



CITY OF CAPE TOWN MODERNISES ITS PUBLIC SAFETY RADIO NETWORK

FOR INCREASED RESILIENCE AND A FUTURE-PROOF SYSTEM DELIVERING RELIABLE, FULLY ENCRYPTED MISSION CRITICAL COMMUNICATIONS



CITY OF CAPE TOWN

Cape Town is South Africa's oldest city, its second-most populous and an important contributor to national employment. It is the legislative capital of South Africa, the administrative and economic centre of the Western Cape, and Africa's third-biggest economic hub. City of Cape Town provides a wide range of civic services to over 3 million citizens within the city. Services include metropolitan policing, traffic and transportation, law enforcement, emergency services, housing and utilities.

Being a technology innovator in its sector, City of Cape Town was the first organisation in Africa to deploy a Motorola Solutions DIMETRA TETRA network in 2000 to provide radio coverage over the Cape Metropolitan Area (CMA). It upgraded that network to the DIMETRA 6.2 system release in 2011, but user numbers have since spiralled; the 6.2 system could no longer support the latest software and it did not offer geographical redundancy. Therefore the city decided to upgrade to a DIMETRA 8.2 system.

The DIMETRA IP 8.2 network provides reliable and secure radio communications for Public Safety to more than 13,000 City of Cape Town users, as well as to a further 2,500 external users from surrounding municipalities, including the South African National Parks and Emergency Medical Services of the Provincial Government. The city has retained all the features it was utilising on the 6.2 network, but can now run the latest software and benefit from the enhanced features and applications such as the full geographical redundancy and agency partitioning that the 8.2 system can offer; this ensures continuity of coverage, even if the main switch is rendered inactive by power outages or major incidents such as fires or floods.

Motorola Solutions and City of Cape Town have a long history of successful collaboration. Key to this success has been the service the Motorola Solutions team in South Africa has delivered every step of the way, providing ongoing maintenance, optimisation, upgrading and migration of the TETRA networks; the team has never missed delivering on the strict SLAs in place. Motorola Solutions has also recently planned and verified a frequency change on the system, to be in line with the national frequency plan set by the South African regulator. The total solution offered by Motorola Solutions ensures the future-proof TETRA network will provide clear, reliable communications to the city's emergency services and other users in the field for many years to come.

CUSTOMER PROFILE

Organisation:

City of Cape Town

Industry:

Public Safety

Location:

South Africa

Motorola Solutions Products:

- TETRA DIMETRA IP 8.2 infrastructure
- 123 x Base Stations over 32 sites:
 - 63 x EBTS (Enhanced Base Transceiver Subsystem) as part of the original network, 60 x MTS (Motorola Transceiver Subsystem) added in the upgrade
- Full range of Motorola Solutions TETRA radios (currently phasing out generation one and two radios) including:
 - MTM300, MTM700, MTM800, MTM800E, MTM5200 and MTM5400 mobile radios
 - MTP200, MTP300, MTP700, MTP850, MTP850s, MTP3250, MTH300, MTH500, MTH650 and MTH800 portable radios
- Various accessories including chargers and headsets
- Standard and IMPRES™ batteries

CASE STUDY

TETRA UPGRADE FOR CITY OF CAPE TOWN

“City of Cape Town upgraded to DIMETRA 8.2 for continued reliability and supportability of its Public Safety network. The network has never failed. The 8.2 network offers added functionality, with the geographical redundancy feature being particularly important for the city. It can now also look at partitioning with other agencies such as the South African Police Services. The upgrade ensures the city can continue to provide fast-response essential services in an emergency and day to day.”

Danani Longwe, General Manager Motorola Solutions South Africa



CHALLENGE

The 6.2 hardware could no longer support the latest software versions and the added functionality required by City of Cape Town, such as agency partitioning and geographical redundancy to ensure continuity of service in case of main switch failure. Furthermore, with the currently increased global threat of terrorism and cyber attacks, a further requirement was the encryption of all communications, to prevent those with police radio scanners and similar equipment from listening in on conversations on clear talk groups. With this in mind, City of Cape Town is currently phasing out the first and second generation TETRA radios in its fleet.

SOLUTION

Astonishingly, the upgrade from the 6.2 to the 8.2 system took just four hours on a site-by-site basis, with various sites running temporarily in parallel to ensure users retained radio coverage during the switchover.

City of Cape Town handles, on average, more than 2.7 million calls over the TETRA network monthly: peak times falling between 8am and 2pm. It currently has approximately 700 talk groups set up across nearly 500 possible channels. The TETRA radio network continues to allow clear reliable day-to-day communication and also during specific events and emergencies, such as the Two Oceans Marathon, the Cape Town Cycle Tour and the recent bush fires that ravaged the national parks in the Cape Peninsula. The city currently uses standard Motorola Solutions TETRA features, such as the Remote Configuration Software to manage its TETRA base stations.

Following the upgrade, the city can now connect its TETRA network via Ethernet to remote sites for its external agencies, such as the South African National Parks Board, and scale accordingly; this opens up endless possibilities for network use and inter-agency operability. Future partitioning with other provincial and national agencies, such as the South African Police Services, is now also a realistic option. The radio network is interconnected with telephone networks in some instances; however, on the new system, all communications can be fully encrypted and recorded. Furthermore, network users benefit from GPS location tracking and mapping features running on the TETRA

network; this allows the various command centres of the different agencies dotted around the city to monitor and safeguard users and be able to instantly dispatch support to an exact location, where needed. City of Cape Town is also successfully running a WAP application on the TETRA radios, to enable its traffic officers to check outstanding fines and warrants roadside.

The back office and network management teams have started utilising the provisioning model of Motorola Solutions MiBAS™ system; this replaces a manual process that involved duplicated uploading of information to Oracle databases. MiBAS saves time and improves accuracy and allows City of Cape Town to manage all the provisioning it requires, such as multi-porting of subscribers, logging calls and enabling traffic and usage analysis. Motorola Solutions also provides monthly reporting on calls handled. In case of any network or handset failures or a reported drop in coverage, users can report issues by telephone or through the MOTOTRACK fault logging system. City of Cape Town has its own technicians for level one; however, and in line with its SLA, Motorola Solutions provides 24-hour engineering and field support for more complex issues.

BENEFIT

Motorola Solutions' TETRA DIMETRA IP 8.2 system has already more than proved its worth: 99.3% of first time calls are successful and the grade of service average is 0.59%, easily within public safety standards. The network continues to ensure public service and safety across the Cape and, with the inbuilt redundancy, City of Cape Town knows the network is fully resilient and will not fail. Added functionality such as GPS has increased the safety of radio operators and, with the success of the WAP application, the city will look to run more and more apps on the radios in the future.

Looking forward, City of Cape Town has the potential to easily expand and add further external agencies to the network. It is also looking to implement the Motorola Solutions TRACES application, which will allow City of Cape Town to track its network coverage and performance 24/7, so potential faults can be rectified before the teams in the field suffer any reduction in network signal strength.

Services:

- 24x7 Remote Technical Support
- Pre-tested Security Update Service
- Infrastructure and Radios Repair
- Preventive Maintenance
- On-Site Field Support
- TETRA Network Administration
- Monthly Network Performance Reports
- MiBAS Support

Applications:

- MiBAS™ (Motorola Integrated Billing and Administration System): Provisioning model
- WAP application enabling traffic officers to check outstanding fines and warrants roadside via the TETRA radios
- TETRA Base Station Remote Configuration Software

Usage:

- Over 2.7 million voice and data calls handled daily
- 693 talk groups across 492 channels
- GPS for vehicle and personnel tracking
- Remote access to agencies' back office systems

Benefits:

- Optimal quality and geographical redundancy gives secure, reliable radio coverage across the CoCT; the TETRA network has never failed since first launch in 2001
- Motorola Solutions services ensure continuity of service, maximise network uptime and performance to address vulnerabilities and cyber attacks
- Excellent QoS, with grade of service running at 0.59%
- Percentage of successful first time calls on the system is 99.3%
- Encrypted devices provide enhanced cyber security
- The flexible, scalable system allows for connection to new remote sites over a LAN and partitioning with other agencies
- City of Cape Town now has the latest, future-proof hardware in place to support the most recent software and expand, develop and optimise its network to meet the requirements of a constantly growing user base
- The MiBAS provisioning application reduces work duplication, saves time and improves accuracy relating to provisioning
- Seamless upgrade migration from DIMETRA 6.2 network to DIMETRA 8.2 network within hours, with virtually no loss of service

For more information on TETRA, please visit us on the web at www.motorolasolutions.com/TETRA

MOTOROLA, MOTO, MOTOROLA SOLUTIONS and the Stylized M Logo are trademarks or registered trademarks of Motorola Trademark Holdings, LLC and are used under licence. All other trademarks are the property of their respective owners. ©2017 Motorola Solutions Inc. All rights reserved.