Digital Amateur Radio – Bridging the Gap

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Introduction

As amateur radio operators most of us are aware that we are permitted to use our equipment to "assist with communications in times of disaster, national or international emergency".[1] In fact, our licence even refers to sending messages on behalf of the User Services (the full list is defined in the 2004 Civil Contingencies Act).[2] So perhaps the question we first need to answer is how ready should we be, and what type of services should we aim to provide?

In this article I hope to demonstrate the value of amateur radio in providing emergency communications in today's connected world where our hobby is perceived as an anachronism and of little commercial value. In future articles, I will showcase some of the key applications that can provide both the situational awareness and the tools to share this information with the User Services – capabilities that are required to coordinate an effective response to an emerging situation.

UK Resilience

In recent years people have become increasingly dependent upon the instant communications offered by mobile phones and the internet, with everything from e-mail to streaming video on the move. However, in the event of a major incident, these mobile networks soon become overloaded by the sheer volume of calls as people try to phone their loved ones. For example, in the aftermath of the London terrorist bomb attacks in 2005, the mobile networks experienced an abnormally high volume of calls and the operators were forced to invoke Access Overload Control. This move meant that many key personnel, including paramedics who used SMS for their routine communications, were unable to get their messages though.[3]

In 2009, this system was replaced in 2009 by the Mobile Telecommunications Privileged Access Scheme – where priority calls are assigned to the Police, Ambulance, Fire and Rescue Services, and the organisations that have a requirement to communicate with them (i.e. Category 1 and Category 2 Responders under the Civil Contingencies Act) – organisations that require access, including members of the voluntary sector, can be sponsored through their Local Resilience Forum's Telecommunications Sub Group.[4]

The emergency services in the United Kingdom share a common, and highly secure, radio system, operated by the public safety communications provider *Airwave*. The radios in this system will automatically switch to another radio base station if the one they are using fails, and should the network fail a mobile Command and Control Centre, linked into the system via dual-redundant satellite broadband, can be deployed to provide local area coverage.

So where does amateur radio fit into today's scenario? Clearly, the requirements of the User Services have evolved significantly from the analogue radio systems that were in place during the 1980's, into a national digital radio network, underpinned by resilient telecommunications.

A Role for Amateur Radio

> *"Public cellular mobile telephony has played an important role in responding to recent emergencies. However, both society and the responder community have embraced the convenience of mobile telecommunications often without pausing to appreciate the inherent resilience issues."*

The above quotation comes from the UK Cabinet Office Telecoms Resilience Web Page,[5] and is of great importance to members of the responder community within the voluntary sector who fall outside the Airwave and privileged access schemes. It warns of the vulnerability of fixed-line telecommunications, and although the Internet itself is inherently resilient, it is the "last mile" that is particularly susceptible – i.e. the service provider's green roadside cabinets, and our own equipment such as ADSL routers and cordless telephones, both of which go offline when the mains fails.

The UK Cabinet Office offers a strategy for reducing the dependence upon mobile telephones. It suggests that responders identify the communications that are critical to their operation; and the specific pieces of information that must be conveyed. This would then used as the basis for selecting alternative technologies that can act as a fallback – amongst the suggested options is the use of CB Radio, Private Mobile Radio and Raynet (The Radio Amateur's Emergency Network).[6]

It is up to organisations like ourselves to reaffirm our role in providing this service for responders would otherwise be left without communications in an emergency; and importantly, our ability to provide the services they require, and the ability to integrate seamlessly with their internal processes.

References

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