# MOTOTRBO™ Features & Benefits

## The Professional Digital Conventional Two-Way Radio System

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# MOTOTRBO™

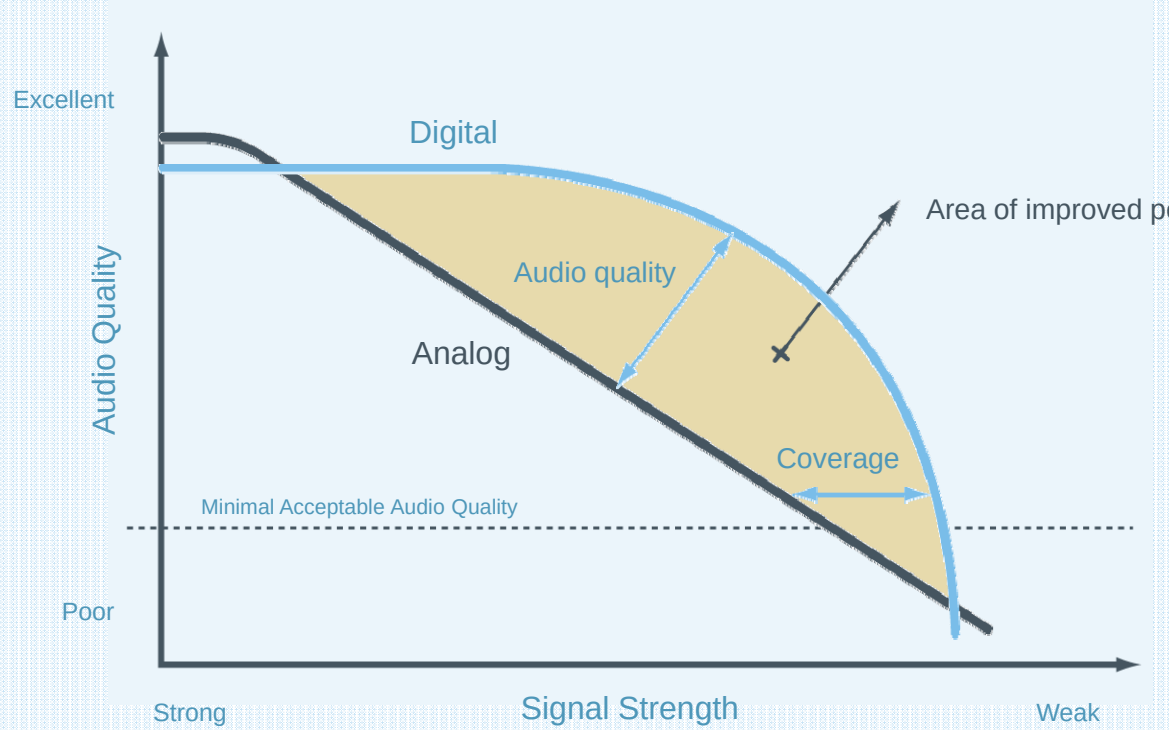
***Professional Digital Two-Way Radio System***

MOTOTRBO is Motorola's first digital two-way radio system designed for professional organizations needing a customizable, business-critical solution using licensed spectrum.

**Radios and Repeater**

- **Increased Channel Capacity**
- **Clear and Secured Voice Communications**
- **Extended Voice Coverage**
- **Enhanced Battery Life**
- **Integrated Voice and Data**
- **Graceful Migration**

# Better Basics – Greater Usable Range



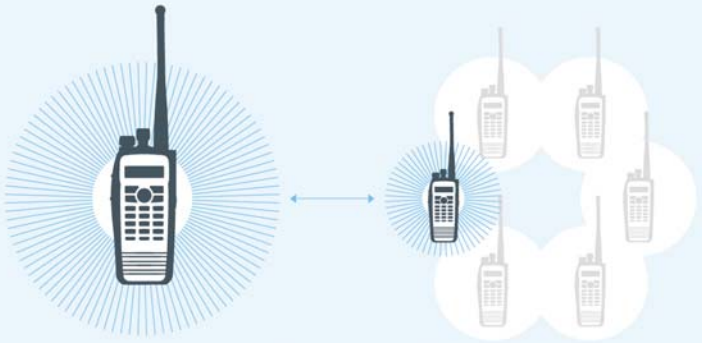

Click to play:

Analog Radio

Digital Radio

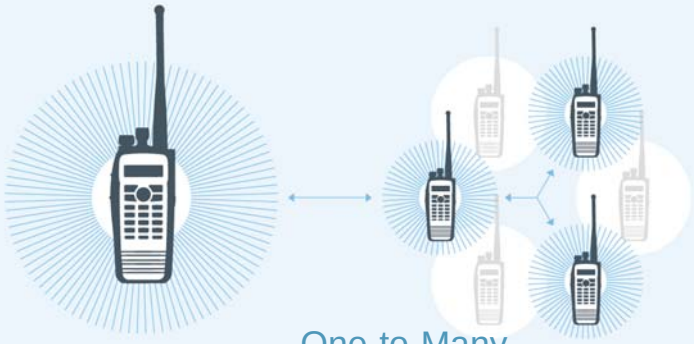
# Enhanced Features – Digital Calling and Signaling

## Enhanced Call and Channel Management to Increase Productivity



One-to-One

*Call and talk privately with a specific user's radio*



One-to-Many

*Enables communication with specific sets of group members*

One-to-All

*Allows all on the same channel to hear communications*

# Comprehensive Digital Call Feature-set

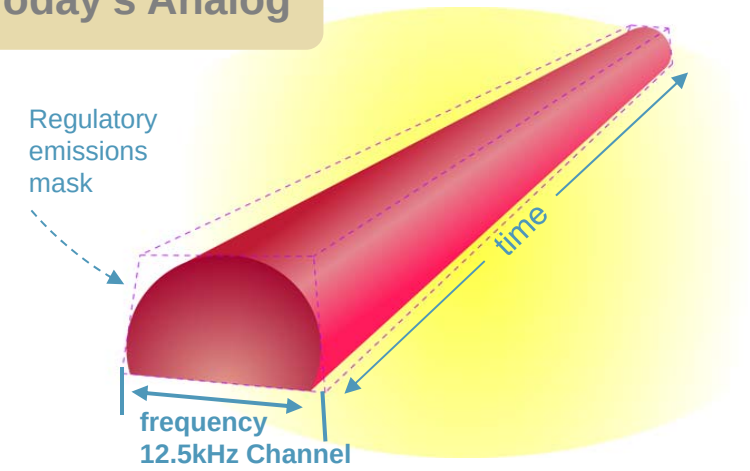
| Feature | Benefit |
|---|---|
| **Group Call** | Helps ensure critical work groups are fully informed – maximise workforce efficiency and safety |
| **Individual Call** | Allows calls to be directed at individuals – provides discreet communications while minimising disruption to others |
| **All Call** | Ensures entire radio fleet is instantly provided with critical information |
| **Radio Disable** | Allows stolen/lost radios to be disabled over the air – maintaining integrity of communication system |
| **Remote Monitor** | Enables supervisor radios to listen in on remote radios to maximise employee safety and instantly assess situation |
| **Radio Check** | Provides means of checking whether radios are active on system without disturbing user. |
| **Call Alert** | Enables a user to page another and request a return call when convenient |
| **PTT ID** | Allows the receiving party to instantly identify the caller and respond accordingly – improves communication efficiency and instils user discipline |
| **Emergency Call options** | A variety or emergency calls can be confirmed to maximise employee safety and accelerate incident response times |
| **Polite and impolite Call Setup** | Provides flexible communication scheme to meet specific customer working environment |
| **Sophisticated scanning** | A variety of sophisticated scanning procedures helps ensure all relevant calls are heard – maximising communications efficiency |

# 2:1 TDMA Digital Technology

- Permits two simultaneous conversations with a single repeater
- Longer Talk time
- Supports both voice and data
- Fits seamlessly into existing licensed channels
- European Telecommunications Standards Institute (ETSI) standards based

# TDMA - Increased System Capacity with repeater

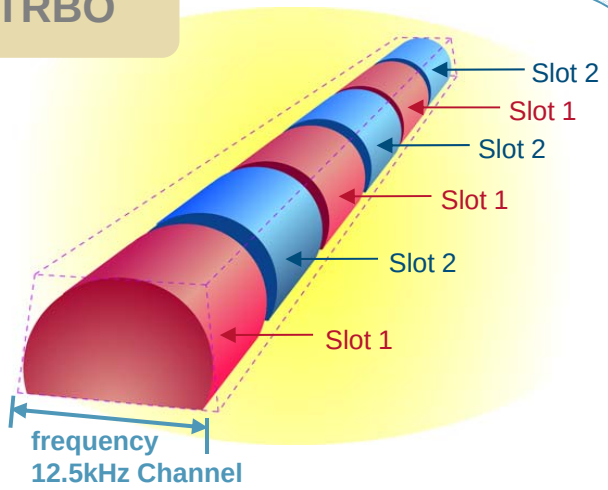
## Today's Analog




**12.5kHz / 25 kHz**

– 1 voice for each 12.5/ 25kHz channel
– 1 repeater for each channel

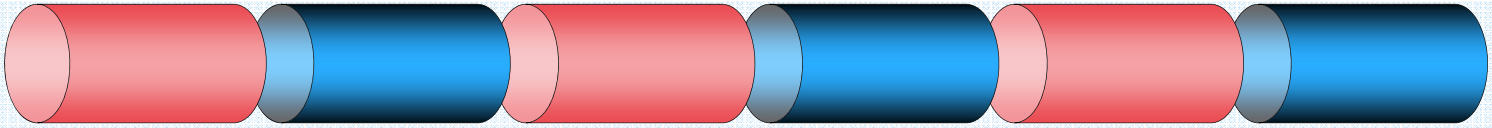
## MOTOTRBO




**12.5kHz TDMA**

– Divides existing channel into two timeslots
– Delivers twice the capacity through repeater
– Performance is same or better than 12.5kHz FDMA
– 1 repeater does work of 2
– Reduced need for combining equipment
– Enables 40% increase in radio battery life

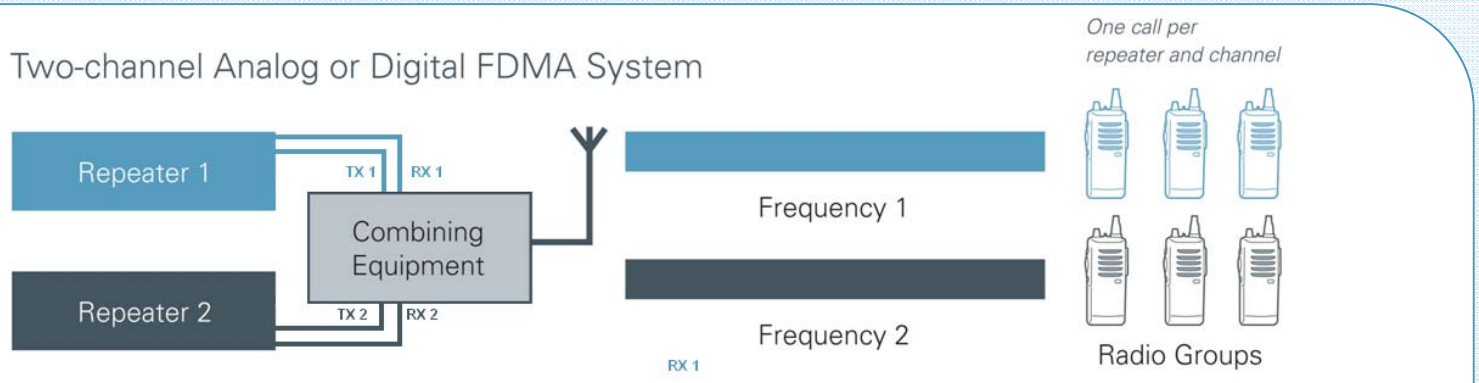
# TDMA Advantage: Double Channel Capacity with repeater



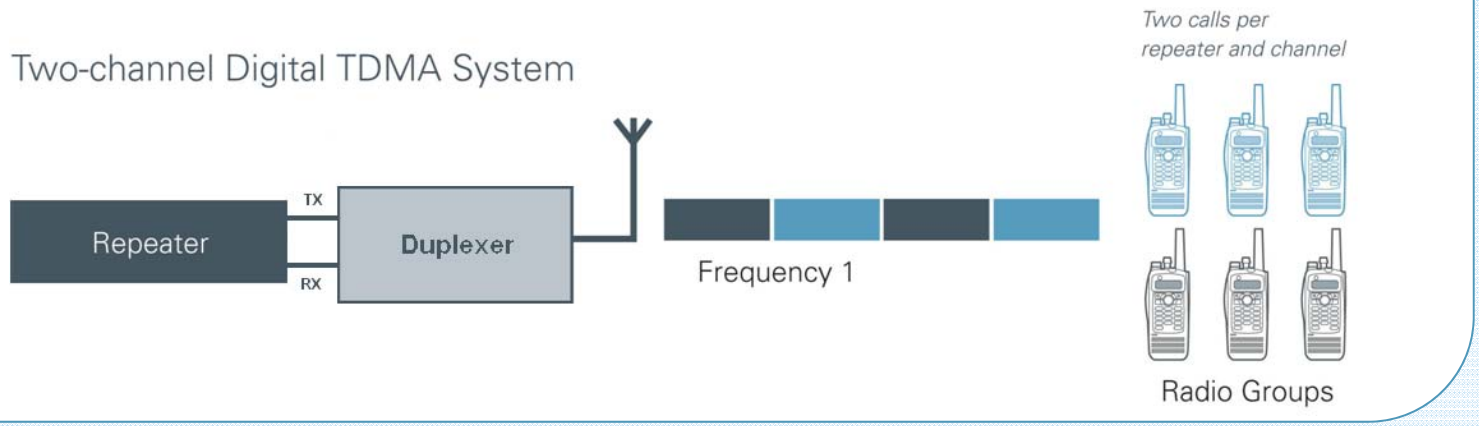
**Voice Call 1**

**Voice Call 2**

# TDMA Advantage: Cost-effective spectrum use




**Reduced infrastructure equipment costs & lower licence costs**



# Better Basics – Enhanced Functionality

## Longer Talk Time

- Longer talk time – 40% more than analog
  - Typical Analog Portable radio's battery performance: 8 hrs @ 5/5/90 with 1300 mAH battery
  - Standard MOTOTRBO Portable package uses IMPRES 1500 mAH battery to provide 13hrs @ 5/5/90
  - Optional Higher capacity IMPRES 2200 mAH battery to provide 19hrs @ 5/5/90

## Better Design

- Smaller, lightweight, rugged product design
- Certified to ensure durability
- Intuitive, easy-to-use, menu-driven interface
- Meets IP57 specifications (portable only)

# Better Basic- Built-in Digital Privacy

**Digital privacy:**

- Digital offers inherent protection against casual eavesdropping using scanners, etc.
- Analog radio is not able to listen to MOTOTRBO digital calls
- In order for another MOTOTRBO radio to listen to a digital call
  1. Channel Frequency
  2. Color Code (System ID) – 1 of 16
  3. Time slot - 1 of 2
  4. Group ID – 1 of 16 million
  5. CPS password protection

**Safer & more competitive workforce**

# Better Basic- Enhanced Privacy Mode

**Enhanced Voice Privacy:**

- Enhanced Privacy uses a advanced algorithm to transform voice/data into secured voice/data.

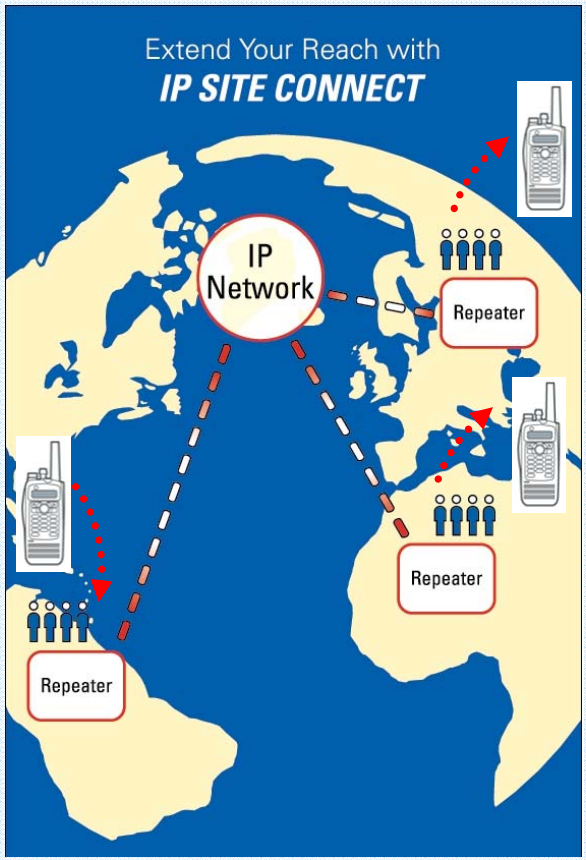
- Enhanced Privacy:
  - store 16 different keys in the radio
  - 40 bits per key
    - 1 Trillion possible combinations (1,099,511,627,776)

**Secured & protected workforce**

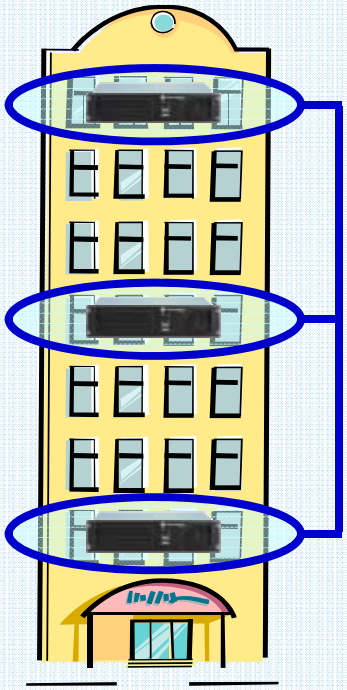
# IP Site Connect- Extended voice communication

**IP Site Connect :**

- Connect up to 15 repeaters (via IP network) for extended Day-to-day voice and data communication
- Connecting repeaters operating in different RF bands.
- Provide automatic roaming from one coverage area to another with no manual intervention or interruption

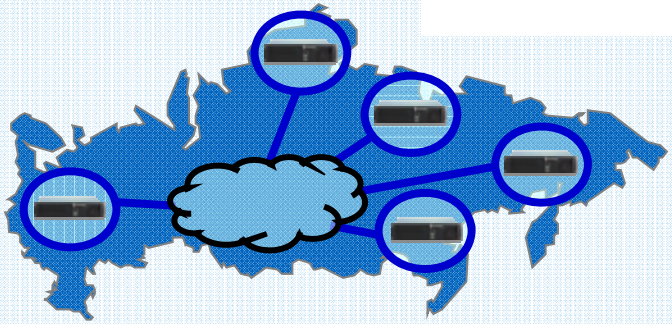


# Extending *coverage* to 15 sites



**Single Location**

**Large Campus**



**Dispersed Sites**

# IP Site Connect- RDAC (Repeater Diagnostic Alarm & Control)

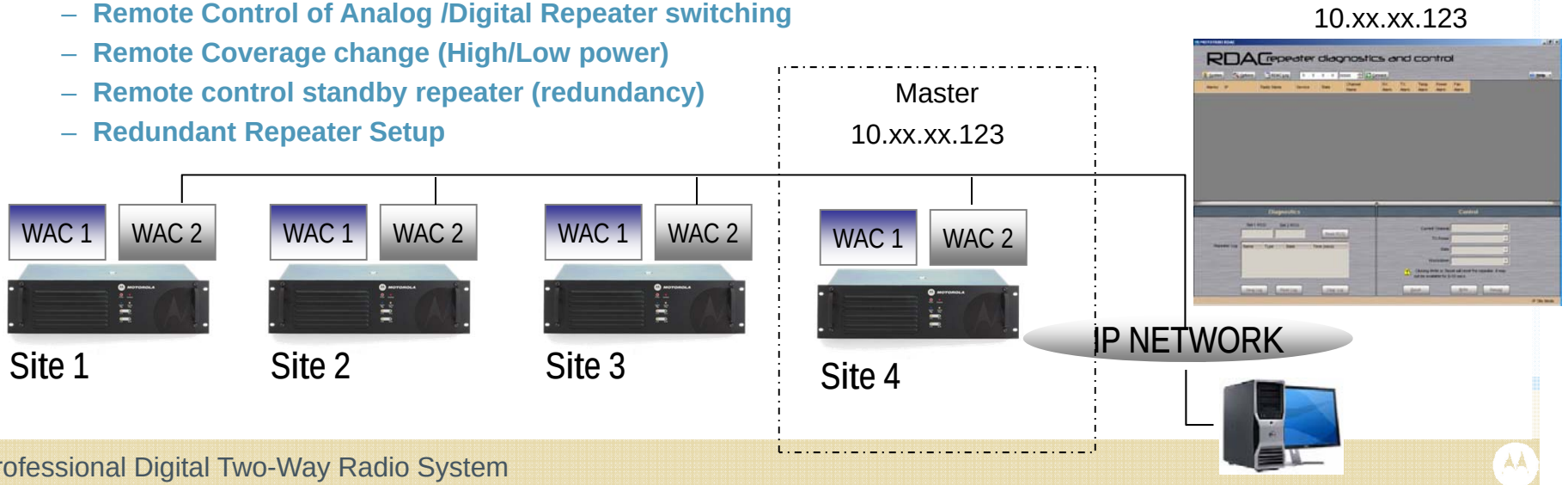
**5 Alarms**
- TX Lock Detect Failure
- RX Lock Detect Failure
- Overheating
- Main Fan Failure
- AC Power supply Failure

**RDAC via GPIO, USB or IP**

**Application**
- Remote Control of Analog /Digital Repeater switching
- Remote Coverage change (High/Low power)
- Remote control standby repeater (redundancy)
- Redundant Repeater Setup

**2 Diagnostics**
- RSSI
- TX Power Level (High or Low)

**4 Controls**
- Channel steering
- Repeat Enable/Disable (Standby),
- Soft Reset,
- TX Power Level Change (High/Low)



# CAPACITY PLUS

Expanding ***capacity*** to 1,200 users on a single site

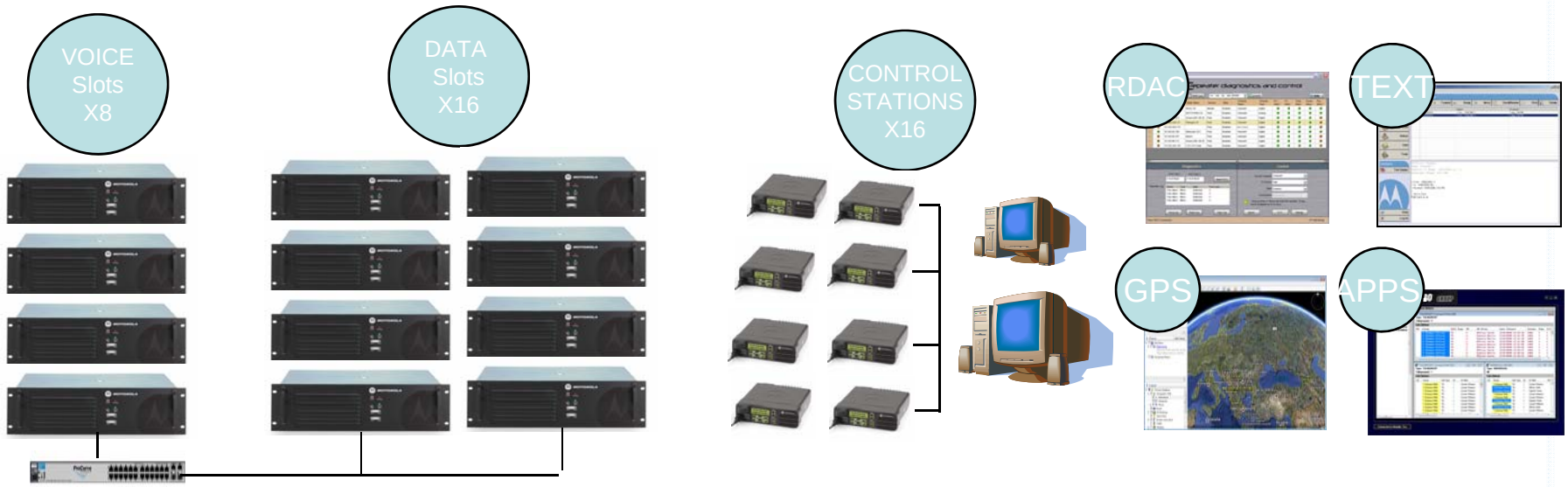
- Single-site trunking solution
- Digital voice & data communications
  - **Up to 12 voice/data channels**
  - **Plus up to 24 dedicated data channels**
- Software upgrade to existing hardware
  - **Online software licence process**

# Capacity Plus- Single site with extended voice capacity

**Capacity Plus :**

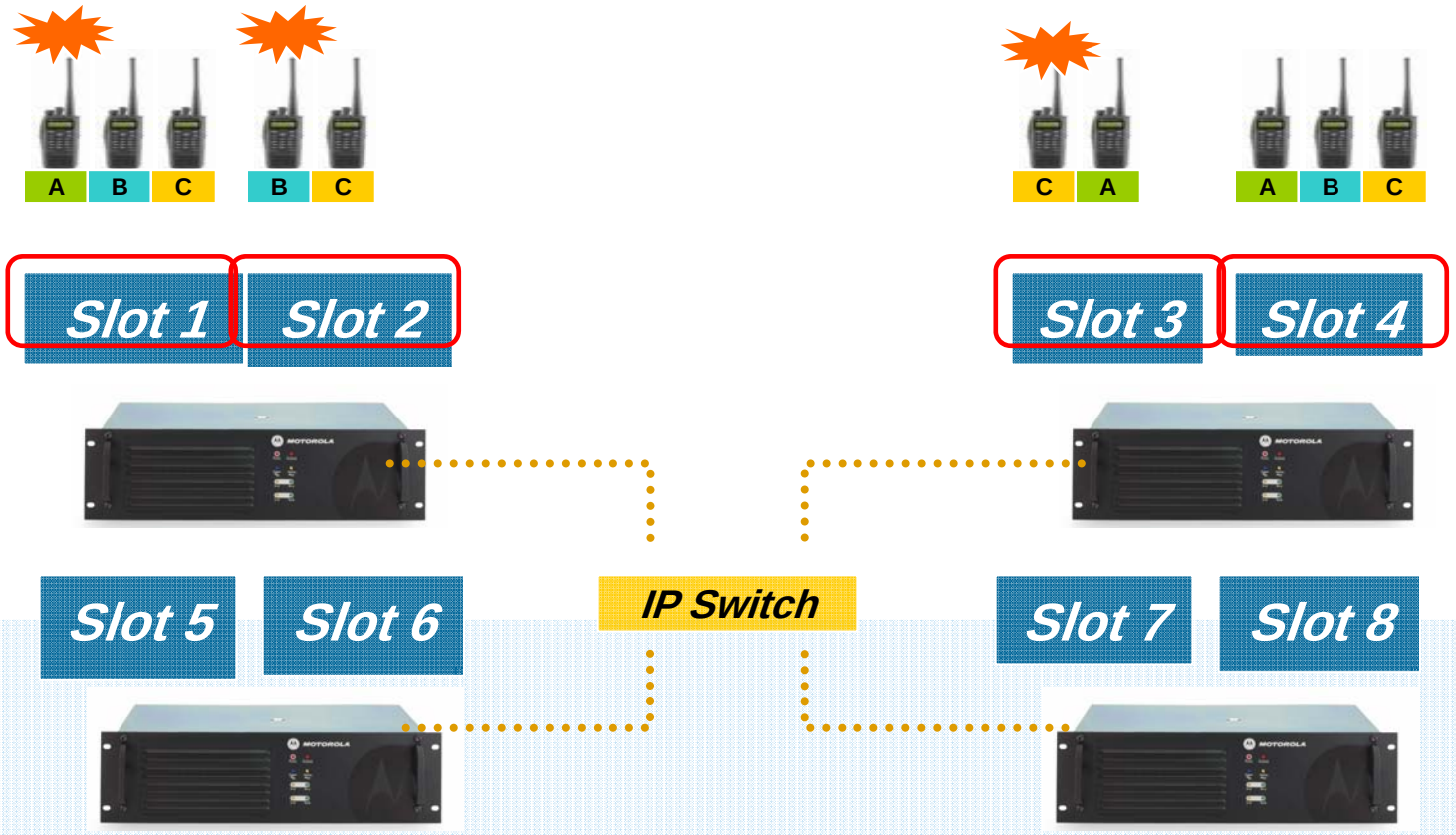
Connect up to 4 repeaters in a SINGLE SITE for extended voice communication

Connect up to 8 repeaters in a SINGLE SITE for extended data communication




**Fully Loaded: 8 voice slots plus 16 data revert slots plus Applications to maximize system capacity and performance**

# CAPACITY PLUS




- **Quick call set-up – intelligence in repeater**
- **Optimal channel efficiency – no dedicated control channel**
- **Can be deployed on shared channels**

# LINKED CAPACITY PLUS
# Available Q1 2012

**Trunked multi-site, multi-channel configuration**

- Adds **CAPACITY** to existing IP Site Connect (IPSC) systems
- Adds **COVERAGE** to existing Capacity Plus (Cap+) systems

**Requires only radios and repeaters software upgrade**

- No central controller needed

**Compatible with all MOTOTRBO radios**

# LINKED CAPACITY PLUS

**Supports up to 15 sites**

- Up to 6 trunked (voice) & 5 data revert repeaters per site
- Not necessary to have same number of repeaters per site

**Individual calls**

- Only two sites active

**Up to 254 local and wide-area talkgroups**

- Local talkgroup calls set up on local site only
- A wide-area talkgroup may be assigned to specific sites

**Two types of data revert channels**

- Enhanced GPS
- Normal Data Revert

} Single-site and multi-site

# MPT1327 OPTION BOARD
# Available Q4 2011

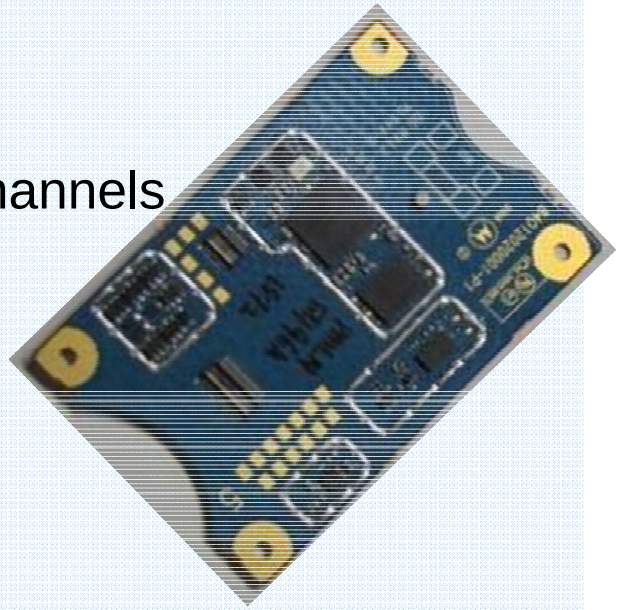
## Plug-in option board

- Available as an aftermarket accessory
- Supported by all current MOTOTRBO radios

## Majority of Professional Series MPT1327 features

## Plus additional features

- Including TPL Encode / Decode on traffic channels



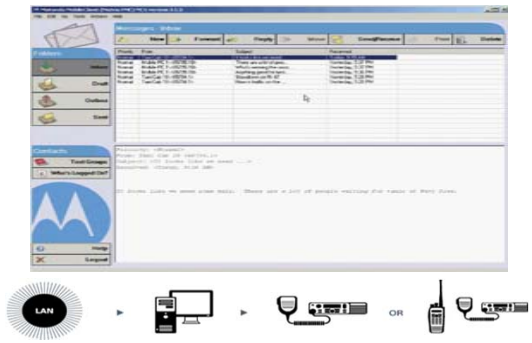
## MPT1327 option board CPS

- Configures MPT1327 personality
- Connects to radio via standard USB cable

# Enables Data Applications

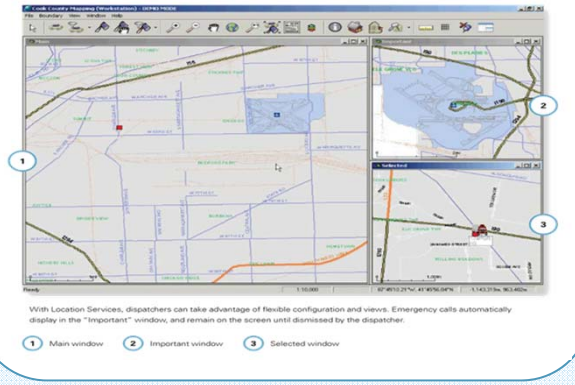
## Text Messaging

– Ability to Send/receive messages to selected group of radios, an individual radio, fixed or mobile

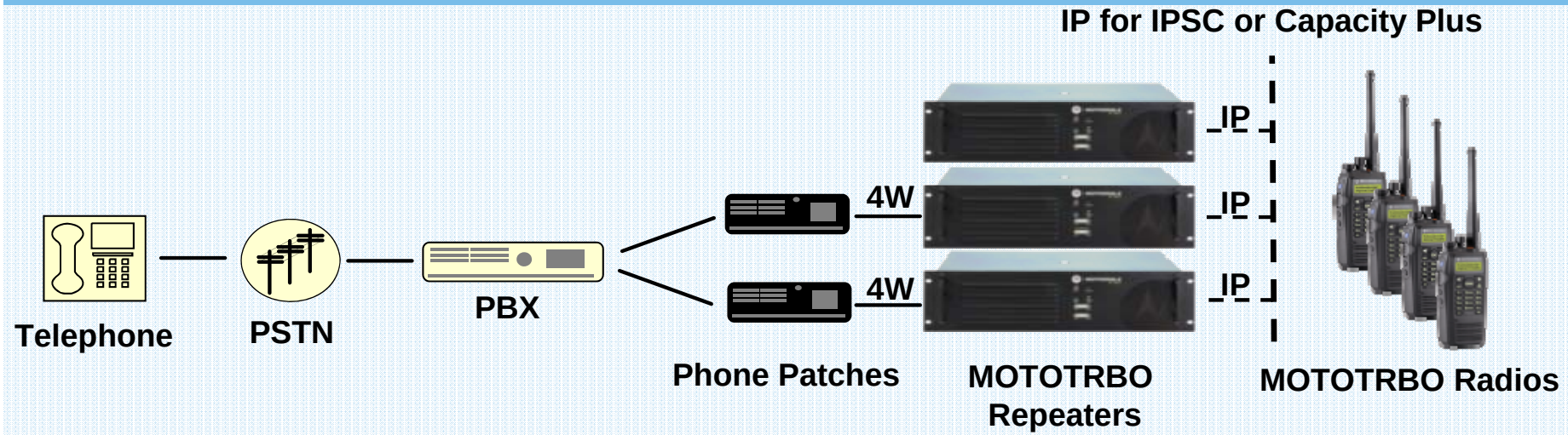



## Outdoor Location Tracking

– Ability to Monitor the location using the embedded GPS capability in the radios. More efficiently manage mobile workforce, optimize schedules, route planning, and dispatching



# TELEPHONE INTERCONNECT




- Utilises existing 3rd-party analogue phone patch devices
- Telephone-to-Talkgroup, Telephone-to-Radio and Radio-to-Telephone calls
- Single-site repeater, IP Site Connect and Capacity Plus configurations

# Easy Migration

- MOTOTRBO allows migration to take place one radio at a time, one channel at a time or the entire system at a time
- MOTOTRBO system is dual-mode analog-digital
- MOTOTRBO radios are able to scan both analog and digital channels

MOTOTRBO™
TRUSTED BY
1,000,000
USERS

# DEPLOYMENTS

MOTOTRBO™

## Emergency Services

## Government

## Utilities

## Manufacturing

## Airports

## Oil Production

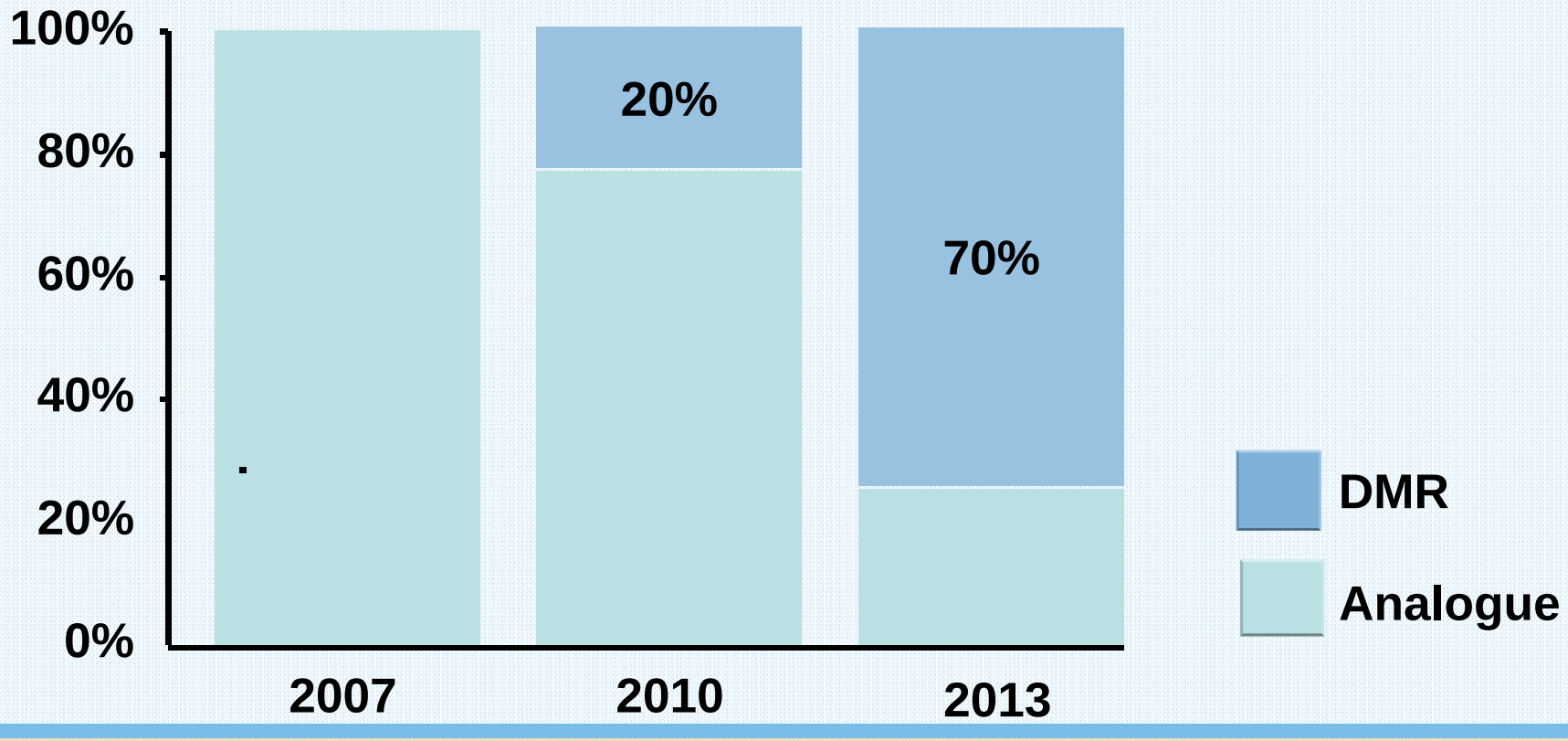
## Retail

## Warehousing/ Logistics

## Tourism/ Events

# RAPID DIGITISATION

## Professional radio market, EMEA ($)



# DIVERSE APPLICATIONS

## *Currently over 200 active MOTOTRBO Application partners*

### *Analogue Migration*

***K-TERM 42***

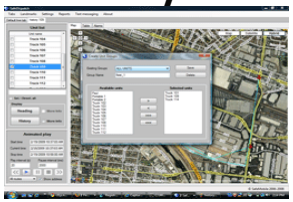
**5-tone option board**

### *Dispatcher*

***TRBOnet***

**PC-based dispatch client**

***SafeDispatch***



**Tracking & managing mobile resources**

### *AVL & Emergency*

***TRX PRO***

**GPS location & Google Earth mapping**

***DMR Alert***

**Indoor & outdoor location monitoring**

### *Telemetry & Data*

***DMR921***

**USB to RS232 serial interface converter**

***Zonith ACS***

**Automated alarm management**

# MOTOTRBO Display Portable Radio Features

XiR P8260
XiR P8268 (GPS)

1. 1000 channels
2. Flexible, menu-driven interface with user-friendly icons
3. Tri-color LED indicator
4. Emergency button
5. New accessory connector
6. DP3601 with integrated GPS module
7. Large, easy-to-use navigation buttons
8. IP57 submersible.
9. Powerful, front projecting speaker
10. Three side and two front programmable buttons
11. Large, textured push-to-talk button

Note: DP3600 is not upgradeable to GPS

# MOTOTRBO Non-display Portable Radio Features

XiR P8200
XiR P8208 (GPS)

1. 32 channels
2. Tri-color LED indicator
3. Emergency button
4. New accessory connector
5. DP3400 with integrated GPS module
6. Large, easy-to-use navigation buttons
7. IP57 submersible.
8. Powerful, front projecting speaker
9. Three side and two front programmable buttons
10. Large, textured push-to-talk button.

# MOTOTRBO Display Mobile Radio Features

XiR M8260
XiR M8268 (GPS)

1. **Rugged durable accessory connector**
2. **Multi-colored LED indicators**
3. **Large, easy-to-use volume knob.**
4. **DM3601 with integrated GPS module**
5. **1000 channels.**
6. **Powerful, front-projecting speaker**
7. **Large, easy-to-use navigation buttons**
8. **Flexible, menu-driven interface with user-friendly icons**
9. **Four programmable buttons**
10. **Compact and ergonomically friendly speaker microphone.**

Note: DM3600 is not upgradeable to GPS

# MOTOTRBO Numeric Display Mobile Radio Features

1. **Rugged durable accessory connector**
2. **Multi-colored LED indicators**
3. **Large, easy-to-use volume knob.**
4. **DM3401with integrated GPS module**
5. **Large, easy-to-use navigation buttons**
6. **Powerful, front-projecting speaker**
7. **32 channels**
8. **Two programmable buttons**
9. **Compact and ergonomically friendly speaker microphone.**

XiR M8220
XiR M8228 (GPS)

# MOTOTRBO Repeater Features

1. 16 channels
2. 100% continuous duty cycle at Maximum Tx Power (40W UHF, 45W VHF)
3. Two simultaneous voice or data paths
4. Integrated power supply.
5. Operates in analog or digital mode
6. LEDs clearly indicate transmit and receive modes
7. Rack- or wall-mountable
8. Sturdy handles make installation and handling easier.
9. Automated battery back up

# WIRELESS ACCESSORIES

***Wireless Adapter***

***Wireless PTT***

***Wireless Earpiece***

***Off-the-shelf Bluetooth headsets***

# IMPRES™ Smart Energy System

- No manual battery maintenance
- Optimized cycle life
- Multi-unit chargers that communicate
- Chargers compatible with non-IMPRES batteries
- Extended battery warranties
- IMPRES 1500 mAH Li-ion battery and single unit charger ship with standard package (13 hrs @ 5/5/90)
- Optional Higher capacity IMPRES 2200mAH Li-ion battery for longer talk time (19hrs @ 5/5/90)
- IMPRES FM 1400 mAH Li-ion battery available

# IMPRES™ Smart Audio Accessories

- Offer enhanced performance and capabilities
- Radio-accessory communication enables adaptive and superior audio performance
- Create consistent audio levels across different accessory types
- Programmable buttons allow customization to improve productivity
- Increased volume level due to a more linear frequency response & increased audio gain capability

# New Audio Accessory Connector

- Accessory programmable buttons available for feature programming
- Enables enhanced performance and capabilities
- Meets IP57 submersibility standards (portable models only)
- Incorporates antenna signal within audio connectors for easy use of RF signal accessories
- Incorporates USB capability
- Motorola standard audio accessory interface
- Enhanced audio functionality resulting in more consistent output across audio accessory types

# MOTOTRBO Accessories

**Audio**

*Variety of audio accessories for enhanced radio experience*

**Batteries**

*Offer superior and long-lasting performance with IMPRES batteries*

**Chargers**

*Provides adaptive, automatic reconditioning for IMPRES batteries to maximize talk time and cycle life*

**Carry Devices**

*Provides equipment protection and convenient usage*

**Mobile Accessories**

*Advance microphones, remote mount kits and accessories to enhance the mobile radio*

# Ideal for Manufacturing

- Effective in noisy environments due to noise canceling technology.
- Easy migration permits easy addition of radios to system resulting from staffing changes.
- Text messaging and location services technology helps communicate with staff located in expansive facilities.
- Emergency signaling addresses safety and security concerns.

# THANK YOU...