

Mission-Critical, Carrier-Class Communications For UK Fire Service

Central Scotland, UK



Customer

The Central Scotland Fire and Rescue Services manages a total of 17 fire stations in the Central Scotland area, from its headquarters at the Maddiston Station in the south of its coverage area. The headquarters are only a short journey from most of the Services' fire stations and within minutes of the giant petro-chemical complex at Grangemouth, which ranks among the largest in Europe. Along with the large number of docks and timber yards in the region, this makes the Central Scotland area one of the largest fire risk areas in the country. The Central Scotland Fire and Rescue Services receives approximately 10,000 emergency calls per year, for fires, road traffic accidents and other incidents.

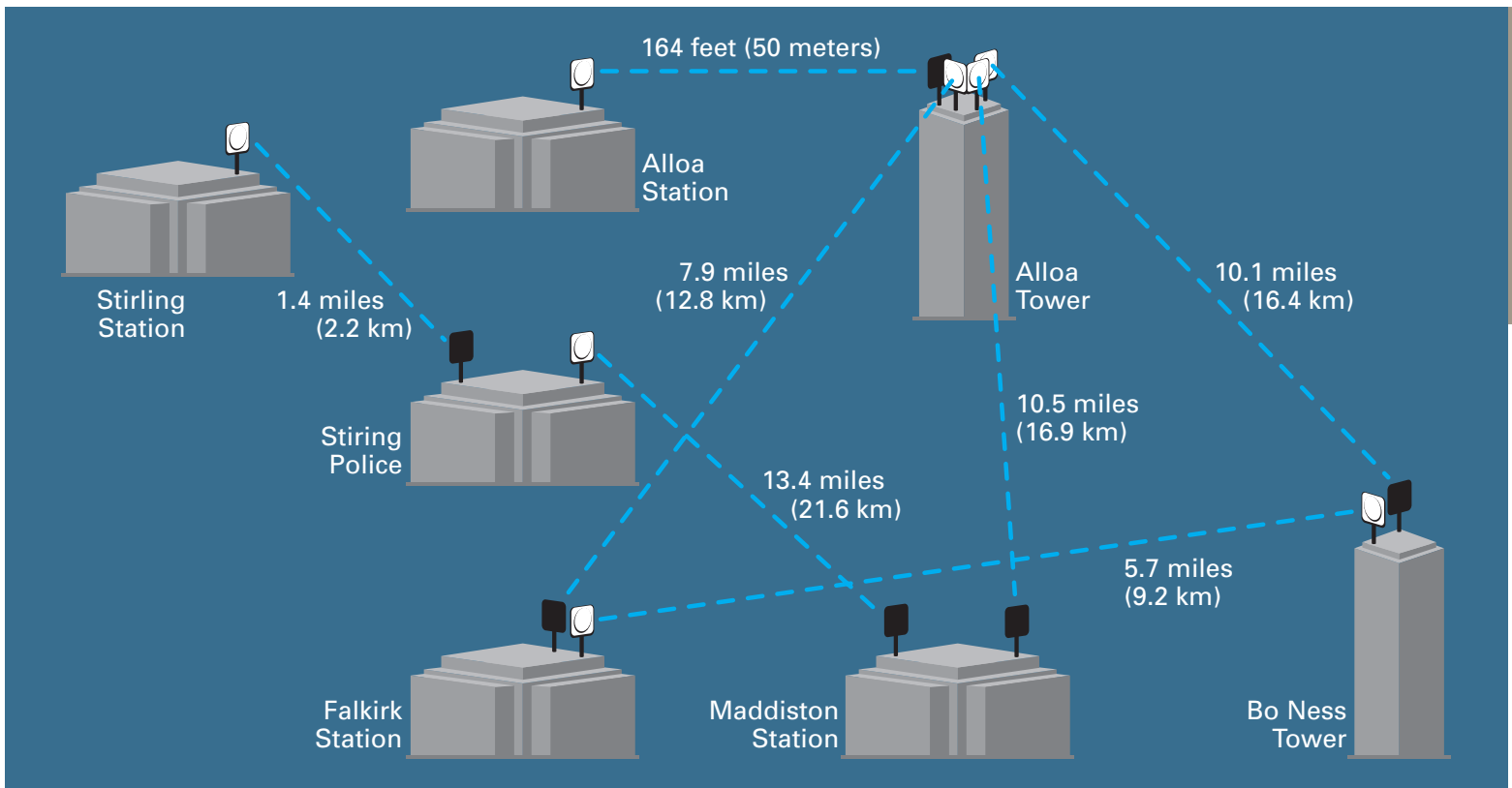
Solution Provider

Boston Networks Ltd., created in March 2000, is a leading integrator of wireless networks encompassing internal, external and long-haul systems used to deliver solutions for the most outstanding telecommunications opportunity in recent years – wireless networks. An enthusiastic evangelist of wireless networking, Boston Networks is building a class-leading company focused on delivering high-speed, cost-effective wireless solutions. From standards-based client-access networks to high-speed backbone links, Boston Networks currently delivers innovative and reliable wireless solutions to enterprises, small businesses, consumers, carriers and network service providers, specializing in end-to-end wireless networking.

The Situation and Challenge

The Central Scotland Fire and Rescue Services headquarters is in constant contact with the other fire stations in its coverage area. The system in use was an out-of-date analog hardwired 64/128 Kbps network linking the headquarters and four full-time operating stations. This network was originally used to send mobilization messages from the headquarters to the appropriate fire station when an emergency call was received. However, as the communications needs of the fire service grew, the network was also being used for voice-over-IP and administrative data traffic between fire stations. As data transmission requirements increased, the capacity of the analog system was insufficient and the fire service found it often had no spare bandwidth for voice calls.

In addition to needing a higher-capacity network, the Fire and Rescue Services wanted a solution that was easy to manage. The services also required a solution that was cost-effective, given the budget constraints of a public-service organization. Although using higher-capacity leased lines from the incumbent operator was one possible solution, this would have been very expensive, and so was not the preferred option.



Technical Requirements

The solution to the connectivity requirements of the Central Scotland Fire and Rescue Services needed to meet the following technical requirements:

- A need for carrier-class availability and reliability, because the system would be used to communicate mobilization messages from headquarters to outlying stations
- The need for multiple links to coexist at one location, both to enable one location to communicate with multiple other locations, and to build some additional redundancy into the network
- The ability to cope with a “noisy” wireless environment

Deployment Detail and Interoperability

In order to link together the numerous fire service stations, towers and one police station, Boston Networks designed a network of seven Motorola Point-to-Point Wireless Ethernet Bridge – 400 Series integrated links, varying from a very short hop of a few meters to a link of 13.4 miles (21.6 km). As shown in the diagram, the chosen configuration optimized the position of the equipment while also incorporating redundancy, as required by the Central Scotland Fire and Rescue Services.

The Results

The links varied in throughput between 8 and 16 Mbps, depending upon the distance and radio environment. The lowest data rate was on the 13.4-mile (21.6-km) link from the Stirling police station to the Maddiston Station. Although this link was subjected to a high level of interference over much of the path, it still managed to maintain a data rate of 8 Mbps, significantly in excess of the capacity that would have been provided by the more expensive leased-line option.

When deployed as multiple links in one location, the Motorola units performed exactly as they were designed to perform. As each unit was deployed and booted up, it automatically selected the clearest radio channel from the available channels without interfering with the previously installed units.

Since the deployment of the Motorola PTP 400 Series links, the network has provided the Central Scotland Fire and Rescue Services with an always-on, carrier-grade communications solution. The network has proved itself for mission-critical applications and is being used to route emergency calls.

At the time of this installation, the products deployed were the Orthogon Systems OS-Gemini point-to-point wireless Ethernet bridges. With Motorola’s acquisition of Orthogon Systems, the OS-Gemini products were renamed as the PTP 400 Series bridges. They are now part of Motorola’s **MOTOwi4™** portfolio of innovative wireless broadband solutions that create, complement and complete IP networks. Delivering IP coverage to virtually all spaces, the **MOTOwi4** portfolio includes Fixed Broadband, WiMAX, Mesh and Broadband-over-Powerline solutions for private and public networks.

Why Motorola?

- The Motorola PTP 400 Series' Advanced Spectrum Management techniques enabled redundancy to be built into the network without causing any interference issues
- The Motorola solution provided a much more cost-effective solution than other alternatives, even for the short-distance links; the cost of a Motorola unit is less than the cost of a year's leased-line rental
- The Motorola solution provided carrier-class availability and reliability, despite interference

About Motorola

Motorola is known around the world for innovation and leadership in wireless and broadband communications. Inspired by our vision of Seamless Mobility, the people of Motorola are committed to helping you get and stay connected simply and seamlessly to the people, information, and entertainment that you want and need. We do this by designing and delivering "must have" products, "must do" experiences and powerful networks – along with a full complement of support services. A Fortune 100 company with global presence and impact, Motorola had sales of US \$36.8 billion in 2005. For more information about our point-to-point products and services, visit our website at www.motorola.com/ptp.



MOTOROLA CS:
CENTRAL SCOTLAND FIRE & RESCUE US
11-Dec-06

For more information about the Motorola Point-to-Point Solutions:

Outside of North America: +44 1364 655500

In North America: +1 877 515-0400

www.motorola.com/ptp

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