



# **BF-9500 ETX**

## **Professional Digital Trunking System**

[www.belfone.com](http://www.belfone.com)

**Belfone**  
Communications for Efficiency and Safety

# OVERVIEW



Founded in 1989, BelFone, a state-level high-tech enterprise, is a leading technology and solution provider of mission and business critical communications, with our focus on the field of professional radio communications and our clients all over the globe.

With over 30 years of experience and expertise, we are dedicated to bringing the best out of the evolvement of different communications technologies and empowering our customers with integrated radio solutions such as broadband Trunking, narrowband Trunking, PoC Trunking, emergency response communication systems as well as command and dispatching systems.



## R&D STRENGTH

BelFone emphasizes a lot on innovation and has been investing over 10% of its annual revenue in R&D. At present, BelFone has 5 R&D centers in China and its R&D personnel account for about 30% of the total staff number. BelFone is the proud owner of nearly 100 intellectual property patents.

BelFone has been actively pioneering the development of PMR technologies through relentless R&D efforts and has now mastered the mainstream open standard technologies, such as DMR, PoC, LTE, 5G, and traditional analog communications. BelFone’s comprehensive product portfolio includes narrowband, broadband, convergent, mesh, as well as command and dispatch systems, which effectively help users to realize the integration of communication and management.



Our products and solutions provide enhanced efficiency, safety, stability and connectivity, helping users to get communication coverage, flexible networking, rapid deployment, visual command and Trunking features, benefiting a wide spectrum of sectors such as public safety, utilities, emergency response, energy, transportation, enterprises and businesses.



# SYSTEM OVERVIEW



BelFone ETX DMR Trunking system is an enhanced communication system based on DMR standard. Incorporating the latest DMR Trunking technologies, it integrates voice communication, data transmission, and trunked dispatch to manage different communication modes more intelligently and bring exceptional digital experience.

The system unites excellent performance, and is compatible with diversified digital/analog systems of different communication modes to help users upgrade and expand with ease. Characterized by integrated access, interconnectivity, and multilevel networking, this system brings full interconnectivity across modes/systems/departments/carriers for improved management efficiency and enriched management measures.

To tackle communication problems and satisfy the demands of different operating environments, BelFone has generated five DMR Trunking solutions including:

- Simulcast Solution
- Multi-Site Trunking Solution
- Single-Site Trunking Solution
- Converged Communication Solution
- VHF/UHF Solution
- Large Trunking Solution

# SYSTEM ADVANTAGE

## Better Network Extensibility

BeFone EXT DMR Trunking system adopts a text-based SIP protocol that could guarantee separation of call control and bearer function and perform soft switch. Therefore, enable DMR MSC to interconnect with other communication networks and provide convenience for add-value service development.

## Rich Dispatching Functions

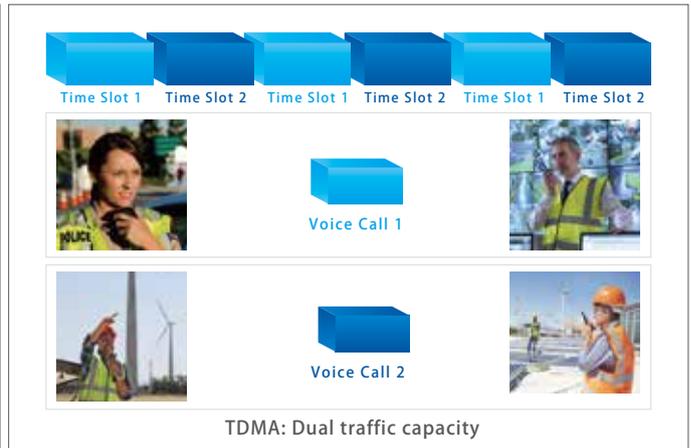
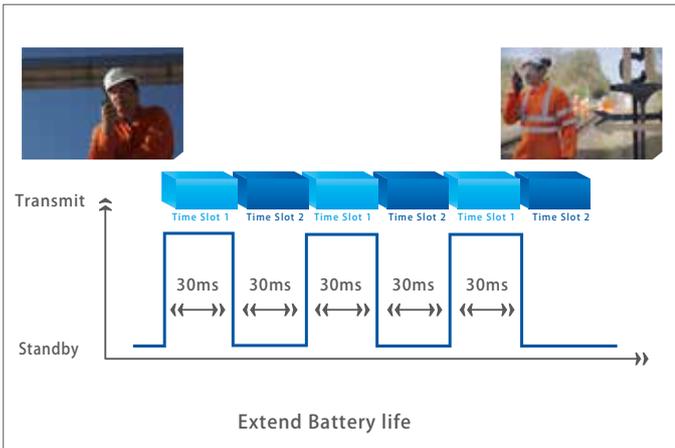
The system can effectively combine short messages, status messages, packed data and other data services with voice dispatching to provide rich dispatching functions.

## Longer Battery Life

The system incorporates TDMA technology to flexibly mobilize two channels interchangeably and lower battery consumption. Extending battery life by up to 40% compared with analog technology.

## Higher Spectrum Efficiency

With TDMA two time-slot technology to divide 12.5kHz wideband carrier into two time-slots which enables a single carrier to support 2 lines call( $\approx$ two 6.25kHz channels)and then double the communication efficiency.



## Multi-Layer Encryptions

With built-in multi-layer encryption technologies such as ARC4, AES256 and end-to-end encryption, software-based encryption and hardware-based encryption, ETX system can effectively ward off unwanted signals, and thus greatly increase system security and efficiency.

## Flexible Deployment



## High Reliability

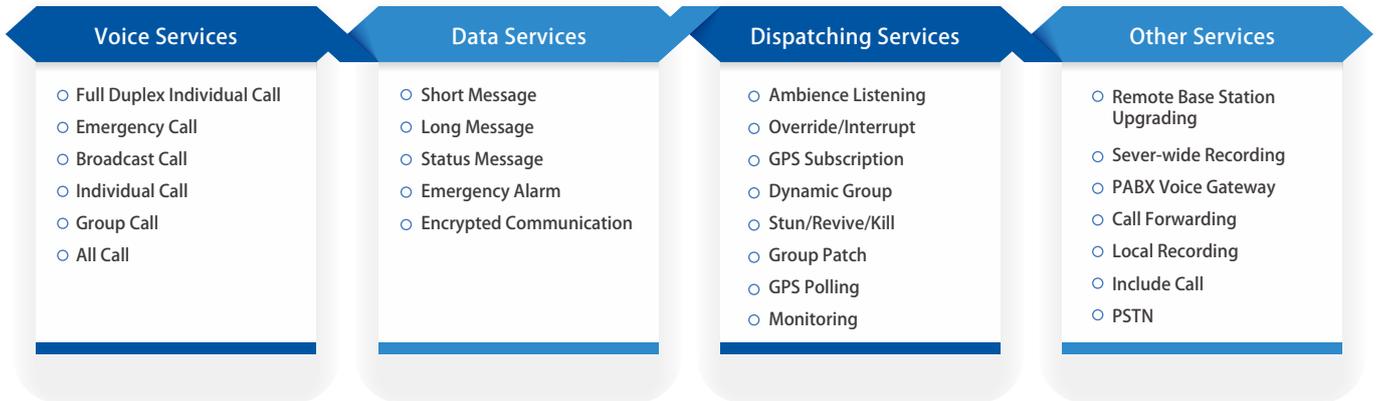
To avoid damage caused by device loss, file corrupt, data loss, and other accidents, the system adopts a more flexible backup policy to improve database security and bring quicker, safer, and more comprehensive redundant backup.



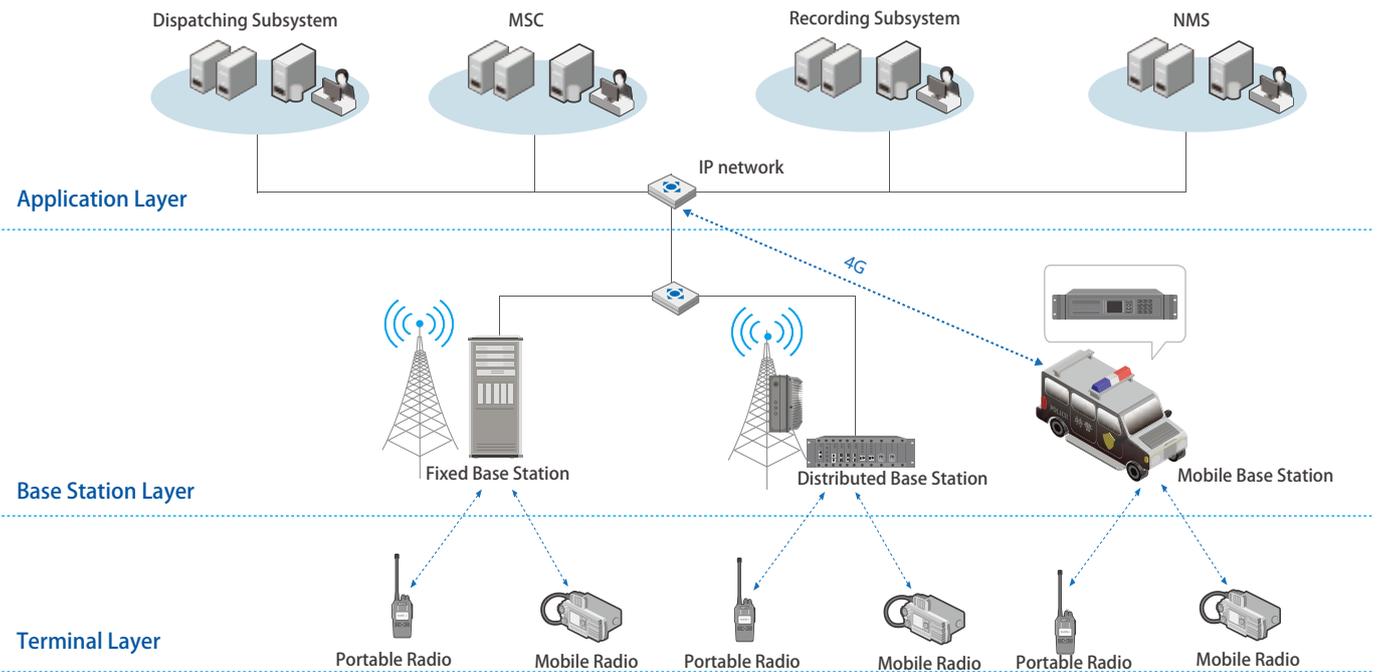


## Rich Application Services

Aside from quality voice, data, and dispatching services, the system supports rich supplementary services to satisfy different user demands. Also, the system can interconnect different systems by using the SIP protocol.



## Networking Topology



## Application



Police



Traffic Police



Armed Force



Private Trunking Operator



Fire Brigade

# SYSTEM COMPOSITION

## ● BF-TR950 Trunking Station UHF

BF-TR950 is a carrier level DMR Trunking base station designed with unit module, featured enhanced extensibility and rich functions. It supports failure fallback mode, inter-site call handling, whole site backup, and allows backup station to automatically take over to deliver enhanced reliability. BF-TR950 incorporates a perfect backup mechanism for key components of base station-controller, carrier, power supply, etc. Besides, it can also allow an online main module change to sustain long time operation and safeguarding smooth communication.

- Carriers Failure Isolation
- Blade Mounted Structure
- Key Components Backup
- Maximum 8 Carrier Per Site
- Base Station Failure Fallback
- Intelligent Fan Speed and Temperature Control



## ● BF-TR951 Trunking Base Station UHF VHF

BF-TR951 is designed with independent carrier and power supply to enhance reliability. With comprehensive functions to support failure fallback and inter-site call handling. Compliance with military level, BF-TR951 incorporates high performance channel unit and power module to provide reliable, stable services.

- Military Level Structure
- Distributed Carrier Solution
- Base Station Failure Fallback
- Special Power Supply for Carrier
- Carrier With Superior Heat Dissipation



## ● BF-TR955 Mobile Base Station <sup>UHF</sup>

BF-TR955 is an integrated mobile base station that designed compact structure, featured flexible deployment and wide applications. It is the best choice for emergency rescues, patrolling, and other emergency scenarios to establish Trunking communication network and achieve unified dispatching.

- High Reliability
- IP65 Protection
- Highly Integrated
- 2.8-Inch Display
- Flexible Deployment
- DPD Technology
- Wide Coverage
- 5-Carriers & 8-Carriers



## ● BF-TR952 Distributed Trunking Base Station

BF-TR 952 is a cost-effective Trunking base station for fast network establishment. Functioned as network access device, BF-TR952 is used to manage wireless access including air interface management, access control, mobility control, user resources assignment, etc.

BF-TR952 consists of BBU952 and RRU952. Its flexible distributed design satisfies different networking requirements and brings better covering performance.

## ● BF-RRU952 Remote Radio Unit <sup>UHF</sup>

BF-RRU952 is the RF section of the distributed base station designed to meet user expectations in service, capacity, transmission, power supply, installation, and maintenance. Adopts an integrated structure to support pole mounting, wall mounting, and vertical mounting for improved covering capacity and saving feeders.

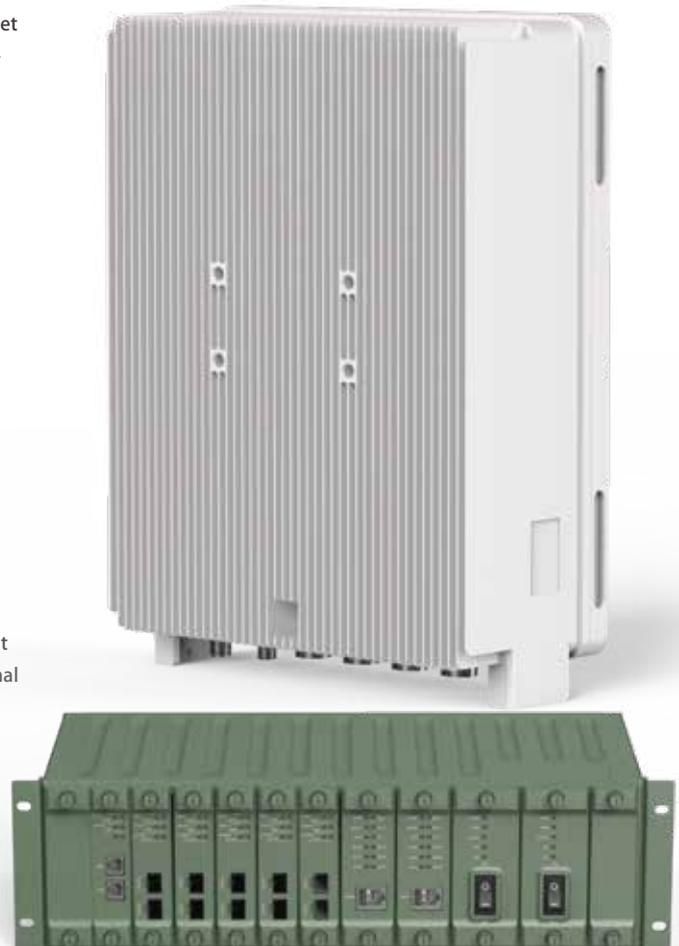
- IP67 Protection
- Aviation Plug
- Wide Applicability
- Maximum 4\*20W Output Power
- Specialized Power Supply for Carrier



## ● BF-BBU952 Base Station Controller

BF-BBU952 featured operation and maintaining functions and supports hot standby main units, hot plugs, as well as one site operation to provide signal procession service.

- Centralized Management
- Monitoring Device Signals
- Centralized Network Maintenance
- Interconnecting Transmission Networks



## ● BF-9500 Dispatching Management Platform

BF-9500 is a service-management-based command and dispatching system that integrates different communication modes. Based on subsystems of digital map, digital dispatching system, networking management system, and voice recording, it brings united command and management, helps to realize information sharing and improves response efficiency.

### ● GIS (Geographic Information System)



- Geo Fence
- Location Map
- Real-time Positioning
- Statistics and Analyze
- Query Historical Track
- Regional/Route Planning & Control

### ● Digital Dispatching System



- Remote Stun/Revive/Kill
- Individual Call/Group Call/All Call
- Broadcast Call/Emergency Call
- Long/Short Message, Status Message
- Emergency Alarm, Dynamic Group, Group Patch
- Override/Interrupt, Monitoring, Ambience Listening

### ● NMS(Network Management System)



- Element Management
- User/Configuring Management
- Failure Manage and Maintenance
- Safety/Performance Management
- Remote Upgrading & Smooth Expansion
- Standard SNMP(Simple Network Management Protocol)

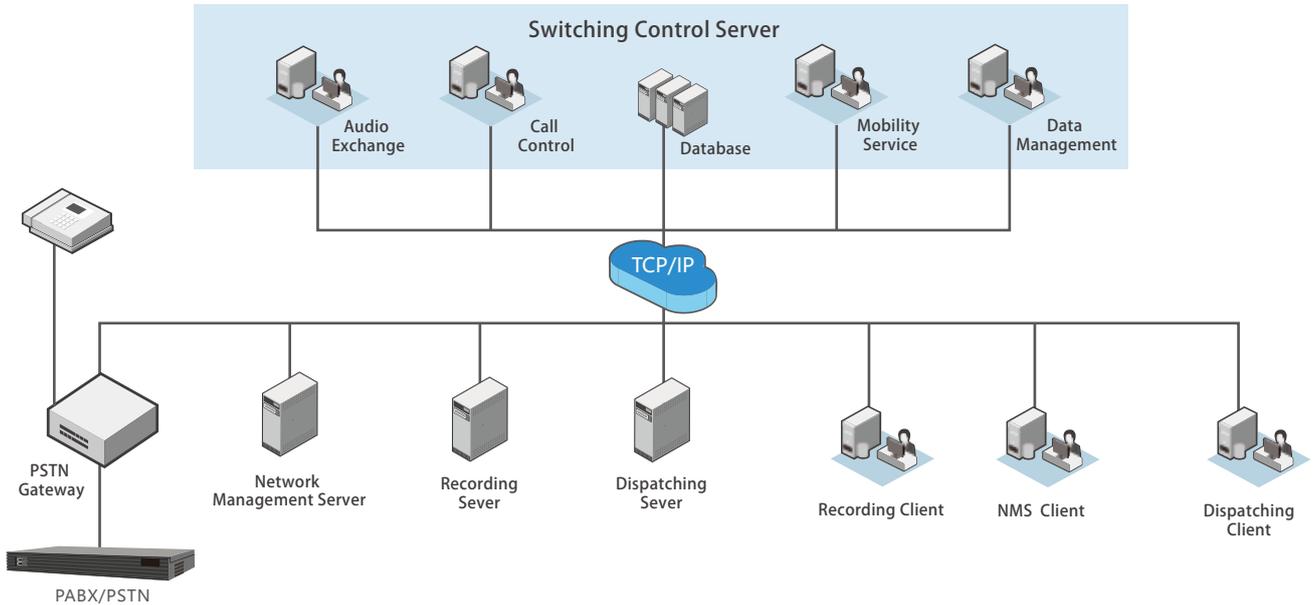
### ● VRS(Voice Recording System)



- Recording Statistics
- Recording Playback
- Multi-lines Recording
- Real-time Local Recording
- Configuring User Information
- Server-Wide Audio Recording

## ● MSC (Mobile Switching Center)

Consists of a switching control server, MSC dispatching server, network management server, recording server, and other interconnecting gateway equipment to interconnect system elements. Therefore, it conducts call control and voice exchange across base stations and systems and serves user mobility management, authentication, dispatching, network management, as well as system interconnection functions.



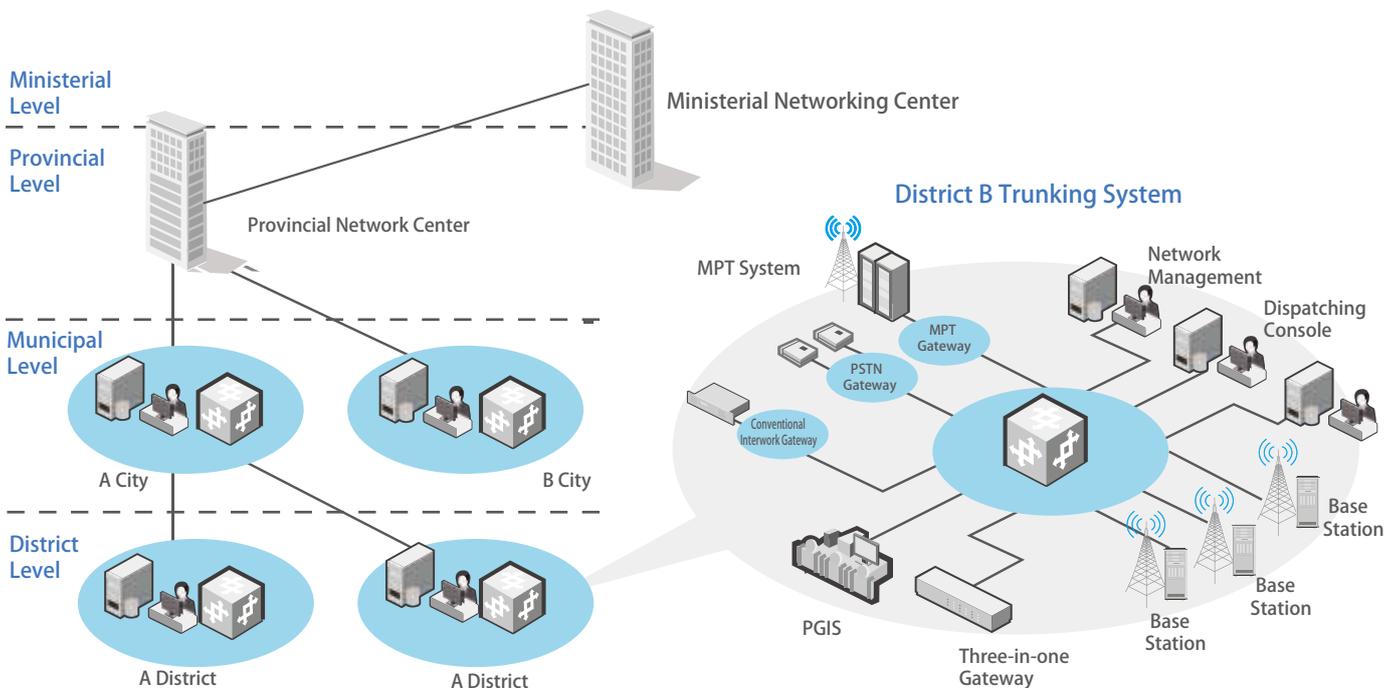
Single MSC  
MSC Distributed Networking

MSC Master/ Slave Networking  
Multi-MSC Interconnection.

## NETWORKING MODE

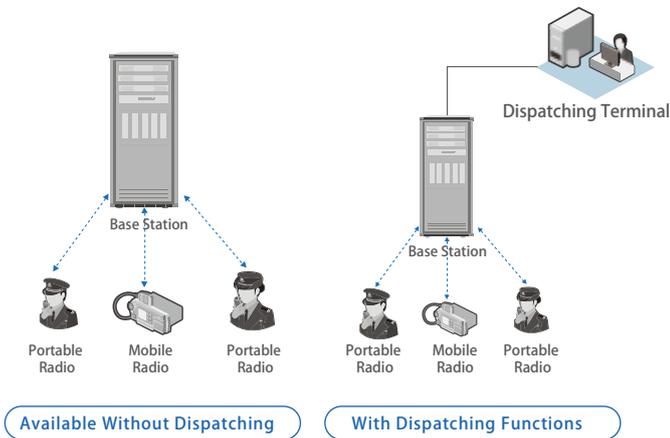
### ● Interconnecting Backbone Networks

Have district and county level Trunking system access to the prefecture-level network center to interconnect prefecture-level systems. And tandem prefecture-level network center to the Provincial network center to form a four level DMR network of districts, cities, provinces and ministries. Facilitates information sharing and timely information deliver to improve working efficiency.



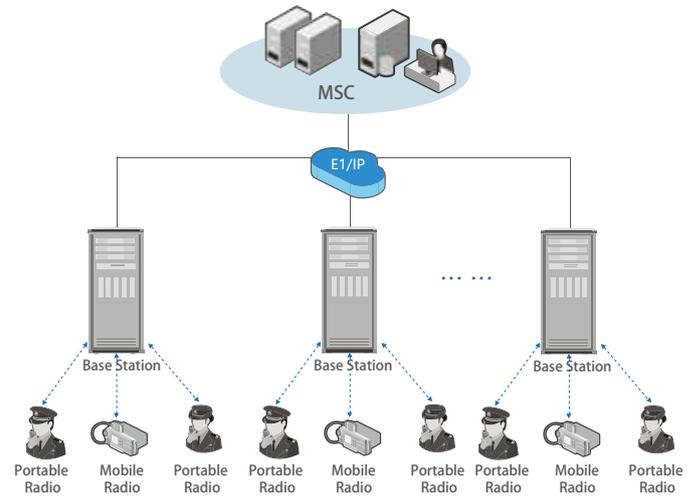
## ● One-Site Networking Solution

Users have the flexibility to networking on their covering range and service demands, and realize one-site networking.



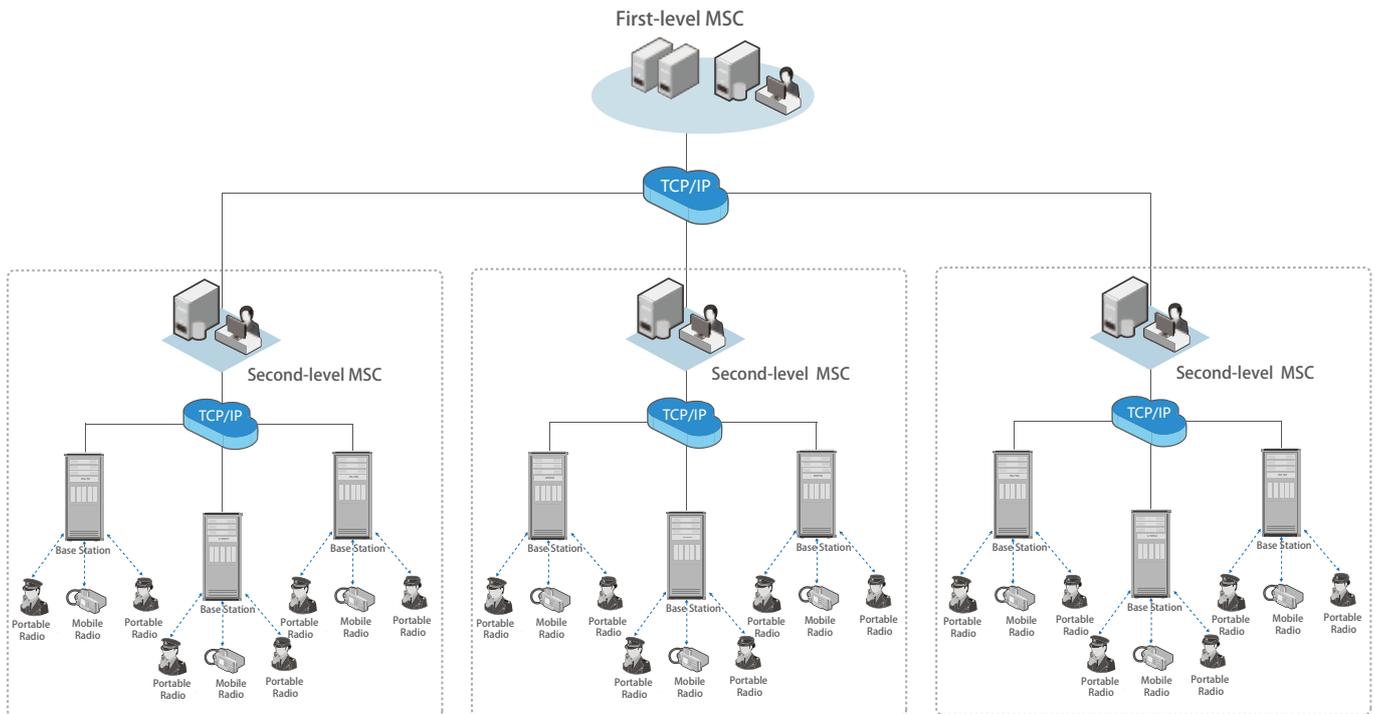
## ● One-MSC Solution

The system can be networked through the MSC and connect base station systems to the MSC via E1/IP link (can be fiber, microwave, 4G, satellite broadband, etc.) and realize one-site multi-base-station networking. Notice: the maximum networked base stations are 500.



## ● Multi-MSC Solution

The digital Trunking system can be configurable with first-level, second-level, and third-level MSC, through the E1/IP link to realize Multi-Base-Station networking.





## TERMINAL OVERVIEW

### ● BF-SCP970 Multimode Radio

Belfone smart converged radio BF-SCP970 is a revolutionary device that has integrated broad and narrow band as well as satellite communications, supporting GPS/ Galileo/-GLONASS navigation. It comes loaded with the Android operating system allows for the adaption of various proprietary software and provide an independent page for displaying dispatching information, making it flexible for applying different loading scenarios.

- WIFI
- PoC Trunking
- Dual Screen
- IP68 Protection
- UHF Narrowband
- Tiantong Satellite\*
- Satellite Positioning
- Narrowband Trunking
- 1300MP+800MP Pixels
- Dual Card Dual Standby



### ● BP860 /BP860 Explosion-Proof Radio

BP860 and BP860Ex are the new designed DMR radio with breakthrough advancements to cover a wider communication range, better audio effect, and quicker response. With user-friendly interactive design and excellent secure performance, BP860 and BP860Ex brings simple, comprehensive, and efficient communication.

- Ad Hoc\*
- Multiple Alarms
- IP68 Protection
- AI Noise Reduction
- Multiple Encryptions
- Satellite Positioning\*
- IIB Explosion Protection\*
- Superheterodyne Circuit
- Single Frequency Repeater
- Bluetooth/Voice Recording\*



## ● BF-TD950/BF-TD950Ex Portable Trunking Radio

BF-TD950 and BF-TD950Ex are DMR Trunking portable radio that incorporate powerful digital techniques and rich functions. Empowered with satellite positioning, Bluetooth, full duplex call, and other functions, BF-TD950 provides enhanced flexibility and ensures secure and efficient communication.

- UHF
- IP68 Protection
- Full Duplex Call
- Bluetooth Audio
- 2.0-Inch Display
- TF Card Encryption
- Satellite Positioning \*
- Advanced Encryption
- Large Capacity Battery
- IIB Explosion-Proof \*



## ● BP750/BP750Ex Explosion-Proof Radio

BP750 and BP750Ex are new enhanced DMR radios with extraordinary performance. With a superheterodyne circuit design, the products deliver superior RF performance. BP750/BP750Ex are empowered simple operation. Incorporates multiple networking mode conventional/system/virtual Trunking/Trunking/Ad Hoc) to satisfy diverse networking demands.

- Ad hoc \*
- Satellite Positioning\*
- Superheterodyne Circuit
- Single Frequency Repeater
- IIB Explosion-Proof\*
- IP68 Protection
- Multiple Alarm Modes
- Multi Versions & Functions



## ● BF-TD930/BF-TD930Ex Explosion-Proof Radio

BF-TD930/Ex are the professional DMR radio designed for durability that have certificated IP68 water & dust proof, MIL-STD-810G, and GJB150A-2009. With rich value-added features and versatile communication modes including conventional, digital Trunking, Ad Hoc, virtual Trunking, and intelligent dispatching.

- TTS\*
- Vibrating Alert
- IP68 Protection
- Full Duplex Call
- IIB Explosion-Proof\*
- Satellite Positioning\*
- Advanced Encryption Algorithm
- Optional Large Capacity Battery\*





### ● BF-TM950 Trunking Mobile Radio

BF-TM950 is an enhanced DMR radio delivers powerful voice and digital application capacity. With a flexible design it enables integrated mounting, base station installation, and panel separation installation to fit different deployment modes.

- Full Duplex Call
- Bluetooth Audio\*
- Satellite Positioning\*
- 2.8-Inch IPS Display
- Advanced Encryption
- Full Keyboard Microphone
- IP54 Waterproof & Dustproof
- TF Card Hardware Encryption



### ● BF-TM8250 Trunking Mobile Radio

BF-TM8250 high-cost-effective DMR mobile radio is designed with a superheterodyne circuit to deliver superior RF performance. It comes with a 2.0-inch display and full keyboard microphone for simple operation and supports both integrated mounting and base station installation, catering to different application scenarios.

- Full Duplex Call
- Bluetooth Audio\*
- Satellite Positioning\*
- Advanced Encryption
- Full Keyboard Microphone
- IP54 Waterproof & Dustproof



# SUCCESSFUL CASES

## 01 Case 1

Bureau of prisons of a certain province has authority over several precincts, to facilitate smooth daily service communication, the group had adopts BelFone analog system.

Timely and effective communication is essential in prison security and emergency management. Establishing wireless communication between prison guards is indispensable to unified command and dispatching.



## 02 Case2

To effectively meet the demand of integrated civil-military operation and provide diversity communication support for different task execute, this solution employs digital ultrashort wave and simulcast technology, deploys fixed base stations to cover communication needs of key locations and complement with mobile base stations and portable base stations. Specifically, the fixed base station adopts simulcast DMR Trunking technology, adopts the four-color principle for frequency reuse at the municipal level, optimally utilizes the command network to construct communication links for accessing the MSC; mobile and portable stations employed 4G public networks, satellite channels, wired private networks, and wireless private networks to access the core network on-demand.







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