CASE STUDY:

City Of Cape Town

South Africa – Public Safety TETRA Communication System

For the first time in South African history, public safety services – including municipal police, fire brigades, traffic officers, ambulances and rescue teams – are able to inter-communicate during a crisis situation.

BACKGROUND

In August 2000, Motorola together with Alcom Systems (a subsidiary of the Altech Group) was awarded a 55 million (ZAR) contract to replace and manage the City of Cape Town Public Safety's digital radio system. The system based on TETRA (TErrestrial TRunked RAdio) technology is the first of this kind to be implemented in Africa.

The City of Cape Town's improved, integrated radio communication system enables the 5,047 users to service the more than 3.1 million inhabitants in Cape Town and its surrounds. The system covers an area of more than 4 419 square kilometers. Motorola installed 19 RF-sites over the period, while the official handover of the system to the City of Cape Town took place on 28 February 2002.

Motorola and Alcom Systems were chosen for the project for the following reasons:

- Advantages of TETRA (like open standard, efficient resource utilization , spectrum efficiency)
- The Motorola system's reliability and scalability
- The cutting-edge technology employed throughout the system
- The reliability of the Motorola equipment

Cape Town's public safety infrastructure required a system which allowed for interoperability and the benefits of being able to communicate across various units and services

CUSTOMER NEEDS

The City of Cape Town required the following for the new radio system:

- City of Cape Town required fast, 'Instant' access in emergency situations
- It offered inter-service communications, between departments and units
- A relatively low operating cost compared to the use of cellular phones as well as mobile radio units
- The ability for the City of Cape Town to consolidate their call-center with the new system
- Accessories available for Motorola handsets e.g. Car-kits, peripheral interface adaptors etc.

The City of Cape Town selected the TETRA system primarily because it is an open standard. “What this means is that it will support equipment from any handset manufacturer. The technology also makes the most efficient use of the valuable, limited and exhaustible frequency spectrum and proved the most cost effective solution for metropolitan areas.”

Carl Schneider, manager of electrical engineering, City of Cape Town,

Motorola Solution

Motorola supplied the City of Cape Town with an ETSI TETRA radio system utilising 37 frequency pairs in a 410-413 MHz paired with a 420-423 MHZ band. The system is fully integrated across the City of Cape Town’s entire network replacing the disparate system with the new TETRA system. Public Safety and emergency services together with various public works unified network.

Due to Cape Town’s mountainous terrain, the TETRA system requires 19 base station sites to provide reliable coverage in the City of Cape Town’s operational area.

To handle the predicted traffic, these 19 sites are equipped with a total of 47 base radios or repeaters, with each base radio capable of supporting 4 simultaneous conversations using TDMA (Time Division Multiple Access) technology. Central control of resources is achieved through the use of up to 36 separate dispatcher points. As the City of Cape Town is supplying the communications infrastructure, it is up to each individual municipal and public safety service to purchase the required subscriber equipment. As a result of the experience gained through the City of Cape Town’s implementation, Motorola and Alcom are ideally placed to roll out a greater network to South Africa’s other public safety agencies.

BENEFITS

- An “Instant access” – 300 millisecond call time allows the various public safety and municipal agencies to communicate more effectively that with traditional or legacy systems which were used in the past
- The ability to prioritise resources
- The Motorola TETRA systems ability to perform inter-service communications allows a much more effective incident response
- A specialised control room that allows control personnel to manage and control both routine operation and incidents more effectively
- Greater enhanced radio coverage

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