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Western Cape Emergency Medical Services -
Improving emergency response times and patient services through innovative communications and a mobility solution.

'This solution is the **first of its kind in Africa.** The technology **empowered us to become a more efficient and lean organisation,** while meeting patient demands in challenging conditions.'

Dr Shaheem de Vries, Western Cape EMS, Western Cape Department of Health

Challenge

- Western Cape EMS wanted to improve communication between its contact centre, dispatchers, and response teams.
- It aimed to reduce response times to critical medical incidents and improve the quality of clinical services.
- It also wanted to streamline transportation services for non-emergency ambulance trips using HealthNET.

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Solution

- a hosted, centralised, core infrastructure deployment to support decentralised emergency services control centres, mobile devices, and medical facilities
- state-of-the-art command and control system, highly visual and intuitive to use, and covers all aspects of an incident lifecycle
- stable connectivity via a private cloud platform to mobile networks for SMS and data transfer from mobile devices in emergency vehicles
- resilient, MPLS-enabled WAN
- a robust security layer to protect the infrastructure and WAN optimisation capability

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Result

- improved response times and quality of patient care
- minimised margin for human error
- fully integrated, modern call-taking and dispatch solution
- scalability to meet future demands and organisational growth

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⚙ Challenge

Most of us understand the principle of the 'golden hour' in healthcare. Those 60 minutes, or less, after a traumatic injury or medical emergency when prompt medical treatment may prevent loss of life. This critical intervention means getting an ambulance and emergency medical services (EMS) professionals to the location and patient as soon as possible. It could mean the difference between life and death.

The challenge of covering a wide area

The ambulance service of the Western Cape Department of Health is one of the largest ambulance services in South Africa. It serves a population of over 6 million and covers an area of almost 130,000 square kilometres. 'We transport between 45–50,000 patients a month,' says Dr Shaheem de Vries, of the Western Cape Government. 'It's critical to get the right people to the right place, at the right time. When you're moving this many patients, efficiency and speed are important.'

Serving non-critical patients

Besides responding to medical emergencies, its HealthNET service also provides non-emergency patient transport services. 'We move patients across the province to central or regional hospitals and other facilities,' he says. 'This could be for services at academic institutions or to have specialised procedures carried out.'

Finding the right partner for the future

In 2013, Western Cape EMS wanted to improve its response times and quality of service. To achieve these ambitions, it needed to look at creating efficiencies in the critical systems used in its communications model. 'We're a medical organisation and we focus on patient care,' Dr de Vries says, 'so we needed a partner who could interpret our needs and create a solution that would deliver better efficiencies for us.'

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💡 Solution

After consulting with Western Cape EMS, Dimension Data proposed and implemented a call-taking and dispatch solution. Dimension Data created a hosted infrastructure on its private cloud platform for centralised deployment. This supports Western Cape EMS's six emergency control centres and new mobile devices in its ambulances. The solution is underpinned by a multiprotocol label switching (MPLS) wide area network (WAN) and a security layer.

Real-time rapid response

'An emergency call to our contact centre is routed to the most suitable call taker,' explains Dr de Vries. 'The call taker captures the location and other details using an intuitive map and map search functionality. The system finds the most appropriate dispatcher and feeds them this information in real-time.'

The incident and patient information are stored directly on the web server, which allows for centralised data storage. From this point, the dispatcher is able to select and assign the closest ambulance and response unit.

Mobility and on-the-scene tracking

'The ambulance's location is constantly tracked and updated,' he says. 'The response team can follow the most efficient route using a mobile tablet in the front of the ambulance, while receiving updates or sending other requests to the dispatcher.'

In the back of the ambulance, paramedics use a device to electronically receive and update clinical records about the patient's condition. 'While this doesn't affect performance,' he says, 'it's a critical function and will impact the immediate care of the patient – it also allows us to analyse the quality of the care at a later stage.'

From the time an incident is logged to the moment the patient is handed over to staff at a hospital or medical facility, the status and progress of the incident are tracked and, more important, captured for further analysis and insight.

Streamlined services

For the non-emergency patient transport services using HealthNET, Dimension Data streamlined a booking system that simplified communication and improved the service. 'Patients can book transport when visiting a facility and receive an SMS to confirm dates, time of arrival, and so forth,' says Dr de Vries. 'If the patient isn't able to make an appointment, it just takes a simple SMS to cancel the service.'

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⟨⟩ Result

Since the solution went live, Western Cape EMS has reported significant improvements in its services to the people of the Western Cape. Accuracy and dispatch response times have greatly improved; there have also been reduced mobilisation times and improvements in journey times. The network is scheduled to be implemented across the entire province by March 2016.

'It's important to understand that this solution aims to address a need in a developing country with incredibly austere environments and socio-economic challenges,' he says. 'Both my team and those within Dimension Data have really owned the challenge. We've ended up with a solution that's far better than the one we originally anticipated.'

While it's difficult to predict the long-term impact the solution will have on the way the Department of Health operates, Dr de Vries agrees that Western Cape EMS has more detailed access to information.

'In the future, we'll look at every element of emergency care and how technology can make it more efficient and reliable,' he concludes. 'Additionally, with improved access to business intelligence we'll be able to respond better to patients' future needs.'

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Solutions Delivered
- Hosted, end-to-end EMS call-taking and dispatch solution

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