



# MOTOROLA PUBLIC SAFETY LTE





**A FEW SECONDS FROM NOW**  
**A DISPATCHER WILL SEE LIVE VIDEO OF**  
**TWO LITTLE GIRLS WALKING TO SCHOOL**  
**AN ELDERLY WOMAN WALKING HER DOG**  
**A SUSPICIOUS MAN LOITERING AT THE CORNER**

When the moment requires vigilance, Public Safety LTE delivers video to nearby squad cars to deter a potential incident from developing. Equip your first responders with the real-time visibility and heightened situational awareness they need to keep themselves, and the people and cities they protect, safe.

**YOUR CHANCE TO PROTECT IS RIGHT AROUND THE CORNER.**  
**WILL YOU BE READY TO KEEP THEM SAFE?**

## **TRANSFORMING PUBLIC SAFETY** **WITH BROADBAND INNOVATION**

**RICH-MEDIA INFORMATION ANYTIME, ANYWHERE**  
**DESIGNED TO THE STANDARDS**  
**BUILT FOR PUBLIC SAFETY**  
**BACKED BY EXPERIENCE AND VISION**

Today, the most advanced mobile broadband technologies on the planet are available to public safety, delivering unprecedented access to real-time, multimedia information anywhere, anytime.

Fueled by open standards, shared intellectual property, a rich ecosystem of developers and the promise of scaled economies, LTE has been selected for the future of public safety mobile broadband.

Public Safety LTE will enable powerful solutions for better protecting our first responders and the communities they serve, with the priority, control, security and performance at the core of mission critical operations.

Connecting advanced multimedia services to today's mission critical voice and offering a new collection of innovative data devices to join the trusted two-way radio, Public Safety LTE is a critical ingredient in delivering the next generation of public safety communications.

## **THE POWER OF MOBILE BROADBAND** **FOCUSED ON PUBLIC SAFETY NEEDS**

### **A STANDARDS-BASED APPROACH**

Technology standards play a vital role in ensuring networks, applications and devices are compatible with one another for the successful movement of information.

### **BUILT FOR PUBLIC SAFETY**

First responders entrusted with protecting life and property have unique, specialised communications needs. Successful operations require robust and reliable networks, hardened user devices and applications built to meet the needs of public safety organisations.

### **EXPERIENCE AND VISION**

Backed by over 75 years of experience in serving public safety, Motorola has the most comprehensive vision for next generation public safety communications, combining advanced new technological capabilities with the reliability of the industry's most trusted mission critical voice solutions.



# MOTOROLA STANDARDS-BASED LTE SOLUTION BUILT TO MEET PUBLIC SAFETY REQUIREMENTS

LTE NETWORK	APPLICATIONS	LTE DEVICES
<p><b>STANDARDS-DEFINED COMPONENTS</b></p> <ul style="list-style-type: none"> <li>• MME Mobility Management Entity</li> <li>• PGW PDN Gateway</li> <li>• SGW Serving Gateway</li> <li>• PCRF Policy and Charging Rules Function</li> <li>• eNB Enhanced Node B</li> </ul> <p><b>PROVEN PERFORMANCE</b></p> <ul style="list-style-type: none"> <li>• Field-proven reliability</li> <li>• High throughput for multi-media content delivery</li> <li>• Quick response times for real-time applications</li> </ul>	<ul style="list-style-type: none"> <li>• Roaming to carrier and other public safety LTE networks</li> <li>• LTE Push-to-Talk (PTT) communications linked to two-way radio networks</li> <li>• Secure and encrypted end-to-end connections</li> <li>• Agency control over user accounts</li> <li>• Users and data dynamically prioritised to serve the most critical incidents</li> <li>• Video content adapts to best fit the network and receiving device capabilities</li> </ul>	<ul style="list-style-type: none"> <li>• Rugged vehicular modems for wide area connections to mobile applications and superior performance</li> <li>• USB LTE modems bring quick and easy connections to laptops and mobile computers</li> <li>• Handheld computers provide total broadband mobility with LTE in your hand</li> <li>• Embedded LTE modules connect sensors, cameras and other electronics for remote monitoring and control, surveillance and reporting</li> </ul>
SERVICES		
<ul style="list-style-type: none"> <li>• Pre-deployment consulting and design</li> <li>• Installation and integration</li> </ul>	<ul style="list-style-type: none"> <li>• Post-deployment operations with security, management and support</li> </ul>	<ul style="list-style-type: none"> <li>• On-going support and network optimisation with hardware and software maintenance</li> </ul>
<ul style="list-style-type: none"> <li>• LTE SIM production and provisioning service</li> <li>• Network performance and fault monitoring</li> </ul>		

# APPLICATIONS BUILT FOR PUBLIC SAFETY DELIVERING THE MOST CRITICAL INFORMATION

## LTE VOICE SERVICES

Connect public safety LTE users to each other or to Private Mobile Radio (PMR) users with secure, high-performance voice Push-to-Talk (PTT) services. Optimised for public safety, the LTE PTT solution has familiar features like group scan, priority override, late join and other first responder group management call features.

Fully integrated with the LTE solution, our VoIP telephony uses advanced scanning techniques so users on a telephone call can be notified of critical PTT activity and won't miss calls.

## DYNAMIC RESOURCE PRIORITISATION

Public Safety LTE systems immediately prioritise those users most critical to serving an incident, de-prioritise nonessential users and, when necessary, pre-empt.

The user's profile, determined by agency, individual, role, home serving area, incident level and participation, distinguishes service tiers and dynamically adjusts quality of service (QoS) and prioritisation based on individual, application and incident.

## DATA SECURITY

Mobile Virtual Private Networks (MVPN) designed to work with Public Safety LTE systems provide end-to-end encryption, safeguarding sensitive information transmitted over the air in a wireless environment. Because it is designed to work with LTE QoS mechanisms, MVPN can safely protect the payload data while providing the necessary flags for QoS and prioritisation handling.



## REAL-TIME MULTIMEDIA INTELLIGENCE

Video applications designed for real-time wireless streaming are aware of the constant changing signal quality inherent with wireless broadband. As a user's signal quality changes, video parameters such as resolution and frame rate automatically adjust to best fit the capabilities of the broadband connection and the device screen specifications.

## UNIFIED SERVICES ACROSS MULTIPLE COMMUNICATION NETWORKS

Integrating Public Safety LTE with PMR and enterprise data networks opens the opportunity to deliver an enhanced service of mission critical voice augmented with broadband multimedia applications. This unification of services could lead to common mapping of talk-groups and multimedia-groups, enabling services such as Push-to-Image and Push-to-Video mapped to voice talk-groups.

## FIELD-PROVEN LTE WITH SUPERIOR PERFORMANCE

### BRINGING THE STRENGTH AND EXPERIENCE OF THE GLOBAL COMMERCIAL CARRIER MARKET TO PUBLIC SAFETY

Motorola has teamed up with Ericsson, the world's leading provider of technology and services to telecom operators, to deliver LTE technology leadership and market scale advantage to public safety. The undisputed leader in LTE development and standardisation, Ericsson offers field-proven stability, throughput, and latency – key factors for public safety LTE end users. Ericsson will provide standards-based products for LTE access and packet core networks, along with related services, and ensure that the LTE mobile broadband technology meets the mission-critical demands of Motorola Next Generation public safety solutions.



# PURPOSE-BUILT BROADBAND DEVICES

## INSPIRED BY MISSION CRITICAL EXPERIENCE



### LEARNING FROM USERS ON THE FRONT LINES

At its foundation, Motorola's design methodology depends on close collaboration with those who most intimately use our technology.

Motorola is using standardised open market LTE components to build a broad selection of LTE devices optimised for use by public safety and government enterprise users.

### COMMUNICATING ANYWHERE

Multi-mode devices will allow public safety users to connect on their private networks as well as wireless carrier networks.

### BUILDING AN ECOSYSTEM OF SUPPLIERS

LTE promises public safety a rich ecosystem of devices spurred by large communities of global developers, as well as steep cost declines emerging from the economies of scale for carrier LTE deployments worldwide.

## MOTOROLA PUBLIC SAFETY LTE DEVICES



### HANDHELD DEVICES

- Total mobility with smart devices offering interfaces designed for public safety
- Superior survivability and performance for public safety environments



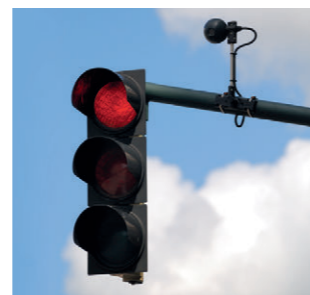
### USB DEVICES

- Bring LTE connections to existing laptops and mobile computers
- Standard USB data interface provides a quick and easy connection



### IN-VEHICLE MODEMS

- Wide-area connections to mobile applications in vehicle
- Higher grade radio performance for reliable network connections



### FIXED DEVICES

- Connect unmanned devices such as parking meters, cameras and sensors to the LTE network
- Machine-to-machine devices contain integrated LTE modules

# THE POWER OF MOTOROLA

## SUPPORTING YOU EVERY STEP OF THE WAY

### A COMPREHENSIVE SERVICE PORTFOLIO

Motorola offers a full spectrum of services to partner with public safety agencies in developing a technology and operations strategy, establishing a business plan, designing and deploying an optimised network and managing ongoing support.

### TURN-KEY PUBLIC SAFETY LTE SYSTEM

End-to-end system designed to optimise mission critical operations and enable interoperability with public carrier networks, two-way radio systems and the broader enterprise data network.

### IMPLEMENT RAPIDLY TO MEET DEADLINES

Unparalleled expertise and experience in deploying large-scale public safety networks that marry IP-based networks with optimised transport of broadband mobility services across wide and local area networks in the most challenging environments.

### SHORTEN USER ACTIVATION TIME

Motorola's SIM provisioning service simplifies the provisioning process by programming SIMs specific for your network, pairing them with user equipment before it ships and enabling services to dramatically reduce the activation time for your users.

### SUPPORT THE MOBILE BROADBAND SYSTEM

LTE system performance and continuity assured with 24 x 7 x 365 network monitoring and triage. Emergency response teams can engage directly with development, production and factory engineers for rapid resolution.

### SECURE DATA, PROTECT AGAINST THREATS

Defend against threats and protect data resources for gap-free security across the entire next generation communications platform from applications and services, IP transport, Public Safety LTE, radio networks, down to the data on a user's device.

### MULTI-TECHNOLOGY, MULTI-VENDOR PLATFORM

An experienced team of Motorola IT professionals can manage the broadband multimedia platform supporting the public safety and government member agencies to minimise total cost of ownership.

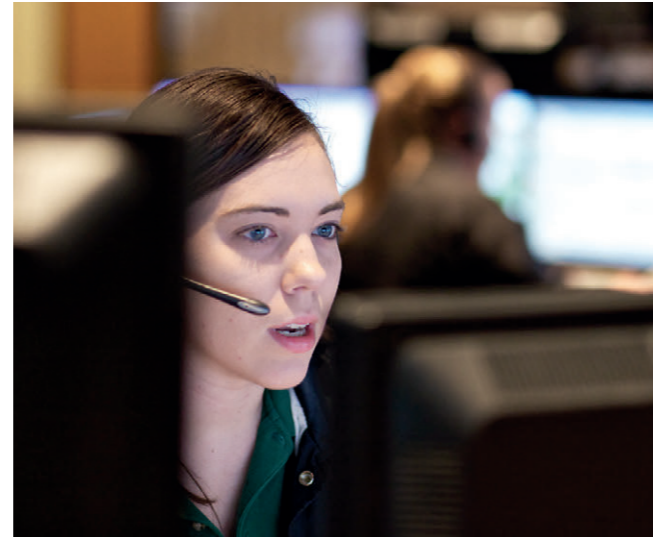


## ACCELERATING PUBLIC SAFETY LTE

### PROVIDING INDUSTRY LEADERSHIP, DRIVING CRITICAL PUBLIC SAFETY INNOVATIONS AND SUPPORTING A GLOBAL DEVELOPMENT COMMUNITY

AWARDED	LOS ANGELES REGIONAL INTEROPERABLE COMMUNICATION SYSTEM	06/03/2014
FIRST	MISSION CRITICAL HANDHELD SUPPORTING PUBLIC SAFETY BAND 14	23/02/2012
FIRST	COMMERCIALY AVAILABLE SHIPPING PUBLIC SAFETY LTE SOLUTION	11/11/2011
FIRST	DEMONSTRATION OF PUBLIC SAFETY LTE SWITCHOVER TO CARRIER ROAMING	8/7/2011
FIRST	ALLIANCE FOR PUBLIC AND PRIVATE NATIONWIDE PUBLIC SAFETY LTE	2/23/2011
FIRST	BROADBAND VIDEO TO WORLD'S FIRST PUBLIC SAFETY LTE DEVICE	11/9/2010
FIRST	PUBLIC SAFETY LTE DEVICE MODULE USING STANDARD COMPONENTS	11/9/2010
FIRST	OVER-THE-AIR DATA SESSION USING IN-FIELD PUBLIC SAFETY NETWORK	10/28/2010
FIRST	LTE 700 MHz BTOP FEDERAL BROADBAND GRANT AWARD	8/19/2010
FIRST	DEMONSTRATION OF LTE RUTHLESS PRE-EMPTION	8/1/2010

# ENHANCE PUBLIC SAFETY OPERATIONS FOR DAY-TO-DAY, PLANNED EVENTS AND CRITICAL OPERATIONS



## THERE'S NO SUCH THING AS A ROUTINE TRAFFIC STOP

**OFFICERS MUST KNOW THEIR ENVIRONMENT AND CONTROL THEIR EXPOSURE**

A clear view of the scene ahead is paramount; when a car door slams, an officer can see what just happened even though he was focused on completing a report.

- Share in-vehicle video with team and dispatch
- Scan license and connect to remote databases for fast identity verification
- Instantly read plates for lookup and auto-match against hot list
- Officers return to patrol quickly with in-field reporting and submission

## A CITY CELEBRATES, EVENTS ARE PLANNED

**CENTRAL COMMAND COORDINATES ACROSS THE GOVERNMENT ENTERPRISE**

Integrated command connects multiple agencies, serving public safety, public service and public works, for a shared, real-time operational picture and effective event coordination.

- Coordinated command center
- Video surveillance
- Citizen inquiries and requests submitted through social media
- Perimeter security ensured with immediate match of individual to credentials
- Ability to push tasks to mobile workers

# CONNECTING TEAMS TOGETHER FOR A COORDINATED RESPONSE AND SAFER COMMUNITY



## A BARRICADED SUSPECT TAKES HOSTAGES

**DECISIONS MADE IN THE FIRST MINUTES CAN DETERMINE THE OUTCOME**

Resources are dynamically prioritised for the most critical responders and real-time, shared situational awareness empowers a coordinated response across multiple agencies.

- Intelligent video streaming
- Remote control of surveillance devices and bomb disposal robots
- Rapid file transfer for images, floor plans and manuals
- Multiple agencies coordinate response with PTT over LTE

## AN OVER-TURNED TANKER BRINGS TRAFFIC TO A HALT

**POLICE, FIRE, EMS, LOCAL AND REGIONAL AUTHORITIES RUSH TO ACTION**

Evacuation needs are considered, work crews prepare for clean-up and nearby schools are notified so that buses and bike traffic can be rerouted.

- Alarms, sensors and triggers
- Instant access to hazmat procedures
- Remote experts communicate directly with on-scene responders
- Dynamic mapping and monitoring applications for weather and traffic
- Remote medical services

## SHARE NETWORK RESOURCES ACROSS THE GOVERNMENT ENTERPRISE



### OFFICER NOTICES A TRAFFIC LIGHT IS DAMAGED

Instantly sends map coordinates to a centralised municipal database.



### A UTILITY TRUCK DRIVES PAST A SUSPECTED VEHICLE

Instantly sends map coordinates to police dispatch.



### POLICE OFFICER IN PURSUIT

Share real-time video and location information with local law enforcement.



### CROSSING BORDERS DURING PRISONER TRANSPORT

Status update and location information shared with local authorities.

# EMPOWERING YOUR FORCE IN THE FIELD

## FOR IMPROVED AWARENESS AND PRODUCTIVITY

### VIRTUAL PARTNER WHEREEVER YOU GO



#### INSTANT ACCESS AT YOUR FINGERTIPS

Instantly connect into records, databases and other back office systems while on foot.

#### COMMUNICATE ANYWHERE

Roam and interoperate beyond your home network on other public safety or carrier networks.

#### STANDS UP TO DAY-TO-DAY USE

Robust hardware designed to survive harsh weather and the beating of every day use.

### ON THE MOVE WITH MOBILE BROADBAND



#### INFORMATION TO THE VEHICLE

Share real-time, multimedia information between the command center and the LTE-enabled vehicle for greater situational awareness

#### REAL-TIME VIDEO STREAMING

Enable live video streaming within the vehicle while dynamically adapting the stream to optimise the LTE capacity

#### INSTANT, IN-FIELD REPORTING

Interface with the records management system in the command centre to enable field-based reporting and work flow management

## IN A FEW SECONDS

A STOLEN VEHICLE WILL TURN DOWN THIS STREET

THE DRIVER WILL BE IDENTIFIED AS AN ARMED SUSPECT ON THE RUN

BACK-UP UNITS WILL BE ON THE WAY

When the moment brings danger, arm your first responders with the situational awareness they need to execute their plan. Combine mission critical voice with secure, streaming broadband multimedia. Unify voice, data and video on one system, connecting the entire government enterprise, and linking public safety with commercial systems. Equip your first responders with the real-time information they need, wherever they are, so they can react with confidence, and better keep citizens and the communities they protect, safe.



**YOUR OPPORTUNITY TO BENEFIT FROM PUBLIC SAFETY LTE IS COMING. WILL YOU BE READY?**

**TRUSTED IN MAJOR FIRE EMERGENCIES.**

**TRUSTED IN ACCIDENTS WITH LIFE THREATENING INJURIES.**

**TRUSTED IN TENSE HOSTAGE SITUATIONS.**

**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 by 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.

To learn about Motorola Next Generation Public Safety and how your organisation can benefit from Public Safety LTE, visit [motorolasolutions.com/nextgen](http://motorolasolutions.com/nextgen)

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