Trusted in a tense hostage situation. Trusted in major fires.
Trusted in accidents with life-threatening injuries.
Trusted in major hurricanes, earthquakes and other natural disasters.

Motorola creates innovative Public Safety solutions
trusted by first responders for more than 75 years.

Motorola is leading the way to a new generation of Public Safety solutions.

Combining advanced new technological capabilities with the reliability of the industry's most trusted mission critical solutions to provide real-time sharing of crucial voice, data and video communications where they're needed most.

For more information on how Motorola can serve the needs of your community through our Next Generation Public Safety solutions, please visit our website at motorola.com, or give your Motorola representative a call.

MOTOROLA

PUBLIC_SAFETY/BRO-ENG (05/10)

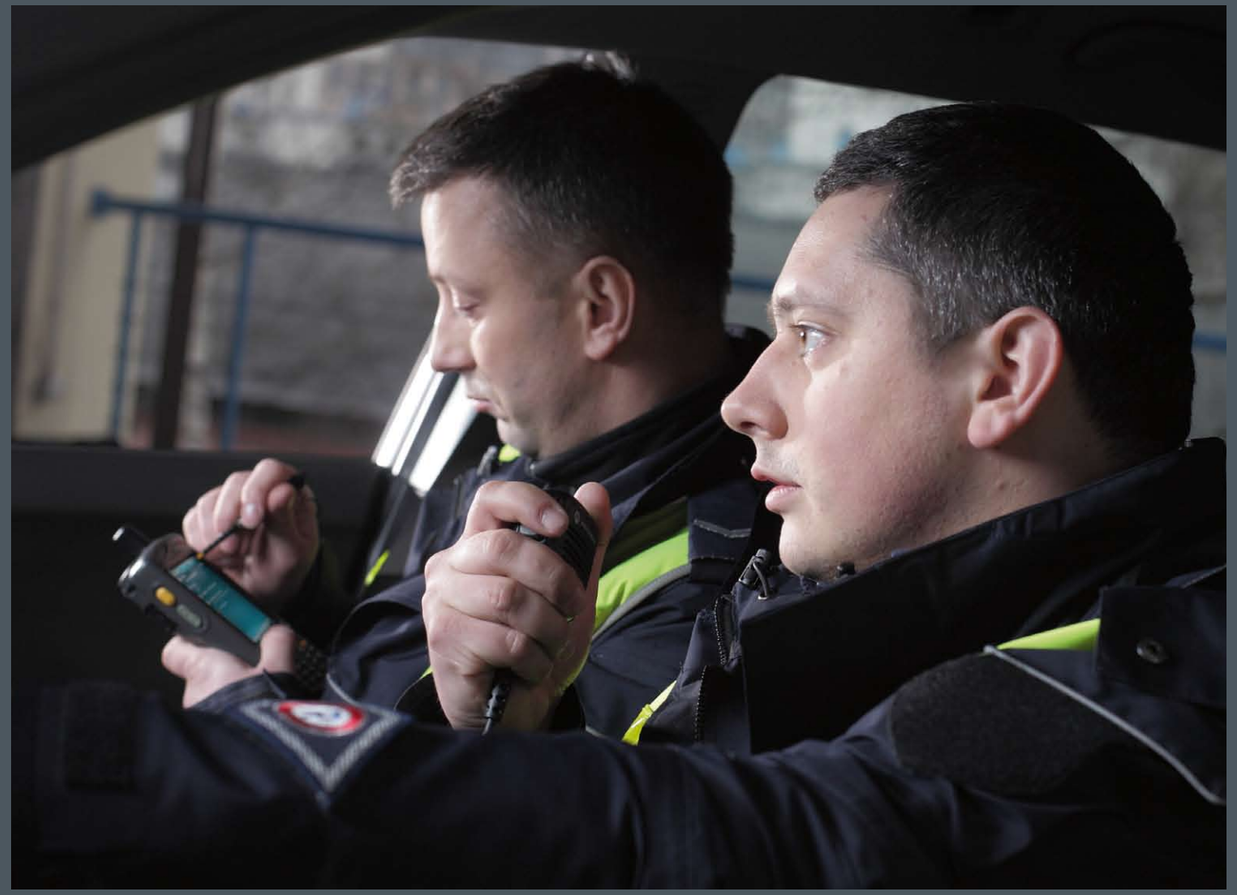
For more information please contact your local Motorola Authorised Dealer or Distributor

www.motorola.com/tetra

Motorola, Ltd. Jays Close, Viables Industrial Estate,
Basingstoke, Hampshire, RG22 4PD, UK

Imagine a World where Technology is Second Nature

Motorola Next Generation Public Safety Solutions



WHEN DISASTER STRIKES, WHEN THE CRISIS FORMS

Decisions made and actions taken in the first minutes determine the extent of lost lives and damage

- Incident escalating or calming down?
- Send more units or switch to clean-up?
- Hazardous materials, secondary collapse?
- Evacuate citizens, move resources?

The most effective response will require real-time, situational awareness of the incident as it unfolds.

The Next Generation of Public Safety

Delivering the advanced communications tools to protect the safety of our responders and the security of our communities in the 21st Century.

- Integrate all communications from a multimedia command centre to maximise operational effectiveness
- Converge voice, data, and video information to optimise real-time decision making where it matters most
- Interoperate between agencies and jurisdictions, two-way and broadband networks, connecting critical resources
- Collaborate between two-way radios and companion data devices, supplementing voice with rich content, empowering responders with the best information

THE CASE FOR DATA

Public Safety agencies are increasingly using data to operate more effectively and safely. Applications that are growing in use include:

- Sharing pictures, maps, missing persons
- Sending finger prints, bar codes, from the field
- E-Mail and messaging

TETRA and TEDS will support many of these requirements, providing data connections that are secure and resilient. Even low-speed video feeds can be supported on TEDS, and these could be a vital link to operations in remote areas as the TETRA network usually has wide area coverage.

The role for Mobile Broadband networks becomes clear as the requirements for rich media such as good quality video become commonplace. Video is already widely used in Public Safety operations, from static or aerial platforms. Video from mobile platforms such as police cars, selected fire appliances, or ambulances will further enhance the operational control task. Examples could include the upload of video from a major road accident, a hostage situation, a complex and fast-developing fire, or a complicated and critical medical emergency. Video downloaded to officers in the field is the natural follow-on, providing vital intelligence to local commanders in real time.

Mobile Broadband networks can be engineered to have similar resilience and security to TETRA, complementing TETRA and TEDS in urban and extended areas such as major highways, business parks, or transportation centres. The combination of Mobile Broadband and TETRA/TEDS is a cost effective and realistic means for providing secure data and video coverage, TEDS extending the reach for secure video over a wide area, and broadband taking the bulk of the data traffic where it has coverage. Leaving TETRA to provide the first response voice service for which it has no equal.

The use of powerful mobile computing devises with additional features such as scanning and wireless connection is now widespread in industry, retail, and healthcare. Motorola manufactures a range of such devices which have proved themselves tough enough to withstand all that can be thrown at them is a real-world environment. These are ready to be used in Public Safety environments as the use of mobile data develops to become an everyday requirement.

The Lantern Project

UK police officers are trialling a mobile finger-print reader which is linked to the national data base by wireless. Officers using the devices credit it with saving them, on average, 87 minutes in 50% of cases where it was deployed. British Transport police found they saved 37 minutes in 83% of cases.

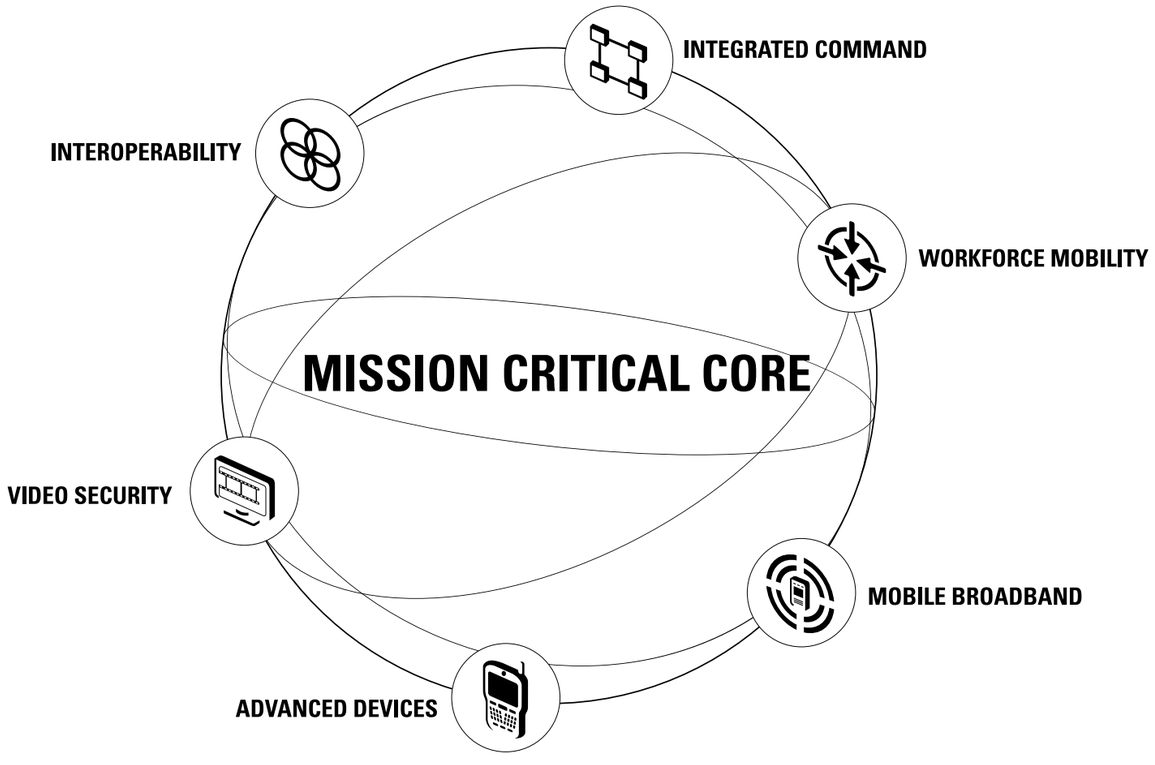
MTM5400 TEDS ready TETRA mobile

MC75A8

BRINGING IT ALL TOGETHER SO PUBLIC SAFETY CAN FOCUS ON THEIR MISSION.

BEGINNING WITH THE MISSION CRITICAL CORE

At the heart of every mission is the ability to communicate in an instant, each and every time to co-ordinate response and protect lives.



The TETRA mission critical communications core is the starting point for any Public Safety communications system, uniquely designed to deliver uncompromising voice services and providing a lifeline to the first responder.

Innovating broadband technology for Public Safety

New Mobile Broadband networks will enable powerful and innovative solutions for better protecting our first responders.

Tailored, hardened Public Safety broadband solutions will provide the real-time information, priority, control, and security demanded in mission critical operations.

Improving productivity with workforce mobility

Access to information from across the enterprise at the point of engagement leads to safer and more informed decisions and faster outcomes.

Bringing enterprise efficiencies to Public Safety responders with streamlined applications and processes to support day-to-day operations as well as incident and disaster management.

Keeping an eye on the situation with video security

Intelligent on-site video solutions add the power of real-time sight to first responder communications.

Intelligent video solutions will analyse and correlate video with voice and data as well as offer the ability to share multimedia information between the command centre and the edge to heighten situational awareness.

At the heart is the Integrated Command Centre

Central command whether on scene or back at the main dispatch centre is a critical cornerstone to any Public Safety mission.

Common, intuitive user experiences and meaningful interactions across command centre applications will heighten operational efficiencies across emergency calls, mapping, radio consoles, computer aided dispatch, records, video, and resource location.

Co-ordinating response through Interoperability

Public Safety response requires multi-agency coordination with neighbouring cities, counties, regional and national resources.

Ensuring interoperable communications across Public Safety agencies, across private and public networks, and building interoperable solutions to bridge the mission critical core with Public Safety Mobile Broadband networks.

Adverse conditions require advanced devices

Equipment that is designed and tested to be simple and intuitive, based on human factor research on how individuals react in stressful situations.

Pairing mission critical, two-way radios with advanced, collaborative data devices optimally designed for public safety applications to supplement mission critical voice with multimedia communications.

MIGRATE TO THE FUTURE

TETRA and TEDS

TETRA continues to roll out as the most secure and resilient communication system for Public Safety and industrial users. In many countries the coverage exceeds that provided by cellular technologies. At times of disasters or emergencies it will continue to operate supporting the critical operations of police, fire, medical and other agencies.

TETRA has always supported data applications such as messaging, and packet data. Multi-Slot Packet Data increases the speeds available for data over TETRA, but with the introduction of TETRA Enhanced Data Service there is significant step-up in data speeds available. This will handle data applications such as database lookup, imaging, and biometrics. Moreover TEDS will enable a low-speed video service, which will greatly enhance the operational control in remote locations.

It is recognised that TEDS will form a highly complementary system with Mobile Broadband networks, with TEDS providing the wide-area, resilient, and secure data service over most if not all of the geographical area. TEDS capable networks are deploying now and Motorola recently announced the first in it's next generation of TEDS ready radios, the MTM5400 Mobile Terminal.

Migration Considerations

There are many choices for migration to Mobile Broadband networks. However, for each nation and perhaps each operator there will be considerations which will bound the choices of technology. The main consideration is the availability of spectrum and licences. The Digital Dividend offered the possibility of new spectrum for Public Safety, but this is being fiercely contested by commercial operators. Motorola is able to offer a wide range of technologies at different frequencies and so can develop a broadband migration strategy to suit national or local conditions.

RESPONDING TO FIRST RESPONDERS CRITICAL NEEDS

Strong innovations deliver valuable new capabilities

The real opportunity is not just recognising the emergence of a powerful lineup of technologies. But realising the tremendous opportunity that exists when we bridge these platforms together. Building rich interactions and deeply interconnecting through the mission critical core.

Integrate

Integrated Command & Control

Driving a unified platform across command centre positions and creating key integration points to bring together voice, data and video.

In an integrated multimedia control centre, dispatchers will amass, assess and integrate applications and all available voice, data and video streams for a specific incident including CAD, emergency calls, law enforcement databases, video surveillance cameras, historical records and more. They can correlate data based on the location, type of incident, and assigned personnel, then prioritise and distribute only the most relevant data to first responders in the field to avoid information overload. The result is maximum situational awareness that helps enable safer, faster, better incident resolution.

Converge

Converged Voice, Data, Video

Enhancing voice-centric workflows with multimedia; correlating voice, data and video in real-time for more holistic understanding of an incident.

For Public Safety teams, the convergence of all relevant multimedia information, voice, data video and more can be life saving. Data convergence empowers field officers and command and control personnel to gain a more complete, more multi-faceted understanding of any specific event. Convergence and correlation of any and all kinds of information related to a situation reduces uncertainty and guesswork, enables more informed decisions on the spot and ultimately results in more informed outcomes.

Interoperate

Interoperable Networks

Bridging broadband and mission critical networks with interoperable solutions for unified Public Safety applications delivery.

Whether it is blocking off a parade route, handling a major disaster such as a hurricane, coordinating a high-speed car chase across boundary lines, Public Safety officers need to communicate regardless of the technology or the jurisdictional boundaries. Next generation Public Safety solutions deliver a new kind of interoperability that links together various platforms for co-ordinated communications regardless of device, whether mission critical two-way radios or ruggedised vehicle-mounted or handheld computers. Data can flow seamlessly from device to device and across different networks, increasing efficiency, improving effectiveness and maximizing security.

Collaborate

Collaborative Devices

Pairing mission critical, two-way radios with companion data devices to supplement voice with rich-media content.

More collaborative police work is more successful police work. When various communities' forces can communicate in real time via voice, video and data, outcomes are reached more quickly. Responders will be able to share critical information such as voice and text messages, images or video on a combined or across multiple companion devices via the appropriate network, enhancing decision making where needed.

PUBLIC SAFETY PORTFOLIO

TETRA

Across the world TETRA is supporting an extensive array of field services. Examples include: police officers filing paperwork on-the-go and accessing databases to check suspects; fire fighters viewing building blueprints while on the way to a blaze. Such services transform the ability of users to anticipate problems, make informed judgments under pressure, improve productivity and efficiently coordinate emergency response. Together with new devices (such as Motorola's MTM5400) the trend for mission critical workers to take advantage of TETRA's wide area, trusted and secure data coverage is accelerating rapidly.

Motorola's TETRA portfolio includes an unrivalled range of terminals, infrastructure and applications suited to public safety customers. The portfolio is fully ready for mission critical data applications with TEDS ready infrastructure, and now terminals, as well as a suite of data encryption solutions for added security in special situations.

Now introducing the first of our next generation, TEDS capable, radios - The MTM5400. Our new mobile radio offers best in class operational range, integrated Gateway/Repeater, and advanced feature set. This versatile radio will be the hub of a secure and resilient vehicle communication and control system, as well as being the forerunner of other TEDS ready radios to come.

The TEDS ready IP Switch portfolio is scalable from the Dimetra IP Micro/LiTE solutions, through Dimetra IP Compact to full sized solutions for major or nationwide networks. This scalability is reflected in the base stations which are available as two and four carrier versions and now the single carrier MTS1, the world's smallest TEDS ready TETRA Base Station. In addition a dual frequency four carrier base station is also now available.

TETRA Terminals include the MTP850S which includes the Man-Down feature and IP55, the very compact TCR1000 Covert, the world's smallest TETRA radio, and the MTP850Ex the highest rated TETRA ATEX radio for use in both explosive dust and gas environments.

Enterprise Mobility

Motorola's Enterprise Mobility portfolio offers robust platforms, superior functionality and performance, to ensure the power to handle the most critical applications, in the office or in the field.

With a broad portfolio, Motorola provides a variety of mobile computers, scanners and RFID terminals to best meet your particular environmental and application needs, from rugged industrial devices suitable for the most demanding environments to lightweight, durable and easy-to-carry enterprise class designs.

When it comes to mobile data capture and access, our devices offer superior functionality, performance, security and remote management capability and a comprehensive array of wireless connectivity options to help first responders in the field, keep on-the-move personnel connected to co-workers and give managers access to mission critical business data.

Mobile Broadband

Motorola wireless broadband solutions deliver seamless connectivity that puts real-time information in the hands of users, giving customers the agility they need to better protect and serve the public or to grow their business. Motorola has been an innovator in wireless broadband for many years.

Motorola's unrivalled range of wireless broadband solutions include outdoor wireless mesh, point-to-multipoint, point-to-point networks as well as indoor solutions such as WLAN and voice over WLAN devices. Combined with powerful software for wireless network design, security, management and troubleshooting, Motorola's solutions deliver trusted networking and anywhere access.

WiMAX is being increasingly installed by commercial companies, especially in major cities, to offer Mobile Broadband. These public broadband networks will allow a rich array of services to be supported albeit with limited security, resilience and agency control. Where information is critical to operations and therefore must be carried on secure and resilient infrastructure.

The Expedience™ portfolio has been supplied to Public Safety operators to enable high-speed mobile video solutions. Expedience is available in a number of bands to suit the available frequencies in different countries.

LTE is being developed by the 3GPP standards body to deliver voice and broadband data over mobile networks. The first networks are in the very early stages of commercial deployment. In the US and Asia where spectrum below 1GHz is available to support dedicated LTE networks for mission critical users, which is ideal for good coverage, private networks can be built that provide the guarantee of quality of service, robustness and reliability in the event of a crisis situation. This said, the LTE standard needs to develop further to provide the depth of voice functionality required by mission critical users, while rugged, ergonomic devices also need to be developed and made available on a large scale for Public Safety users.

Motorola advises customers to build private systems whenever possible. Building dedicated networks ensures agencies can guarantee the communications performance, security and high-availability which teams rely on to successfully complete missions.

PUBLIC SAFETY PORTFOLIO

Command & Control

PremierOne™

A new, more adaptive, more responsive, more intuitive suite of dynamic applications that will transform the way Public Safety agencies operate, collaborate and share information.

PremierOne™ is a unified applications suite that provides one enduring real-time view of the community for enhanced safety and resource allocation. PremierOne provides the ability to pro-actively deploy resources and dramatically improve situational awareness.

- More streamlined operations for a timelier, more targeted response
- Unparalleled accuracy in data input, archival and exchange throughout the agency
- Designed to enhance information, access and sharing across agencies
- An adaptive, flexible and scalable environment for today and tomorrow

Video

PremierOne™

The use of video in Public Safety operations is now commonplace and increasingly essential to ensure officer safety, operation effectiveness, and post event action.

Motorola is integrating video with applications which are developed from the start to meet the needs of Public Safety users. The essential first step is to integrate video with location, to ensure that what the controller sees is immediately identified with a location. This provides context and identifies the nearest officers and resources as well as any sensitive locations which may be endangered by the incident.

The following applications then use this combination of real-time video and location to support the following key requirements of a Public Safety Video system:

- Pre-emptive action: Commanders can see where trouble spots are brewing and defuse them
- Spotting suspects: Facial recognition technology can be used in control rooms to identify suspects or trouble-makers
- Faster response: Video clips or images in high-definition can be sent to field teams to assist in finding suspects or locating missing persons
- Resource allocation: Enhanced situation awareness enables dispatchers to improve resource allocation and the safeguarding of teams. When a situation occurs, cameras can be quickly switched to focus on an incident - responding for instance to calls for help from an officer
- Evidence: Video provides irrefutable evidence for prosecutions
- Training: Video can be analysed post operations, enhancing training by understanding how an event unfolded and the impact of decisions taken by dispatch teams

Applications

Effective Public Safety communications is a great deal more than radio communications. Applications provide the added value to the network, enabling efficiencies, savings, safety improvements, and added security which are required by operators and end users. Motorola both develops and works with partners to provide applications which build on the relationships that are in place with many operators and standard bodies.

Location and GPS

Knowing the location of the device in the field and therefore the officer provides the controller with vital intelligence which can be used to allocate resources, check on the progress of an operation, monitor officers in dangerous locations and many other tasks. Motorola's Motolocator application forms the core of the Abu Dhabi broadband video network. By linking location with video links and other applications the power of the solution is greatly enhanced. Motorola's TETRA terminals and other devices complement the Motolocator application by incorporating GPS receivers which send the terminal's location to the controller. The frequency of this update can be controlled and recent additional features in the Motorola TETRA solution enable these location messages to be optimised and routed to minimise the impact on voice traffic.

WAP Push and Picture Messaging

The capability to quickly send an image to the end-user's device provides commanders with the ability to rapidly distribute rich data such as pictures, web pages, or video clips. This can be combined with location information to target the message to the officers in the most suitable location to respond. Examples for the use of this include missing persons, escaped prisoners, car crime, counter terrorism and many others.

Asset Tracking and Control

The cost of communication and other Public Safety equipment is such that losses and misplacement cannot be tolerated above a minimal level. A means of tracking radios, PDAs, fire-fighting equipment, medical equipment, and even firearms in and out of the depot and other secure locations is provided by the use of RF tags and readers. Motorola's solutions can be applied widely throughout Public Safety agencies to effect cost savings, greater operational control and safety. A complementary feature in the TETRA networks enables the linking of TETRA terminals with user identities so that radios can be pooled whilst user data and profiles roam onto the terminal being used on that day.

Services

Integration Services

Motorola offers a full portfolio of design planning and integration services from initial concept through system planning and design to implementation and integration. These services ensure that whatever your requirements, Motorola can design and deliver a high-performance and cost-effective solution.

Support Services

Motorola offers a comprehensive and flexible portfolio of support services to ensure peak performance, cost effective operations and high availability. Solutions range from maintenance and repair services to technical support and training services for new and existing systems. A service package can be customised to meet individual customer requirements including clearly defined service level agreements.

Terminal Support Services

A choice of predefined support packages designed to meet your needs and budget plus a complete portfolio of additional services to enable you to provision, manage and support your terminals.

Value-Added Services

A range of value-added solutions to enhance efficiency, performance and security. Services offered include: Intelligent Optimisation Service; Special Event Monitoring; Security Assessment and Evaluation; Network Security Monitoring and Alarm Management and Correlation.

Managed Services

Motorola offers a complete portfolio of Managed Services designed to help organisations to: improve performance; reduce total cost of ownership; maximise work force flexibility; access best in class resources and effectively manage long term risk and budgets. All services are offered to jointly defined Service Level Agreements and tracked against Key Performance Indicators.

Customer Testimonials

Keeping Abu Dhabi's police officers in the picture

- Customer: Abu Dhabi Police
- Personal and vehicle mobile video within Abu Dhabi island and Mussafah
- Car-based and personal (helmet/shoulder) video
- Supply of network, command and control, devices and integration services
- Video returned to Command and Control Centre
- Mobile network is Expedience, fixed is Canopy PTP and microwave

Motorola is deploying a real-time video streaming system for the Abu Dhabi police force. Video is collected from mobile cameras in cars and wearable video cameras used by patrol officers. The images are streamed live, can be recorded in crystal clear high-definition (gone are the days of grainy CCTV images), and are made available in real-time to five command centres across the Emirate.

The video is complemented by Motorola's MotoLocator software. It details the position of teams and the skill sets of officers to provide commanders with the intelligence to take more effective decisions. The system can be connected to other applications used by the Abu Dhabi police, including fixed camera installations, automated speed tracking of vehicles, facial recognition and automatic number plate identification. In future National ID, electronic passports and fingerprint reading capabilities will be added.