Mobile Tornado

How push-to-talk over cellular technology leapfrogged legacy radios for mission critical communications

A decade or so ago, some telecoms providers were promoting push-to-talk over cellular technology for mission critical communications. But in reality they could barely deliver 90 per cent availability due to patchy network coverage, which fell way short of what was required, especially when lives were at stake in challenging environments.

Understandably, radio dealers were sceptical about the technology and unwilling to expose their customers to that level of risk. Instead, they preferred to carry on selling the same old legacy radio systems that could be trusted to do the job when someone, somewhere found themselves in an emergency and needed help. The same analogue mindset prevailed for communications more generally.

Then things started to change. First, the UK government announced in 2013 that its new critical communications system would use push-to-talk technology on cellular networks. The Emergency Services Network would enable fast, safe and secure voice, video and data and give first responders immediate access to life-saving data, images and information on the frontline.

The existing Airwave terrestrial trunked radio (TETRA) network, with its limited capabilities, would eventually be consigned to history (albeit more slowly than originally planned).

Next, in 2017, the US telecoms giant Motorola Solutions made a strategic acquisition, buying up Kodiak, a Texas-based provider of push-to-talk over cellular services. At the time, market commentators noted the target company had been involved in efforts to establish new standards for mission critical communications on 4G networks, which would give Motorola a competitive edge in this emerging field. More than anything else, the move signalled where the market was heading.

Ongoing investment in infrastructure has accelerated the transition, helping to usher in a new era in critical communications. Global 4G coverage doubled to 88 per cent between 2015 and 2022. Industry experts predict that 5G networks are likely to cover a third of the world's population by 2025. Private networks are growing quickly too, especially in sectors like healthcare, energy and defence, for connecting devices and users in localised areas, typically where there is a mission critical requirement.

Take a closer look at population covered by mobile network coverage, using facts and figures from the UN:

- **Sub-Saharan Africa**: 49% (4G), 33% (3G), 7% (2G)
- **Oceania:** 61% (4G), 18% (3G), 11% (2G)
- **Latin America and the Caribbean:** 87% (4G), 6% (3G), 1% (2G)
- **Central and Southern Asia:** 95% (4G), 1% (3G), 2% (2G)
- **Northern Africa and Western Asia:** 77% (4G), 20% (3G), 2% (2G)
- **Australia and New Zealand:** 99% (4G)
- **Eastern and South-Eastern Asia:** 97% (4G), 2% (3G)
- **Europe and Northern America:** 98% (4G), 1% (3G)

The growth in mobile network coverage has enabled push-to-talk over cellular technology to leap-frog legacy radio systems. Fundamentally, it means the all important question of availability is no longer an issue. With availability of 99.999 per cent, Mobile Tornado's technology is market leading: voice transmission set-up is less than half a second and there is seamless switching between networks without any dropped calls.

It is not just about availability. Users are waking up to the expanded feature sets and superior user experience of push-to-talk over cellular compared to the limited capabilities of legacy radio systems. They find the technology increases safety, boosts productivity and improves efficiencies in their organisations.

> **Robert Stolz, president of Stolz Telecom and a life member of the FBI Agents Association, said:**
>
> "We have always thought investing in a LMR solution would have been not only cost prohibitive, but geographically restrictive as well. With Multi-IMSI SIM's available now, we believe the technology supporting Mobile Tornado's PTToC is both robust enough to compete with traditional LMR, and also economically feasible."

This year, Mobile Tornado announced the launch of the world's first push-to-talk over cellular platform with integrated workforce management software, giving users access to a sophisticated suite of tools to manage employees and other organisational assets while reducing manual tasks and lowering the total cost of operations.

To illustrate what's here now, consider these powers: instant communications between individuals and groups of up to 5,000 participants with a single push of a button, anywhere in the world; the ability to send emergency alerts and track and locate employees in real time; and a dispatch console to manage remote workforces and lone workers.

With a slowdown in the global economy, users are becoming more sensitive to price. Legacy radio networks rely on expensive base stations, servers and devices, all with big upfront costs. The Airwave TETRA network was costing the UK taxpayer £1,300 per device per year.

The Competition and Markets Authority had to step in with a price cap to protect emergency services from paying over the odds. In contrast, push-to-talk over cellular is available at a significant discount with monthly subscription models and customers able to add or remove features as needed. In the early years, it is fair to say that some providers overpromised and underdelivered.

Since then, advances in mobile network coverage and landmark industry moves have signalled a changing of the guard: the time has come for push-to-talk over cellular to assume its position as the technology to trust for critical communications.