



PUSH TO TALK INTERNATIONAL

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Push to Talk over Cellular (POC) – Service Resilience

Push to Talk International's POC service solution is a cloud-based service with our Servers housed in an Equinix Tier 4 Hosting Centre in Canary Wharf, London, offering the highest degree of access security, networking fault tolerance, and power resilience and operated against the following standards:

ISO 14001:2015
ISO 22301
ISO 27001
ISO 50001
ISO 9001:2015
OHSAS 18001
PCI DSS
SOC 1 Type II
SOC 2 Type II

In addition to the resilient and fault tolerant networking and power supplies, we also run 'Hot Standby' application services with in memory database replication to ensure our hardware and application also delivers fault tolerance in our service deployment. We are also in the process of establishing a fallback "darksite" service in a second Equinix Server House located in the Thames Valley.

Our connection into the cellular networks is via dedicated leaseline and secure IPSEC VPN'S that give us Private Access Point Names (APN's) with Radius Managed Authentication and static IP assignment; transport level priority of the sims we can use on our service can be assigned a Level 7 (QCI) QoS Class Identifier, offering a higher 'air interface priority' over the man in the street. Together with the fact that POC is using very small amounts of data when being used, it means on a congested cellular site, where members of the public are being denied access, your POC transmissions will get priority and get through.

All the UK Mobile Network Operators (MNO's) have thousands of cellular sites, strategically located and engineered to ensure that they can offer their customers the best possible coverage and the system is designed with significant site overlap, so in the event of a site going down, service is maintained. A cellular device can generally see up to a minimum of 6 cellular sites at any one time in urban areas and can be affiliated to the network via any of these, should one site be compromised.

It is in the vested commercial interest of all the MNO's to keep their networks up and running to their full potential and they all employ hundreds of engineers Nationally, ready to respond 24/7/365 to reported faults. The network operators, such as Vodafone also have complete remote monitoring and management control of the base sites from their NOC network operations control and control, reset or redefine via software how each site is utilized. For example, a site can be dynamically assigned additional LTE capacity in response to loading by redeploying RF resources on available frequencies in different locations. The shaping of the network can ebb and flow therefore in real time to the demand being placed on it across the different bearers available on it.

PTTI carry a broad portfolio of 'best in breed' POC devices; from low tier, voice only to high end feature rich enterprise and professional communicator smart devices, including both 'Dual Sim', Wi-Fi enabled, and 'Dual POC/DMR' capability. Devices therefore have many different fallback routes to getting connected to services and communicating from a resilience perspective in the unlikely situation that the primary method is unavailable.

Our service solution is optimized to operate most efficiently with Fixed IP Data Sims; with a network roaming Sim there is a chance that a call will be dropped when the Sim is switching sites and looking for a new IP address. This also enables us to monitor and support a fleet of devices effectively and examine a device and its performance against its peer group and remotely triage as required. By being on a private APN with fixed IP sims the connectivity and access to the devices is also separated from the general public networking on the networks. With a 'Dual Sim' device, you can load two Fixed IP Data Sims and manually switch in the event of a network issue.

The 'Dual POC/DMR' device offers a slightly higher degree of resilience, whereby in the event of mobile network failure, the devices can be switched to DMR 'back to back' functionality offering localized communications off net, restricted by the topography of the location being used.

There is a facility available to the MNO's; the Mobile Telecommunications Privileged Access Scheme (MTPAS) which in the event of a major incident, the Bluelight Services can request it to be invoked and this restricts access to the networks to only the highest priority users. Each MNO has to be individually requested to invoke MTPAS and it is at considerable expense to the respective Bluelight Service that is requesting it as the MNO's will be losing significant revenue.

This system was formally known as Access Overload Control (ACCOLC) and on the two occasions in recent year's that that was invoked; the Grand National at Aintree, 1997 and 7/7 2005 in Central London it caused the Bluelight Services more problems than it resolved. I was formally the Service Communications Officer for the Metropolitan Police; we did not request ACCOLC to be invoked on 7/7, it was the London Ambulance Service and I know from subsequent incident debriefs, it is highly unlikely to be requested under the MTPAS scheme.