MOTOTRBO CAPACITY MAX

- Next generation trunking solution
- Increased capacity and scalability
- Enhanced performance and feature-set
- Improved management and monitoring
- DMR Tier III Mode of Operation

CAPACITY, COVERAGE AND CONTROL
## MOTOTRBO SYSTEMS PORTFOLIO

<table>
<thead>
<tr>
<th>IP SITE CONNECT</th>
<th>CAPACITY PLUS (Single/Multi-Site)</th>
<th>CAPACITY MAX</th>
<th>CONNECT PLUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONVENTIONAL</td>
<td>TRUNKING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 – 15 SITES</td>
<td>1 – 15 SITES</td>
<td>1 – 15 SITES</td>
<td>1 – 250 SITES</td>
</tr>
<tr>
<td>UP TO 200 USERS*</td>
<td>UP TO 1600 USERS/SITE*</td>
<td>UP TO 3000 USERS/SITE*</td>
<td>UP TO 3000 USERS/SITE*</td>
</tr>
<tr>
<td>BASELINE COVERAGE</td>
<td>COST EFFECTIVE CAPACITY</td>
<td>COVERAGE, CAPACITY AND CONTROL</td>
<td>EXCEPTIONAL COVERAGE</td>
</tr>
</tbody>
</table>

*Maximum capacity, based on standardized low traffic call model

MOTOROLA SOLUTIONS GENERAL BUSINESS USE.
MOTOROLA, MOTO, MOTOROLA SOLUTIONS and the Stylized M Logo are trademarks or registered trademarks of Motorola Trademark Holdings, LLC and are used under license.
All other trademarks are the property of their respective owners. © 2016 Motorola Solutions, Inc. All rights reserved.
SUPPORTING STANDARDS

- Motorola Solutions is a strong supporter of industry standards
- We actively participate in all 3 major LMR standards: DMR, TETRA and APCO P25
- Founding member of DMR Association
- MOTOTRBO was first DMR solution compliant with Tier II mode of operation
- MOTOTRBO Capacity Max is compliant with DMR Tier III mode of operation
SYSTEM TOPOLOGY

Efficient operation
Flexible deployment
Scalable architecture

- Single system-level server for control and management
- Up to 15 voice and data repeaters/site
- Up to 6 additional data revert repeaters/site
- Centralised gateways for Control Room Solutions and Applications

*Standardised low traffic call model
CAPACITY MAX SYSTEM SERVER

- Contains the system-level functions:
  - Trunking Controller:
    - Resource Mgt, Call Control, Registration, Authentication
  - System Advisor Server
    - System Fault Management and Call Monitoring
  - MNIS Voice/Radio Command (VRC) Gateway

- Supports up to 100 voice talkpaths
  - Expansion servers may be provisioned

- Provides high availability platform
  - Includes dual power supplies and RAID disk architecture

- Includes embedded software update and backup/restore application
EFFICIENT, LOGICAL ARCHITECTURE

- Centralised control, distributed traffic
  - Reduces bandwidth requirement at the controller site
  - Reduces traffic latency
  - No requirement for individual site controllers

- Easy to deploy, optimise and expand

- Standard IP network
  - No requirement for multicast
  - No requirement for specialized interconnection
MULTI-LEVEL RESILIENCY

SERVER RESILIENCY
- Optional redundant server, geographically-separated if required
- If no controller is available, sites will function autonomously

IP SITE NETWORK RESILIENCY
- Optional second switch per site

SITE REPEATER ROLLOVER
- Control channel will rollover on failure (up to 4 channels)
- Redundant control channel repeater can be provisioned at each site

NO SINGLE POINT OF TRUNKING FAILURE
HIGHLY SECURE

• All subscribers are securely authenticated
  – Physical serial number, ID and key
  – Can configure individual access controls and restrictions
  – Remote disable / re-enable, with location tracking while disabled

• All voice and data traffic within the Capacity Max system is encrypted
  – Radio to Radio
  – Radio to Console (voice)
  – Radio to Telephony Server
  – Radio to Data Gateway (data)

• Architecture includes VPNs and support for firewalls
Capacity Max is optimised for the real world

- Responsive system access
- Robust operation under load
- Efficient mobility across sites
- Urgent calls/audio get through fast

Fast System Access Time  Improved Late Entry  Enhanced Registration  Voice Interrupt and Pre-emption  Optimised Roaming
MANAGEMENT AND MONITORING

- Centralised Configuration Management
  - Radio Management 2.0
  - Logical structure of system, infrastructure, and devices
  - Generates repeater and radio codeplugs

- Centralised Fault / Performance Management
  - System Advisor
  - Alarm and event management
  - Real-time call monitoring

- Detailed Performance Management
  - SmartPTT PLUS
  - TRBOnet PLUS

- Battery Management
  - IMPRES Over-the-Air Battery Management

- Infrastructure Management
  - Repeater Webpage Interface
  - Provides direct view of repeater status information
RADIO MANAGEMENT 2.0

• Professional system configuration management
  – Radio and infrastructure programming, with all information stored in database on a central server for faster, repeatable, low error programming
  – WiFi and/or over-the-air programming for radio no-touch updates and IP-network based programming for repeaters and the CMSS

• Delivers improved capability
  – Configuration of radios, repeaters, gateways, and controllers
  – License management for all features, including those on the CMSS
  – Can partially auto-generate radio and repeater codeplugs
SYSTEM ADVISOR

• Comprehensive fault management
  – Optimized for use with radio systems providing intuitive views of system health
  – Provides details status of all devices in the Capacity Max infrastructure
  – Provides multiple views and filters of faults to quickly identify and isolate problems

• Integrated call activity monitor
  – Critical real-time visual monitor of channel utilization
  – Reduces effort required for troubleshooting of performance issues
IMPRES BATTERY MANAGEMENT

- Collects battery data automatically, even while radios are in use
- Generates long-term records:
  - Battery performance
  - Charge history
  - Reconditioning history
- Allows early prediction of battery end-of-life
- Enhances battery traceability and user accountability
SUPPORTED PRODUCTS

EXISTING MOTOTRBO™ PRODUCTS SOFTWARE UPGRADABLE TO CAPACITY MAX

DP3441/DP4441e
DP4000/DP4000e SERIES
DP4400 DP4401 DP4600 DP4601 DP4800 DP4801 DP4401 Ex DP4801 Ex

SL4000/SL4000e SERIES

DP4600 DP4601 DP4400 DP4401 Ex DP4401 Ex

DM4000/DM4000e SERIES
DM4400 DM4401 DM4600 DM4601

SLR8000
MTR 3000
SLR 5000 Series
DR3000 Series (NOTE: 32 MB version only)

MOTOROLA SOLUTIONS GENERAL BUSINESS USE
MOTOROLA, MOTO, MOTOROLA SOLUTIONS and the Stylized M Logo are trademarks or registered trademarks of Motorola Trademark Holdings, LLC and are used under license. All other trademarks are the property of their respective owners. © 2016 Motorola Solutions, Inc. All rights reserved.
SMOOTH MIGRATION

- MOTOTRBO systems are simple and scalable
- Migration to Capacity Max is straightforward
- Your investment is safe

Single Site Conventional

Capacity Plus

IP Site Connect

Capacity Plus – Multi-site

Capacity Max
## SYSTEMS COMPARISON - SUMMARY

<table>
<thead>
<tr>
<th></th>
<th>IP SITE CONNECT</th>
<th>CAPACITY PLUS (SINGLE/MULTI SITE)</th>
<th>CAPACITY MAX</th>
<th>CONNECT PLUS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Scale</strong></td>
<td>Max Users/Site</td>
<td>200</td>
<td>1600</td>
<td>3000</td>
</tr>
<tr>
<td><strong>Sites</strong></td>
<td>1-15</td>
<td>1-15</td>
<td>1-15</td>
<td>1-250</td>
</tr>
<tr>
<td><strong>Channels/Site (Traffic + Data Revert)</strong></td>
<td>2 + 0</td>
<td>16 + 24 (Max 20)</td>
<td>29 + 12</td>
<td>29</td>
</tr>
<tr>
<td><strong>Architecture</strong></td>
<td>System Type</td>
<td>Conventional</td>
<td>Trunking</td>
<td>Trunking</td>
</tr>
<tr>
<td><strong>Controller</strong></td>
<td>-</td>
<td>No</td>
<td>Centralised</td>
<td>Per Site</td>
</tr>
<tr>
<td><strong>Controller Redundancy</strong></td>
<td>-</td>
<td>-</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Control Channel</strong></td>
<td>No</td>
<td>Rest Channel</td>
<td>Dedicated Channel</td>
<td>Dedicated Channel</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>Subscriber Access Control</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Subscriber Authentication</strong></td>
<td>RAS</td>
<td>RAS</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td><strong>Features</strong></td>
<td>Transmit Interrupt</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Remote Monitor</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Queuing (Levels)</td>
<td>No</td>
<td>Yes (10)</td>
<td>Yes (8)</td>
</tr>
<tr>
<td></td>
<td>Radio Enable/Disable (Stun/Revive)</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

MOTOROLA SOLUTIONS GENERAL BUSINESS USE. MOTOROLA, MOTO, MOTOROLA SOLUTIONS and the Stylized M Logo are trademarks or registered trademarks of Motorola Trademark Holdings, LLC and are used under license. All other trademarks are the property of their respective owners. © 2016 Motorola Solutions, Inc. All rights reserved.
Capacity Max will support all MOTOTRBO dispatch consoles:

- **SmartPTT PLUS**
  - Advanced wireline solution from Elcomplus LLC
  - Sold and supported by Motorola Solutions

- **TRBOnet PLUS**
  - Advanced wireline solution from Neocom Ltd
  - Sold and supported by Motorola Solutions

- **Telephony using Smart SIP technology**
  - Capacity Max supports centralised SIP telephony via SmartPTT PLUS & TRBOnet PLUS
APPLICATIONS

• Capacity Max will support the broad range of applications of the MOTOTRBO ADP program
  – Specific details will be communicated in the Applications Catalogue (updated quarterly)

• The WAVE workforce connectivity solution will be supported in an upcoming future release
## FEATURE CATEGORIES

<table>
<thead>
<tr>
<th>DMR Tier III Core Features</th>
<th>DMR Tier III Additional Features</th>
<th>MOTOTRBO Radio Features</th>
<th>Capacity Max Infrastructure Features</th>
<th>Capacity Max System Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Defined and included in IOP</td>
<td>Defined but not included in IOP</td>
<td>MOTOTRBO value-add</td>
<td>Capacity Max value-add</td>
<td>Capacity Max value-add</td>
</tr>
<tr>
<td>Registration</td>
<td>All Call</td>
<td>Emergency Call, Voice to Follow</td>
<td>Critical Site Assignment</td>
<td>Enhanced Channel Access</td>
</tr>
<tr>
<td>Group Call</td>
<td>Emergency Alert</td>
<td>Emergency Search Tone</td>
<td>Site Restriction</td>
<td>Subscriber Authentication</td>
</tr>
<tr>
<td>Private Call</td>
<td>Emergency Call</td>
<td>Extended Text Messaging</td>
<td>Subscriber Access Control</td>
<td>Site and Channel Extensibility</td>
</tr>
<tr>
<td>Group Broadcast Call</td>
<td>Dispatch Call</td>
<td>Telemetry</td>
<td>All Start</td>
<td>Site Trunking</td>
</tr>
<tr>
<td>Roaming</td>
<td>Telephony Call</td>
<td>Over-the-Air Programming</td>
<td>Control Channel Repeater Redundancy</td>
<td>Enhanced Registration</td>
</tr>
<tr>
<td>Short Text Message</td>
<td>Packet Data</td>
<td>Over-the-Air Battery Management</td>
<td>Call Queue Priority (via SAC)</td>
<td>Advanced Late Entry</td>
</tr>
<tr>
<td>Queue Call</td>
<td>Text Message (Standard)</td>
<td>Enhanced Roaming</td>
<td>Discreet Listening</td>
<td>Call Alert</td>
</tr>
<tr>
<td>Multisite (optional)</td>
<td>Radio Check</td>
<td>User-Selectable Audio Profiles</td>
<td>Enhanced Channel Access</td>
<td>High Efficiency GPS</td>
</tr>
<tr>
<td>AES (optional)</td>
<td>Radio Stun/Revive</td>
<td>Voice Announcement</td>
<td>Remote Repeater</td>
<td>Indoor Location Tracking</td>
</tr>
<tr>
<td>Radio Monitor</td>
<td>Radio Check</td>
<td>Text to Speech</td>
<td>Programming</td>
<td>Data Revert</td>
</tr>
<tr>
<td>Key-based Authentication</td>
<td>Call Pre-emption</td>
<td>IMPRES Energy</td>
<td>Wireline Application Interface</td>
<td>...</td>
</tr>
<tr>
<td>Voice Interrupt</td>
<td>Mass Registration</td>
<td>IMPRES Audio</td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>Late Entry</td>
<td>Talkgroup Affiliation</td>
<td>Acoustic Feedback</td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>Suppressor</td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>Trill Enhancement</td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>Bluetooth Audio and Data</td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>...</td>
<td>...</td>
<td>Man Down and Lone Worker</td>
<td>...</td>
<td></td>
</tr>
</tbody>
</table>
Capacity Max Licensing

**Infrastructure**
- Capacity Max Advantage Repeater
  - Advantage Mode
- Capacity Max Full Repeater
  - Advantage Mode
  - Open System Mode
- Capacity Max CMSS Licenses (*Several*)

**Radio**
- Capacity Max Advantage Radio
  - Advantage Mode
- Capacity Max Full Radio
  - Advantage Mode
  - Open System Mode
  - Open Radio Mode

**Advantage Mode:** MOTOTRBO Capacity Max infrastructure, MOTOTRBO radios

**Open System Mode:** MOTOTRBO Capacity Max infrastructure, Mixed radios

**Open Radio Mode:** 3rd party infrastructure, Mixed radios
### CAPACITY MAX OPERATING MODES

<table>
<thead>
<tr>
<th>Mode</th>
<th>Infrastructure</th>
<th>Radios</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advantage Mode</td>
<td><strong>MOTOTRBO Capacity Max</strong></td>
<td><strong>MOTOTRBO</strong></td>
</tr>
<tr>
<td>Open System Mode</td>
<td><strong>MOTOTRBO Capacity Max</strong></td>
<td><strong>Mixed MOTOTRBO and 3rd-Party</strong></td>
</tr>
<tr>
<td>Open Radio Mode</td>
<td><strong>3rd-Party</strong></td>
<td><strong>Mixed MOTOTRBO and 3rd-Party</strong></td>
</tr>
</tbody>
</table>
CAPACITY MAX ADVANTAGE MODE

Capacity Max Infrastructure

DMR Tier III Core Features
DMR Tier III Additional Features
No 3rd-Party Radio Interoperability

MOTOTRBO Radios

MOTOTRBO Radio Features
Capacity Max Infrastructure Features
Capacity Max System Features
CAPACITY MAX OPEN SYSTEM MODE

Capacity Max Infrastructure

DMR Tier III Core Features
DMR Tier III Additional Features
MOTOTRBO Radio Features

MOTOTRBO + 3rd-Party Radios

Capacity Max Infrastructure Features
Capacity Max System Features

(Interoperability guaranteed between MOTOTRBO radios)
(Only available for MOTOTRBO radios, with feature limits)
CAPACITY MAX
OPEN RADIO MODE

3rd-Party Infrastructure

MOTOTRBO + 3rd-Party Radios

DMR Tier III
Core Features

DMRA IOP
Certified

DMR Tier III
Additional Features

(Interoperability may be possible)

MOTOTRBO
Radio Features
# SERVICE PACKAGES FOR CAPACITY MAX

## Packages

<table>
<thead>
<tr>
<th></th>
<th>Essential</th>
<th>Essential Plus</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>5 Years Coverage</strong></td>
<td>✅</td>
<td>✅</td>
</tr>
<tr>
<td><strong>Remote Technical Support:</strong> 9AM-5PM CET, Mon-Fri</td>
<td>✅</td>
<td>✅</td>
</tr>
<tr>
<td><strong>Non Technical Telephone Support:</strong> 9AM-5PM CET, Mon-Fri</td>
<td>✅</td>
<td>✅</td>
</tr>
<tr>
<td><strong>Software Releases</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
<td>✅</td>
<td>✅</td>
</tr>
<tr>
<td><strong>Infrastructure Repair</strong>&lt;sup&gt;2&lt;/sup&gt;</td>
<td></td>
<td>✅</td>
</tr>
</tbody>
</table>

(1) Software releases comprises of minor and major releases and update subscriptions
(2) Infrastructure repair includes server and networking equipments
CAPACITY MAX: SUMMARY

Next-Generation Trunking Solution
High performance built on real-world experience

Complete Control
Comprehensive configuration and optimisation

Smooth Migration and Scalability
Careful integration with MOTOTRBO systems portfolio

DMR Compliant
Interoperability with 3rd-party infrastructure and radios