

ASTRO[®] 25 SYSTEM FOR MISSION CRITICAL DATA

LEVERAGE YOUR ASTRO 25 SYSTEM
INVESTMENT FOR MISSION CRITICAL DATA





Today's public safety agencies need more than just voice communications to get the job done. Vehicles are equipped with computers and personnel away from the vehicle use handheld devices to do look-ups, report writing, video sharing and job specific intranet programs. This information exchange is often happening over commercial carrier networks which can be the right choice for routine, daily activities. In times of disaster or even when there is a large event such as a marathon or a ball game, they can get overloaded or even fail.

SO WHAT OTHER CHOICE DOES PUBLIC SAFETY HAVE TO SHARE CRITICAL INFORMATION?

OFFLOAD YOUR MOST MISSION CRITICAL DATA TO YOUR ASTRO 25 SYSTEM

Make a powerful resource even more powerful by adding data functionality to your ASTRO 25 system and share critical information for informed decisions anywhere, anytime. And with over 3 million in use every day, the mission critical radio is readily available and trusted by responders.

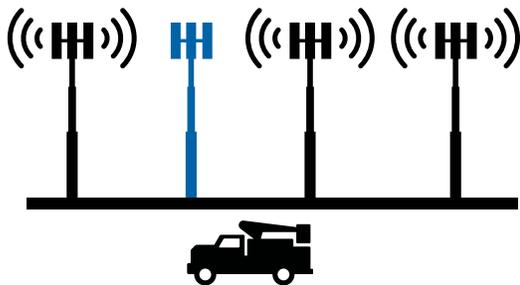
THE BEST OF BOTH WORLDS – CREATE A HYBRID SOLUTION

Place your most critical data on your dedicated ASTRO 25 system and leverage a carrier or Public Safety LTE broadband network to share large data content. Data comes in many sizes. Some of the most urgent data is perfectly sized for the ASTRO 25 system while large data is best served over broadband networks.



SUPER STORM SANDY WHEN WILL IT OCCUR AGAIN?

During Superstorm Sandy there were:



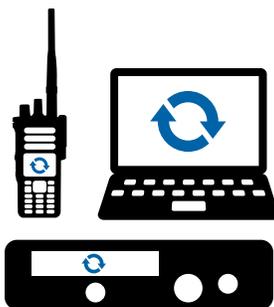
25%

OF CELL SITES IN THE
10 STATE REGION WERE
OUT OF SERVICE



18 DAYS

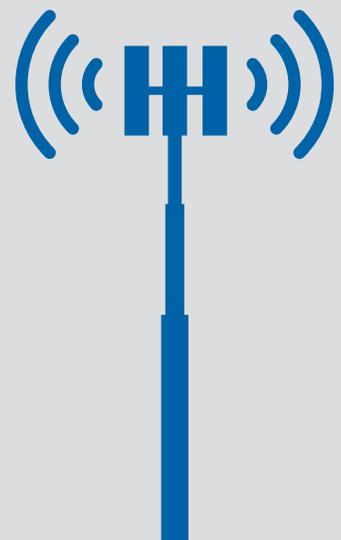
TO RESTORE CARRIER
SERVICE



ZERO

PUBLIC SAFETY SYSTEMS
ADVERSELY AFFECTED

**CAN YOU
RISK PLACING
MISSION
CRITICAL
DATA ON
CARRIER
NETWORKS?**





TOP 5 REASONS DATA IS RIGHT FOR MISSION CRITICAL RADIO SYSTEMS

1

ASTRO 25 systems are dedicated systems built to be always available.

2

Your ASTRO 25 system is built to your exact requirements, not a one size fits all. You own it, you control it.

3

Data can have the same mission critical reliability and coverage as your voice system since it runs on the same equipment.

4

Using your existing two-way radio to send data does not add more hardware to an already fully-loaded duty belt.

5

One system to maintain and manage for both voice and data communications.

EASILY ADD INTEGRATED DATA INTO YOUR SYSTEM

In an ASTRO 25 voice and integrated data system, data coexists with voice traffic over the same radio frequencies. The system dynamically reallocates channels to voice or data in real time as user demand requires – maximizing your use of available channels.

Voice has priority over data so data transmissions will not interfere with voice calls. In times of emergency, a site's data resources are reallocated if the demand for voice becomes exceptional, providing extra voice capacity when it becomes essential:

- Identical footprint as voice
- Same site equipment
- Channels dynamically switch to voice or data based on user demands
- Project 25 (P25) standard-based

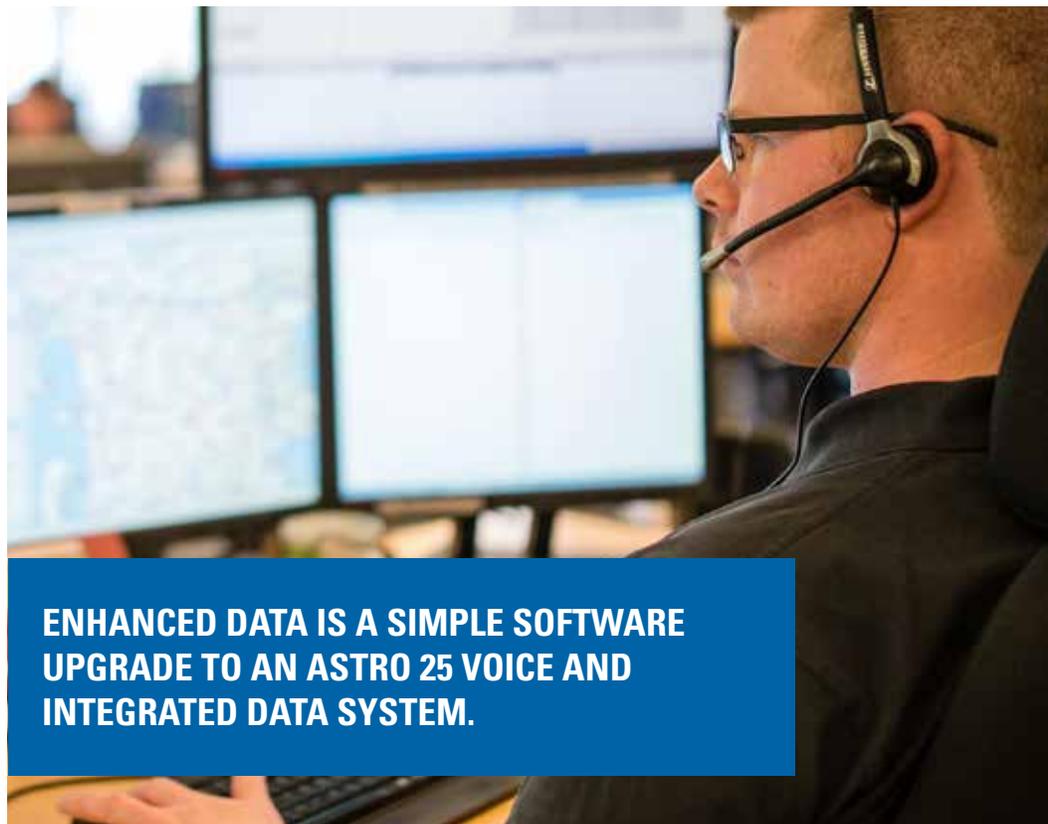


**ASTRO 25 INTEGRATED DATA CAN BE
ADDED TO YOUR EXISTING VOICE RADIO
SYSTEM WITHOUT NEW CHANNELS.**

OPTIMIZE DATA FOR INCREASED EFFICIENCY

For organizations that need to be able to send a high volume of short data messages, ASTRO 25 Enhanced Data can increase inbound data efficiency up to 12 times and enable denser network traffic. This can be beneficial for GPS applications – tracking users at a higher cadence. You also have the flexibility to assign channels dynamically or as data only channels.

- Sites dynamically assign channels
- Dedicated to data preserving capacity during peak demand
- Supports more GPS users at a higher cadence



**ENHANCED DATA IS A SIMPLE SOFTWARE
UPGRADE TO AN ASTRO 25 VOICE AND
INTEGRATED DATA SYSTEM.**

ASTRO 25 DATA APPLICATIONS AVAILABLE TODAY FROM MOTOROLA

PROGRAMMING OVER P25 (POP25)

Reprogram radios over the air eliminating the need to bring the radios into a service shop saving time and money.

ASTRO 25 OVER THE AIR REKEYING (OTAR)

Quickly change and manage the distribution of encryption keys over the air increasing security and simplifying logistics of key management.

ASTRO 25 OUTDOOR GPS LOCATION

Whether you use a dedicated GPS receiver or the integrated GPS in your APX radio, easily enable GPS accountability and location tracking of an individual or vehicle and send the coordinates to a map-based location application.

ASTRO 25 GEO SELECT

Combine GPS, mapping and geo fences to quickly and easily switch radio talkgroups for better on-scene communications.

TRX NEON INDOOR LOCATION

Track and monitor location of personnel in indoor settings when outdoor GPS is unavailable.

APX™ PERSONNEL ACCOUNTABILITY

Streamline on-scene roll calls and identify man down and emergency alarms through a single GUI interface for improved safety and decision making.

MACH ALERT FIRE STATION AUTOMATION AND ALERTING

Alert multiple fire stations simultaneously and control elements in the firehouse such as closing doors, and turning off stoves to improve response time, efficiency and safety.

ASTRO 25 ADVANCED MESSAGING SOLUTIONS

Send and receive messages and run database queries directly from two-way radios.

TALKGROUP TEXT MESSAGING

Broadcast detailed information via text to everyone in a talkgroup simultaneously.



EASILY TRACK PEOPLE AND RESOURCE LOCATION FOR EFFICIENT RESPONSE AND IMPROVED SAFETY

Knowing where your first responders and resources are located can dramatically improve your operations. GPS location is probably the most important feature you can add to your ASTRO 25 system after voice communications. Because, to know the location of your personnel, means you can efficiently dispatch the closest available resource, reduce travel time with driving directions and time of day routing and identify potential hazards responders might face.

When combining location functionality with geo-fencing, crossing a boundary can trigger a response to alert the user that he/she has entered a potentially dangerous area and automatically change the radio to the talkgroup of an active incident.



ADDING LOCATION IS SIMPLE

Motorola APX portable radios and mobile radios are available with integrated GPS, making it easy to add location to every one of your vehicles and radio users. Now, you can not only track the location of your vehicles using the mobile radio, but track personnel away from the vehicle through the GPS equipped portable radio. There is no need for a second GPS device or reliance on a commercial carrier system to identify the location of your first responders. Adding GPS to your radios is about improving safety and enhancing command operations.

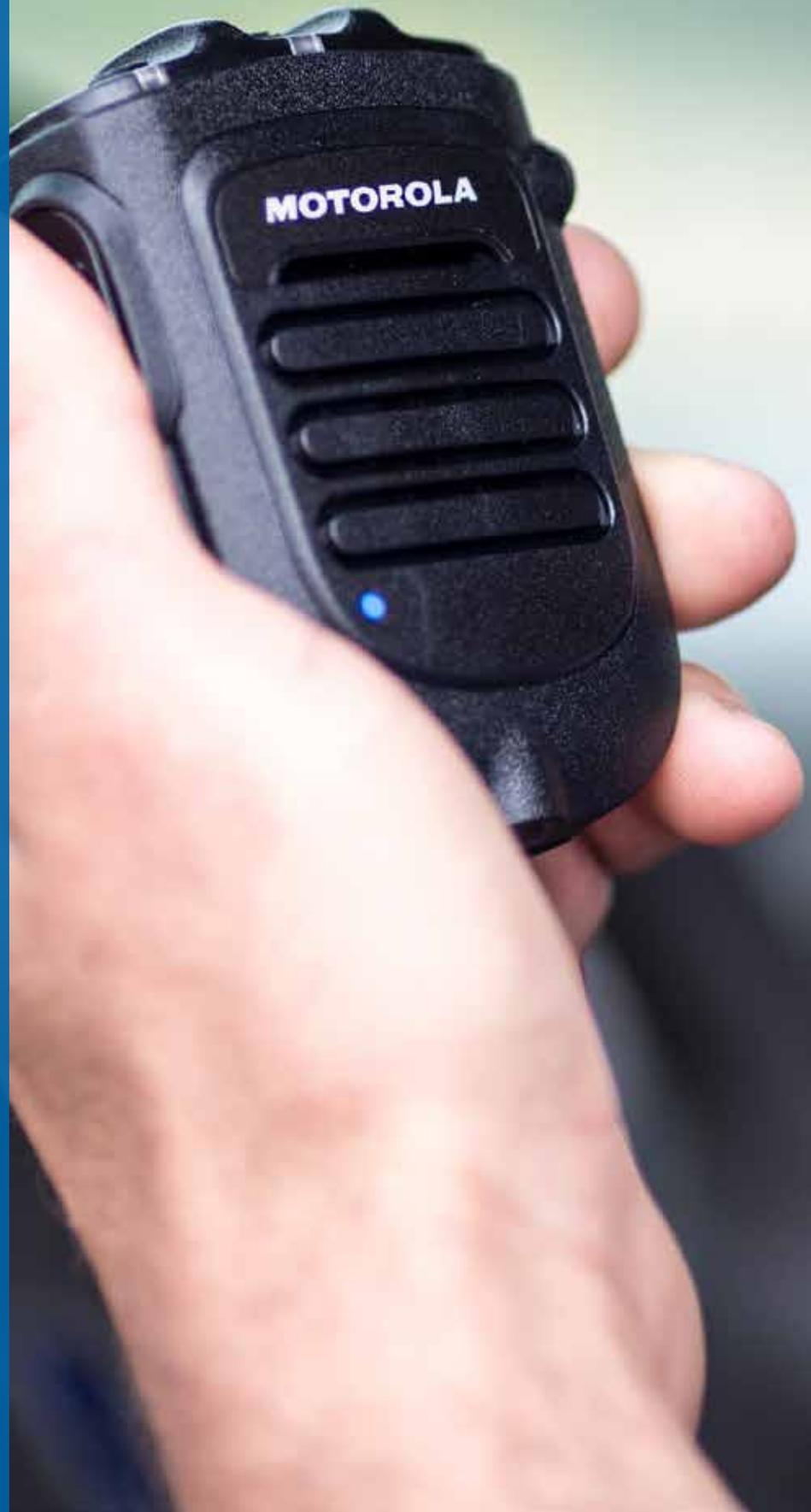
COMMAND CENTER MAPPING

GPS information can be easily plotted on most mapping applications, giving command centers and field commanders a visual of personnel and resource locations providing real-time updates for improved decision making. Based on the mapping application, user specific icons can display information like name, incident type, last reported time and status duration.

And, recognizing that a radio has crossed into a predefined zone, the mapping application can trigger an alert to be sent to the user that he/she has entered a hazardous area or even automatically change the radio's talkgroup to the active incident talkgroup.

INDOOR LOCATION

As a first responder moves to an indoor location where GPS is not possible, body worn sensors and sophisticated algorithms provide continuous tracking data sent over the radio for display on 3D building maps. On-scene commanders can now visually see the location of personnel when indoors, helping to keep personnel safe.



PROVIDE INFORMATION ON THE FRONT LINES TO KEEP PERSONNEL SAFE AND IMPROVE OPERATIONS

IMPROVE SITUATIONAL AWARENESS WITH TELEMETRY

Sensors are everywhere in our world. Public safety agencies are using more and more sensors to provide critical information to command operations, keep personnel safe and speed emergency response to citizens in the community. Leveraging the ASTRO 25 system, alarms from sensors can be sent quickly providing added information which can be used to improve situational awareness.



FIELD EQUIPMENT

Receive alerts to potential equipment issues such as tire pressure, door openings, crash notifications, gun lock release.



PERSONNEL BIOMETRICS

Monitor first responders in stress and transmit real-time health conditions – heart rate, breathing rate, activity level and order personnel to evacuate before overexertion leads to injury or death.



PATIENT VITALS

Send critical patient information to emergency rooms, while in transit, for faster response on arrival, saving lives.



PERSONNEL ACCOUNTABILITY

Keep track of first responders on the fireground by tracking which person is actively engaged in the event.



35%

OF ALL FIREFIGHTER FATALITIES OCCUR FROM STRESS OR OVEREXERTION¹

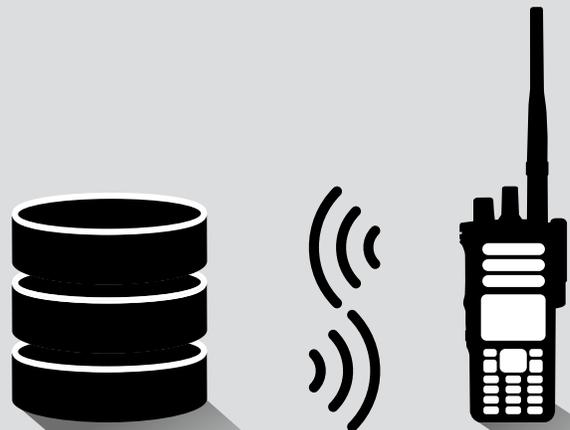
SILENT, ON-DEMAND COMMUNICATIONS WITH ADVANCED MESSAGING

Leveraging the ASTRO 25 radio system for data messaging and queries is simple with the Advanced Messaging Solution. Now your officers can have more information at their fingertips on the portable radio to provide enhanced decision making. Silent, reliable and an efficient use of system resources, messaging is an ideal form of alternative communication when sensitive information is being shared, or when the environment is too noisy for conversations.

- Send and receive text messages from dispatch or desktop applications to radios in the field, smart phones and PCs.
Or initiate a text from the radio to PCs, smartphones or other radios.
- Query databases including two factor CJIS Federal databases to look up drivers licenses, case numbers and other critical information.
- Receive Be-on-the-Lookout (BOLO) alerts right to the portable radio.
- Text critical details simultaneously with voice communications, such as an apartment number, street address or name.
- Broadcast high-priority text information over a talkgroup to alert everyone simultaneously of a weather hazard, AMBER Alert or other situation.



**NEED ACCESS TO
LOCAL AND NATIONAL
DATABASES IN THE FIELD²**



EASILY

**QUERY REMOTE DATABASES
FROM YOUR APX RADIO**

OPTIMIZE YOUR SYSTEM OPERATIONS WITH DATA

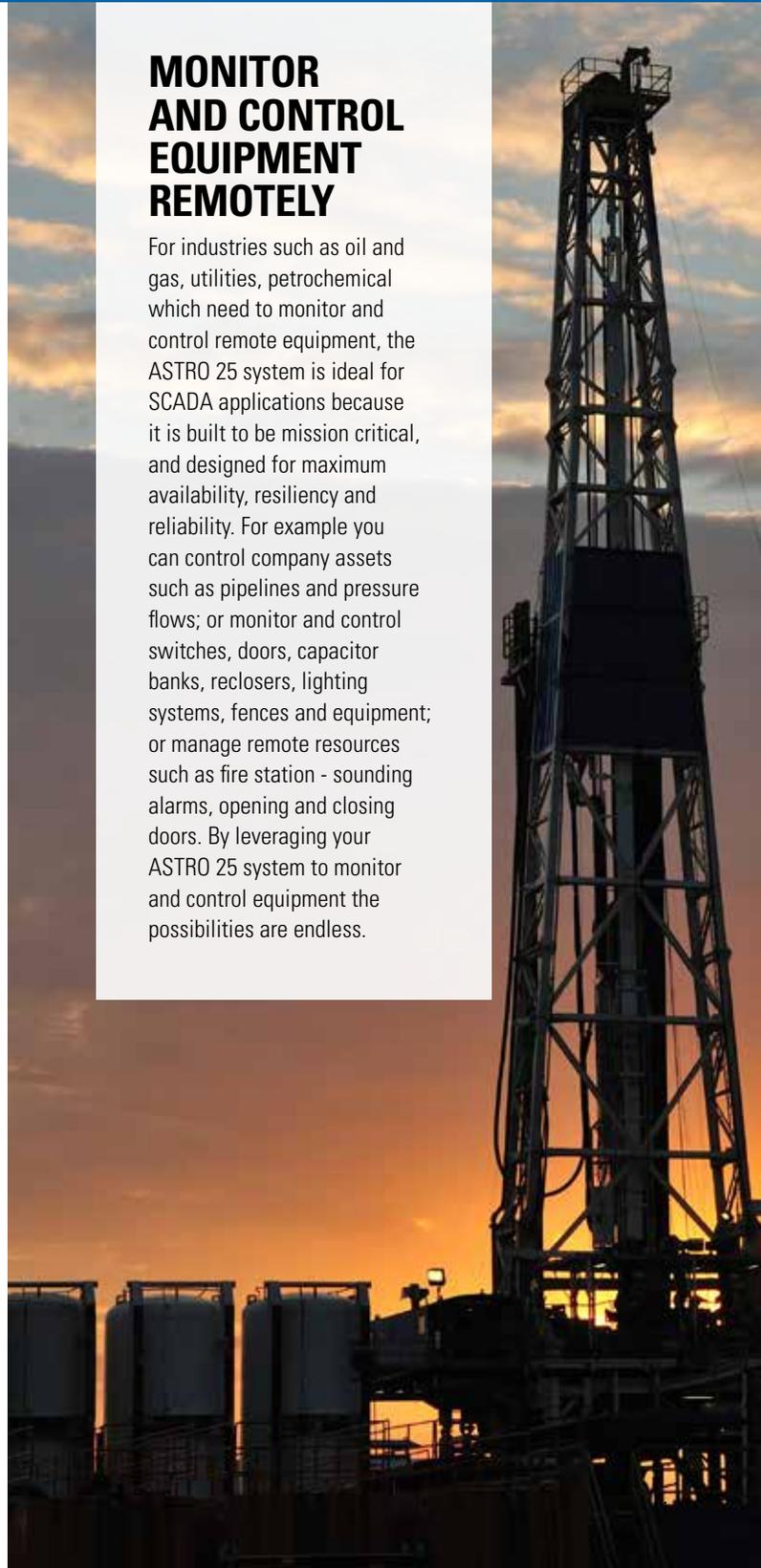
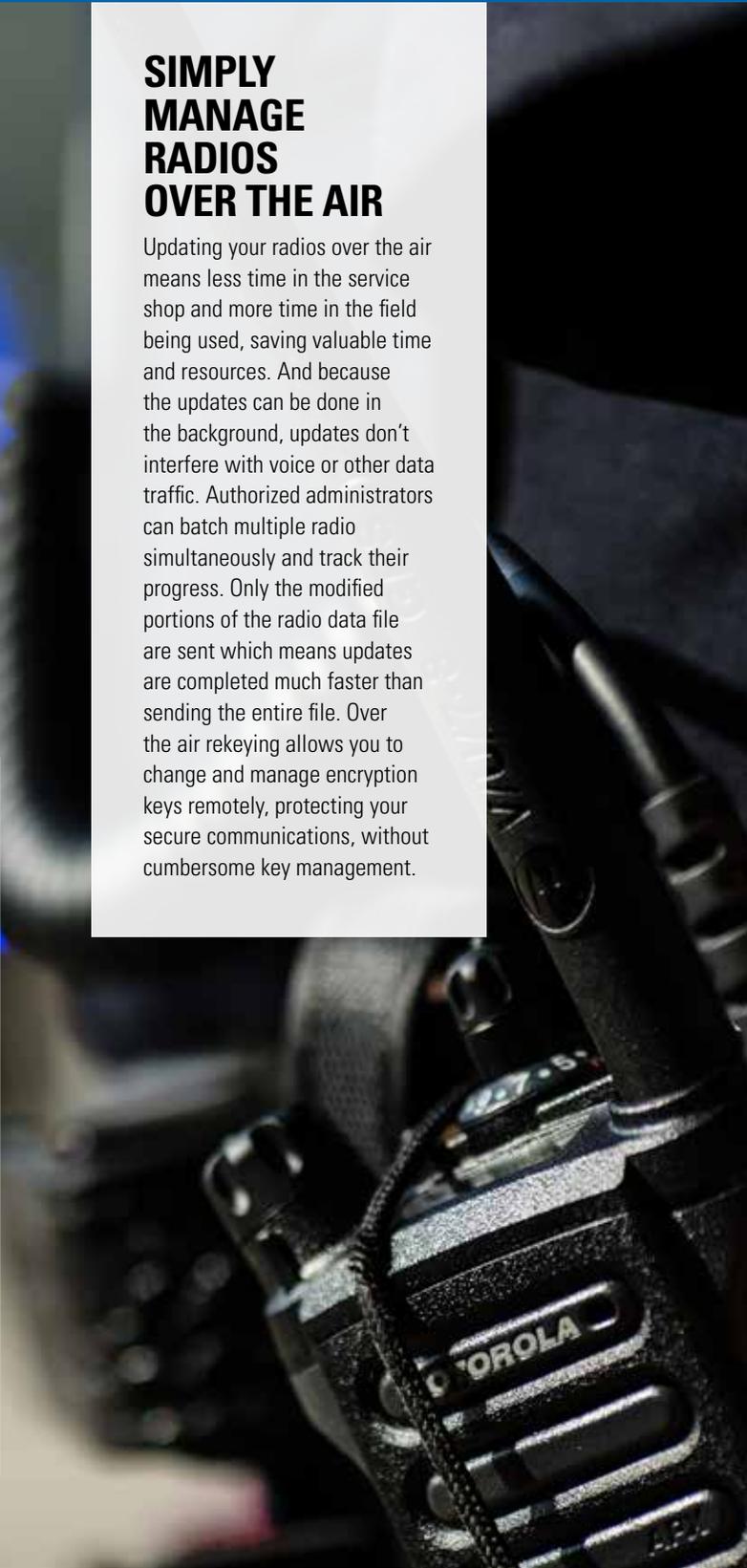
MAKE YOUR SYSTEM WORK HARDER FOR YOUR ORGANIZATION

SIMPLY MANAGE RADIOS OVER THE AIR

Updating your radios over the air means less time in the service shop and more time in the field being used, saving valuable time and resources. And because the updates can be done in the background, updates don't interfere with voice or other data traffic. Authorized administrators can batch multiple radio simultaneously and track their progress. Only the modified portions of the radio data file are sent which means updates are completed much faster than sending the entire file. Over the air rekeying allows you to change and manage encryption keys remotely, protecting your secure communications, without cumbersome key management.

MONITOR AND CONTROL EQUIPMENT REMOTELY

For industries such as oil and gas, utilities, petrochemical which need to monitor and control remote equipment, the ASTRO 25 system is ideal for SCADA applications because it is built to be mission critical, and designed for maximum availability, resiliency and reliability. For example you can control company assets such as pipelines and pressure flows; or monitor and control switches, doors, capacitor banks, reclosers, lighting systems, fences and equipment; or manage remote resources such as fire station - sounding alarms, opening and closing doors. By leveraging your ASTRO 25 system to monitor and control equipment the possibilities are endless.



ECOSYSTEM OF APPLICATIONS AND PARTNERS

Motorola is constantly working with third party developers to create new applications that can leverage data from the ASTRO 25 radio system to enhance performance and improve response, keeping first responders safe and the communities they serve safer.

THIRD PARTY APPLICATIONS



There are many third party developers who are building applications for the ASTRO 25 system: location based, mapping, logging, notification and alerting systems, SCADA, network monitoring and performance management. Motorola can work with these developers to test the applications on the ASTRO 25 system.

DEVELOPER'S PROGRAM



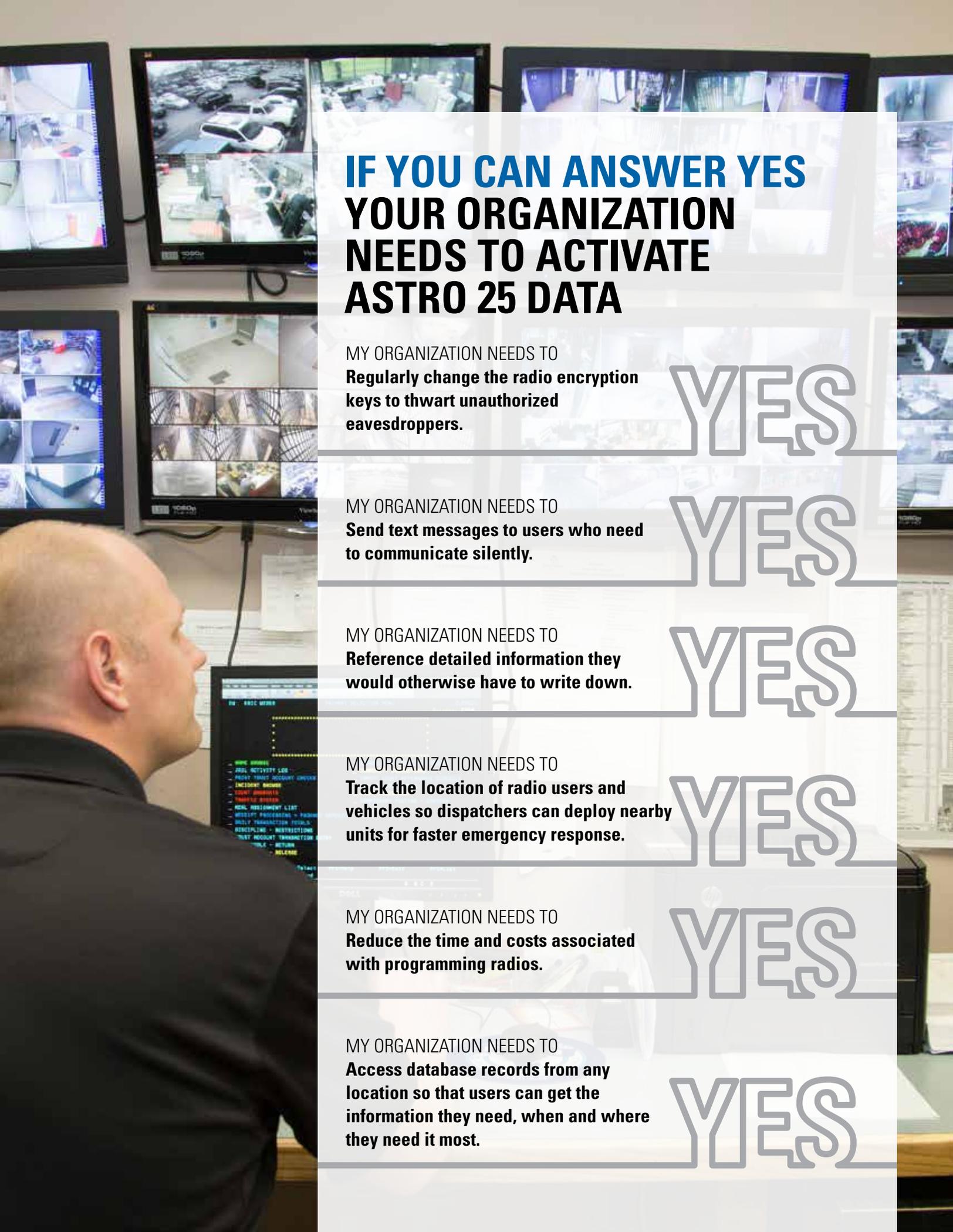
We've made it easy for software developers to create new applications through Application Program Interfaces (API) and our application developer program. As an IP-based system, ASTRO 25, can host a variety of standardized applications and custom developed applications by independent software companies and system integrators.



**OVER 32 MILLION
FIRST RESPONDERS
RELY ON THEIR
RADIO FOR VOICE
COMMUNICATIONS**

**PERSONNEL CAN
NOW CARRY ONE
DEVICE FOR BOTH
VOICE AND DATA
AND ENHANCE
THEIR ABILITY TO
GET THE JOB DONE**





IF YOU CAN ANSWER YES YOUR ORGANIZATION NEEDS TO ACTIVATE ASTRO 25 DATA

MY ORGANIZATION NEEDS TO
**Regularly change the radio encryption
keys to thwart unauthorized
eavesdroppers.**

YES

MY ORGANIZATION NEEDS TO
**Send text messages to users who need
to communicate silently.**

YES

MY ORGANIZATION NEEDS TO
**Reference detailed information they
would otherwise have to write down.**

YES

MY ORGANIZATION NEEDS TO
**Track the location of radio users and
vehicles so dispatchers can deploy nearby
units for faster emergency response.**

YES

MY ORGANIZATION NEEDS TO
**Reduce the time and costs associated
with programming radios.**

YES

MY ORGANIZATION NEEDS TO
**Access database records from any
location so that users can get the
information they need, when and where
they need it most.**

YES

MAKE IT HAPPEN

ASTRO 25 IS A COMPLETE VOICE AND DATA SOLUTION

ISSI



Share data across multiple ASTRO 25 networks using the Inter-RF Subsystem Interface (ISSI) so you can track resources, monitor personnel, send text when first responders are on a neighboring system.

RESILIENCY



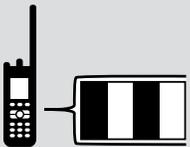
Since an ASTRO 25 system is built to withstand disasters, the data also is always available, unlike carrier systems which are not built for public safety and can get oversaturated or fail during a crisis.

SECURITY



For sensitive applications and to meet HIPAA privacy requirements data can be encrypted with the same level of encryption used for voice traffic, providing the right level of security for your organization's needs.

TDMA

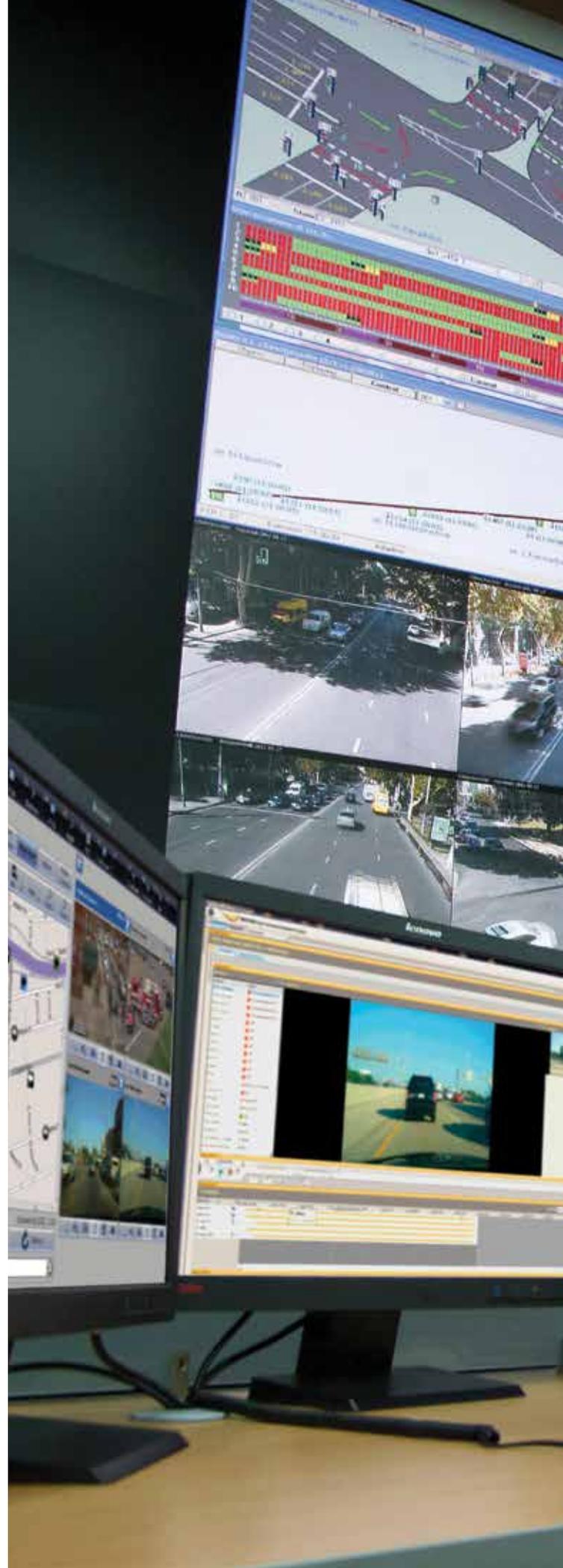


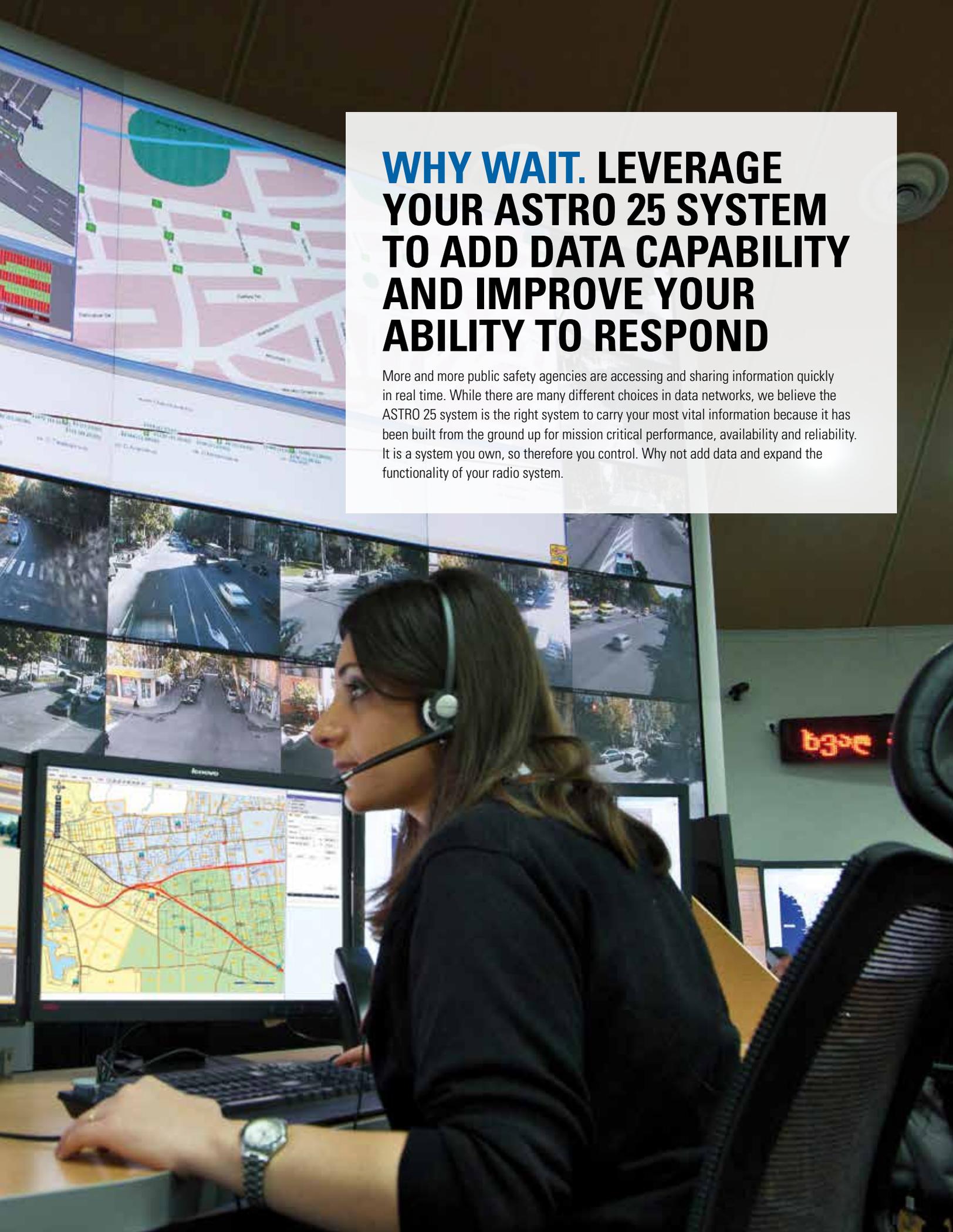
Free up channels for data by moving to TDMA, effectively doubling the capacity of your system and boosting the number of talk paths.

OPERATIONAL ASSURANCE



Maximize your operational readiness and personnel safety with the data information you need for better visibility and control of your critical assets.



A woman with long dark hair, wearing a headset and a dark blazer, is seated at a desk in a control room. She is looking at several computer monitors. The top monitor shows a large map with a green circular area and various street names. Below it, a row of smaller monitors displays multiple live video feeds of street scenes. The woman's hands are on a keyboard and mouse. In the background, a red neon sign with the letters 'b3pe' is visible on the wall.

WHY WAIT. LEVERAGE YOUR ASTRO 25 SYSTEM TO ADD DATA CAPABILITY AND IMPROVE YOUR ABILITY TO RESPOND

More and more public safety agencies are accessing and sharing information quickly in real time. While there are many different choices in data networks, we believe the ASTRO 25 system is the right system to carry your most vital information because it has been built from the ground up for mission critical performance, availability and reliability. It is a system you own, so therefore you control. Why not add data and expand the functionality of your radio system.



Sources:

1. www.usfa.fema.gov/downloads/pdf/publications/ff_fat13.pdf
2. "Public Safety 2019" document, based on our 2014 survey of public safety personnel in North America.

Consult with your Motorola team and learn how easy it is to add data to your current ASTRO 25 system and start experiencing the value of placing data on your mission critical network or visit motorolasolutions.com/ASTRO25.

Motorola Solutions, Inc. 1301 E. Algonquin Road, Schaumburg, Illinois 60196 U.S.A. motorolasolutions.com
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