



## How machine learning is giving mobile networks a shot in the arm during covid-19

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Video consumption was skyrocketing even before the lockdowns. And over the past few months Netflix, Amazon, HBO Now and most recently Disney Plus have seen their subscriber base explode. For the operators running the networks that deliver all that content, it has been a test of business agility to reconfigure networks fast to keep up with the changing situation on the ground, ensuring their subscribers could continue making Zoom calls and binge a boxset.

In Italy, the first country in Europe to enforce a lockdown, peak throughput on the mobile network increased by up to 90% compared to the weeks before lockdown. In Spain, the mobile network experienced a 35% increase in throughput, while over fixed networks it increased 50%. The story repeated again and again across Europe and beyond as lockdowns came into force. While [some feared](#) a 'data Armageddon' and a crashing of networks, operators held their own. So, how were they able to "flatten" the spike in demand? Spoiler alert: it was not 5G that came to the rescue.

Over the past few months there has been plenty of hype and talk about 5G networks. And you would be forgiven for thinking that the spikes in demand were tamed thanks to 5G and this was its moment in the spotlight. In reality, 5G investment and deployment in some areas have actually slowed. So, when demand soared with the pandemic, operators actually turned to 4G to fill the gap. This might seem counterintuitive when 5G can support up to 100 times more data traffic than 4G. That's in the long-term. In the short to medium term, operators need to prolong 4G's lifespan. A shot in the arm if you will. That power-boost is coming thanks to machine learning (ML).

Conventionally mobile data traffic management has required manual configuration, combined with additional network CAPEX and OPEX investment. As Gorkem Yigit from the analyst outfit Analysys Mason puts it: "While investment in 5G infrastructure continues, operators need intelligent ways to maximize and extend existing 4G network capabilities – keeping their CAPEX to a minimum."

To cope with the times, advances in intelligent ML algorithms is giving 4G networks a new lease of life and keeping operators from having to invest in new network infrastructure.

What makes ML suited to the times? Gone are the days when you could predict peaks and troughs on a network. An album on Spotify could be dropped overnight in the US driving a streaming frenzy in Japan. A Netflix K-drama launched in South Korea could experience a surge in Canada. Operators need the capability to dynamically manage these fluctuations without having to second-guess when a peak might occur – as was the case with traditional data traffic management.

The ML can work dynamically without external probes or changes to the radio access network (RAN).

It can detect and predict congestion at a localised level, giving operators a view of congestion across the network so it can take steps autonomously to even out the service. Thanks to its predictive capabilities, operators can crucially act to ease congestion before subscribers even start to experience lags or buffering.

ML can deliver 15% increased RAN capacity in congested areas. This has been nothing short of a shot in the arm when the networks, and operators, have needed it the most. Because this approach requires zero integration, it's been instrumental in meeting the unprecedented demand for data in 2020.

And what of data demands beyond 2020 and the pandemic? The sure-fire certainty is that operators will need to feed the appetite for data from millions, if not billions of subscribers. And subscribers are not just humans but even devices too with the Internet of Things (IoT). The video streaming market is [projected to grow at a CAGR of over 18%](#) through to 2026. Combined with the IoT, with its [41.6 billion connected devices](#) estimated by 2025 the data demands will grow profoundly. Yet 4G networks were not designed for that kind of strain.

Many of the use cases we anticipate are reliant on the development of 5G like the growth in machine-to-machine communications which will support anything from autonomous cars to emergency services. Certainly, operators and businesses should continue to prepare for a 5G future, with all the enterprise and societal benefits it entails. However, in the short to medium term, the focus must be on getting the most out of existing investments in 4G. According to the mobile industry body the GSMA, 4G is in fact growing and will still account for 56% of connections in 2025. And now thanks to advanced ML, there is still plenty of life left in 4G.