

DAMM TetraFlex® is the backbone securing critical communication in traffic, health and public services for citizens of Vitória City, Brazil. ALCON is the operator leasing communication to customers in the region.



100% coverage in challenging topography with DAMM decentralized architecture

SITUATION:

Vitória is a city in Brazil, in the metropolis of Espírito Santo State. Situated in the southeast of country, meeting Serra da Bandeira, the third highest mountain in Brazil, rising 2.890 meters above sea level. Vitória is the smallest metropolis in Brazil, with its approximately 98 km².

40% of the territory is covered by mountains and the countryside is characterised by plains and hills, including the Pico da Bandeira, the third highest mountain in Brazil, rising 2.890 meters above sea level. Vitória is the smallest metropolis in Brazil, with its approximately 98 km².

In this scenario with a rugged terrain and harsh coastal environment, the challenge was to find the ideal solution on how to provide communication throughout the city.

Since mid 2011 the city of Vitória, had an analog radiocommunication system used by the City Guard Department for surveillance operations, traffic organization and in the Department of Health.



"11 DAMM TetraFlex® Outdoor Base Stations provides the true IP backbone securing critical communication for the citizens of Vitória City." Gilson Pozzati, Sales Manager at ALCON.

SOLUTION:

ALCON Engenharia de Sistemas was contracted to design and implement a digital trunked radiocommunication system, using the proven and standardised TETRA technology, widely used in Europe for mission critical communication. Considering the topographic challenges, a system was created meet the communication needs:

- 11 TetraFlex® BS421 Outdoor Base Stations
- 11 Antennas with high performance and coverage
- 24 microwave for interconnection of Base Stations
- 1 Voice Recording System
- 4 Dispatching system, including touchscreen and GPS (man-down) functionality
- 1 GPS system for all radios
- 574 portable radios
- 46 mobile radios installed in vehicles and ambulances
- 8 fixed control room radios
- 1 fleet management system
- 1 monitoring system online fault detector

MANAGEMENT AND LEASE:

Today ALCON manages and leases the reliable and secure TETRA system to users of the Municipal Guard of Vitória. The system includes 11 Outdoor Base Stations operating at 380 MHz, and includes mobile and portable terminals equipped with GPS.

ALCON PROVIDED:

- Prediction studies
- Consulting & Commissioning of the best solution
- Remote monitoring
- Network management
- Operational training
- Training for basic and advanced management

CHALLENGE

To migrate from analog to digital, and provide full coverage for critical communication in a challenging topography with mountains and harsh coastal surroundings

SOLUTION

Compact, IP65 encapsulated DAMM TetraFlex® Outdoor Base Stations for fast installation - and decentralized architecture for easy system design

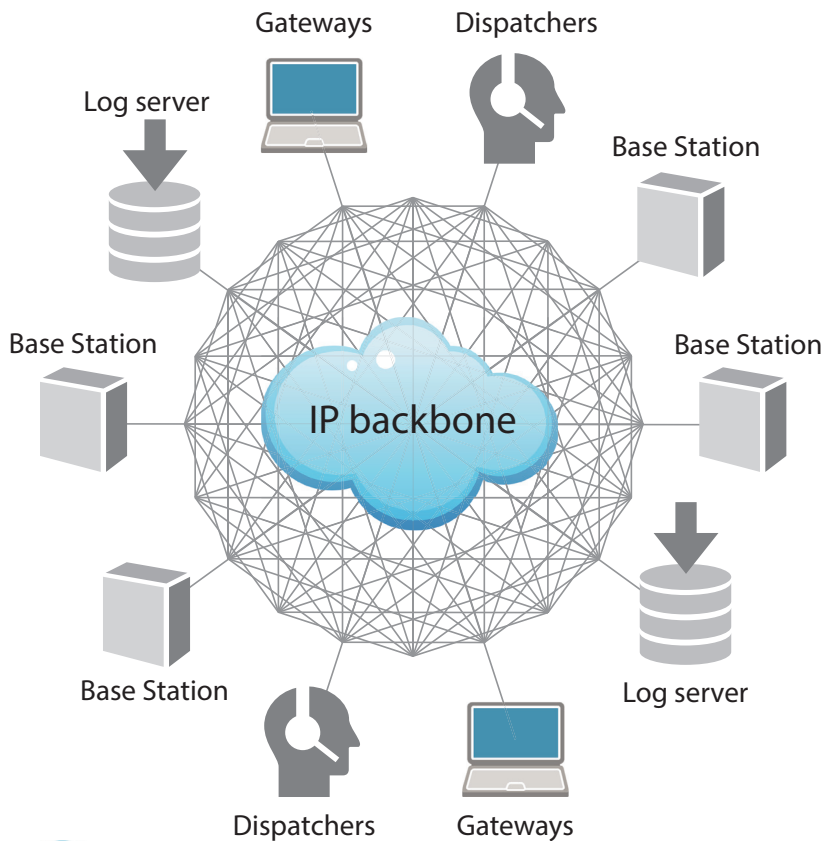
RESULTS

Secure TETRA communication system providing total control of radio operations and vehicles that allow agents of Municipal Guard to offer an excellent service to the population of Vitória.

ALCON
ENGENHARIA DE SISTEMAS

DAMM solutions and support are available in Brazil through our Authorized Regional Partner Alcon. www.alcon.com.br

DAMM distributed architecture



The DAMM distributed architecture offers features ideal for mission critical communications such as: Scalability, Redundancey, Remote management and “No centralized Switching”, meaning; no single point of failure

DAMM TetraFlex® is a true distributed concept that enables easy and seamless scaling of networks.

All functions are present in each node, and all nodes are equal in terms of capabilities. All vital information are shared and replicated, and exists on all nodes in the entire network.

Adding a node to the network is thus also adding extra intelligence and processing power to the system, so there is no upper limit for expanding the system in terms of number of nodes.

If a node should fall-out only the local site would be affected, the rest of the network would not be affected, and each node can even be configured for redundant operation.

System traffic-load is also not increasing because of growing networks; Since each node is connected to the network via a router, only relevant data are forwarded.

The voice data are distributed very efficient as multicast IP-traffic on a UDP-based protocol, with a minimum of data-overhead.

The propagation of multicast messages is similar to the nature of radio group calls; Group calls are announced as multicast messages, each node will join, via its router, this particular multicast group and receive the data only if there subscribers attached that belongs to this distinct group. This means that also the number of subscribers are not limited by the system architecture.

Which technology covers your current - and future needs?

BS421 TETRA Outdoor Base Station

With its IP65 protection and compact design the BS421 Outdoor Base Station is ideal for installation in harsh environments and for direct mounting on antenna masts, buildings and towers, reducing feeder loss and installation costs considerably.

BS422 HYBRID Outdoor Base Station

A cross-technology one-box solution offering TETRA, DMR Tier III, TEDS and Analog, and allowing hybrid usage in one coherent system.

BS422 offers improved synchronisation, improved redundancy, high power and extended frequency range.



The DAMM TetraFlex® System comes complete with outdoor or indoor base stations. DAMM offers comprehensive features as well as built-in applications such as:

- Network Management
- Dispatcher
- Voice & data Log System
- Group Bridge

You can use your tablet or smartphone to benefit from coverage extension, as well as data capacity for videos and pictures.

The complete range includes Android, Windows and iOS soft terminals.

