Division CEO, Marc Allera, talks wisely about learning lessons from the past

*“3G technology was overhyped, the price was overhyped and the consumer was underwhelmed by the experience. That said, we learnt some valuable lessons, and opened people’s eyes to doing more on their mobile. 3G taught us a lesson in financial prudence while 4G taught us how to deploy rapidly at scale.”*

Operators in South East Asia, the Middle East and Europe are (privately) cautious about the prospects for rapid roll-out of broad coverage. They think 5G offers compelling cost advantages over LTE for enhanced mobile broadband (eMBB) in denser urban locations and potentially fixed wireless access (FWA) in certain suburban ones (where fibre has not been widely adopted). We set this out in our recent report: **5G: ‘Just another G’ – yet a catalyst of change.**

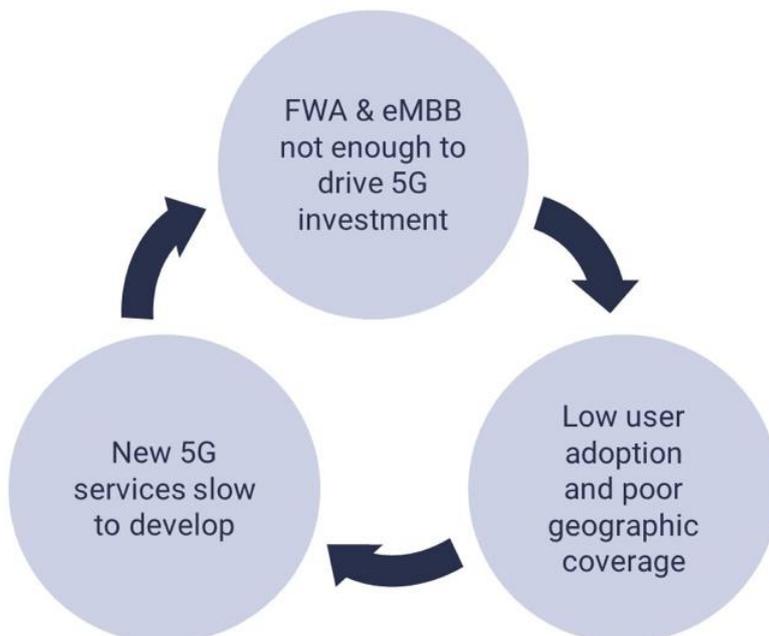
# Breaking the 5G go slow cycle



This creates a predicament over how to expand beyond these 5G islands. Without wider coverage, how can operators catalyse ecosystems to invest in new services (low-latency, immersive or Massive MIMO)?

Plus, much of the promise of 5G rests on being able to enable new use cases that are not just a step up from LTE mobile broadband, for example those that are characterised as ultra-low latency and massive M2M. Enterprises are already demanding these capabilities, yet the telecoms industry is still trying to agree standards for these later releases of 5G.

At the same time, without coverage of 5G in these new use case domains and end-users with 5G devices, application owners will not be incentivised to develop applications that use the technology.



**5G and edge computing: why does 5G need edge?**

Get in touch to receive our free 20 page Edge Insights pack

Why mobile edge computing is a key technology towards 5g

Somewhat counter-intuitively, 4G and edge compute can help accelerate 5G coverage and device adoption rather than delay it. Astute operators can mix **commercialised edge compute** and 4G to create “good enough” capabilities for 5G services to fall back onto. And these will overcome limitations in 5G geographic or device coverage. While 4G + edge compute won’t be as high performance or cost efficient as 5G, they will be good enough to provide the basis for securing greater demand for services.

Examples of 5G edge computing applications

- A gaming company that wants to create a distinct gamer experience needs high-end GPUs mainly found in 5G phones. The company may find its addressable market is limited because there are few existing devices. By using edge compute, it could address a broader base of 4G devices, at least initially, and succeed ahead of wider device adoption.
- A maintenance company wants to introduce lightweight AR headsets to its teams in the field to provide them with relevant information in real-time. The company needs to be sure that these could be used acceptably outside 5G coverage areas. The “5G” experience might be enough to convince the company of AR’s potential, but scaled adoption will require coverage.
- A manufacturer wants to use 5G IoT sensors to monitor the machine tools in its plant in real-time. The manufacturer needs to standardise processes across other plants and scale this technology, however these plants may be in remote areas without 5G coverage. Edge computing would enable real-time processing of data using devices on 4G networks, which could then move to a 5G network in the long term.

In summary, 5G needs edge computing to drive demand for its services. Today, there are only nascent markets for the types of applications 5G enables: augmented reality, mass IoT, robotics, AUVs/drones, etc. Edge computing can provide developers an environment to create the 5G applications that do not exist today even without “full 5G” being available yet.

**Dalia Adib is Edge computing practice lead at STL Partners. She has led major consulting projects with Tier-1 operators in Europe and Asia Pacific on edge computing strategies, use cases and commercial models, and is an active speaker at events including Edge Europe and Data Cloud Congress. Outside of edge computing, she supports clients in areas such as 5G, blockchain, digital transformation and IoT.**

Get in touch with the author to learn more

[dalia.adib@stlpartners.com](mailto:dalia.adib@stlpartners.com)

Or visit STL Partners’ Edge Hub

[www.stlpartners.com/edge-computing](http://www.stlpartners.com/edge-computing)

5G and edge computing: why does 5G need edge?

© STL Partners