



Hytera Integrated Command & Control Solution



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Hytera Communications Corporation Limited

Address: Hytera Tower, Hi-Tech Industrial Park North,Beihuan Rd.,
Nanshan District,Shenzhen,China

Tel: +86-755-2697 2999 Fax: +86-755-8613 7139 Post: 518057

Http://www.hytera.com Stock Code: 002583.SZ

Overview

Hytera provides world leading PMR solutions, and key applications to various types of command & control centers across the globe. From small Emergency Call Centers in developing countries, to large, state-of-art, multi-functional Command Centers in developed countries.

Our Command & Control applications can easily integrate with 3rd party platform and applications, such as CCTV, to provide a seamless, complete solution to global Public Security agencies, making cities safer.

The architecture of a typical Command & Control Center



Abbreviation list

IPCC	IP Contact Center	MESS	Major Event Security System
PMR	Private Mobile Radio	PUC	Professional Unified Communication
GIS	Geographic Information System	MUC	Multimedia Unified Communication
VCS	Visual Command System	VMS	Video Management System

Highlights

1 Professional

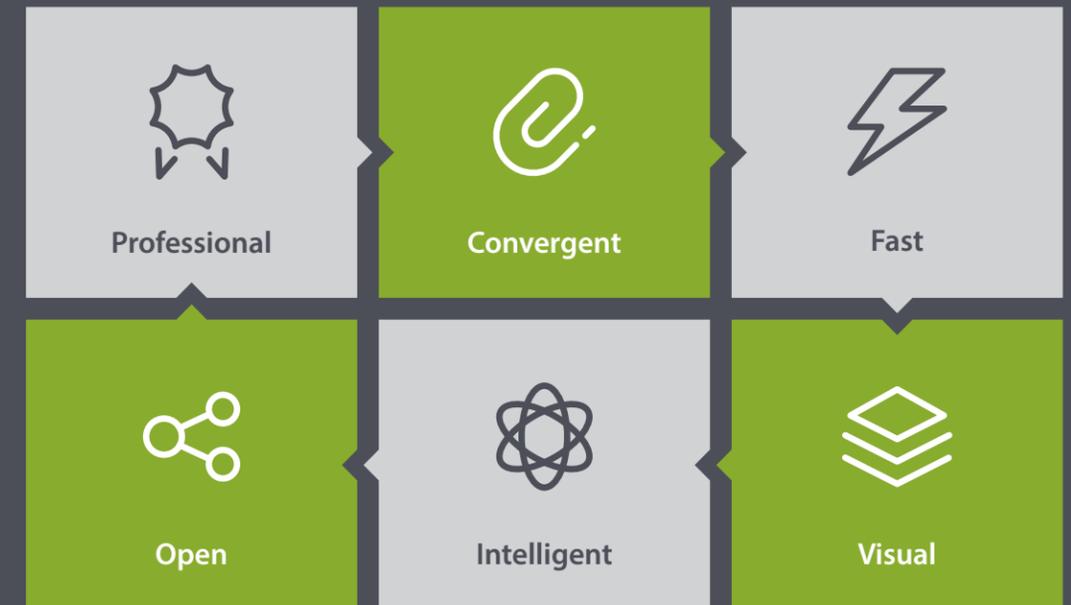
More than 25 years' experience in the Public Security industry, with successful applications in 120+ countries and regions across the globe, protecting the safety of over 1 billion people.

2 Convergent

Interconnection with Tetra, DMR, LTE, Analog Radios, public networks etc., providing seamless command control and communication across different agencies via voice, video and data.

3 Fast

Instant identification of risks and warnings, and automatic recommendation of response unit and resources help shorten the response time for more than 66%.



6 Open

Easy integration to 3rd party platforms and applications, such as CCTV, intelligent traffic, city dashboard and social media.

5 Intelligent

Intelligent functions like auto pre-plan and automatic caller selection and so on tremendously save time and effort for officers, facilitating decision making and working efficiency.

4 Visualised

Real-time display of incident location, police force distribution, CCTV cameras, and other resources on a single GIS map. Visualised statistics of historic incident data and police force deployment.

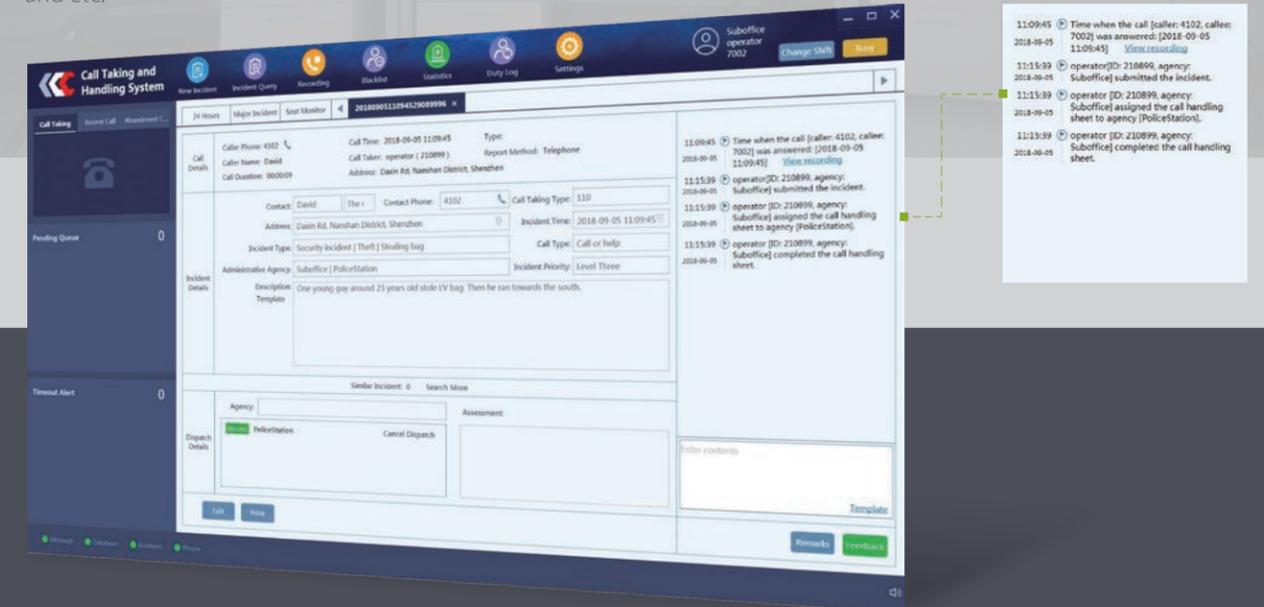
Daily Command

The typical workflow of Daily Command



3 Whole-process tracking and recording

Timeline-based tracking and recording of each step of the process, including incident status change, actions performed, voice calls, and etc.



Alarm Call-taking & Handling

This module provides the mechanism and tools for unified alarm call taking, incident information logging and recording, and select appropriate agencies to dispatch.

Upon receiving of the incidents, the dispatcher in the command center can either dispatch the incidents directly to the field officers or to the remote police stations.

Main features

1 Various alarm call taking measures

Supports alarm call taking through Emergency hotline, SMS, and Web/Mobile APP alarm.

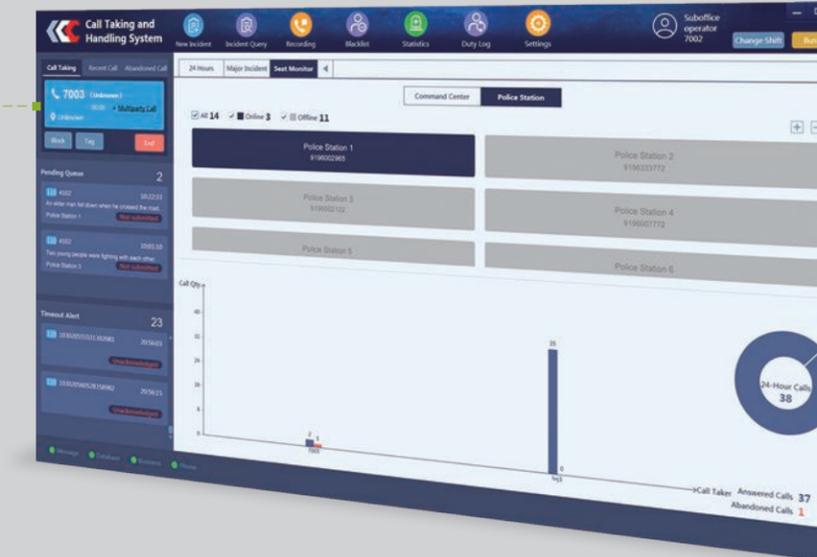
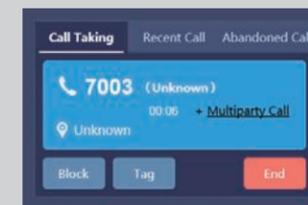
2 Automatically obtaining callers' information

Interconnect with public network operator's system to instantly obtain caller's information, i.e. phone number, caller name, and address.



4 Advanced supervisory

Client users with supervisor privileges have additional features, including call statistics view, user status monitoring, listening and intervention of ongoing alarm calls.

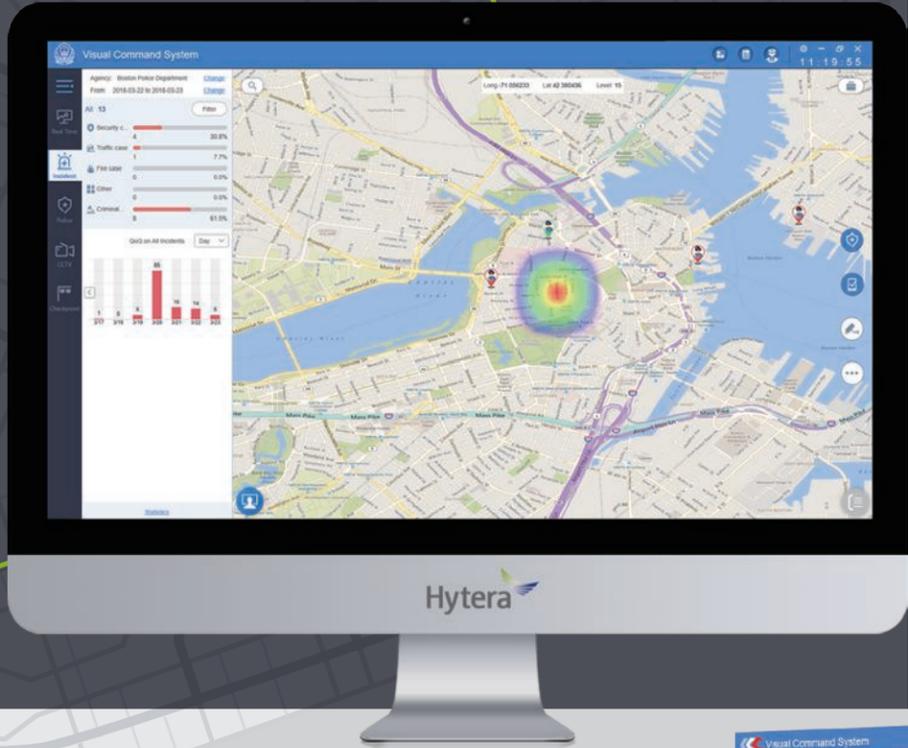


5 Combination of the C/S and B/S architecture

Client software can be installed in the command center consoles to provide rich functions for operators. While in the remote police stations, officers can use the easy-to-use web browser interface for incidents receiving.

Visual Command System (VCS)

By displaying incident locations, police units, and other police or emergency resource such as video surveillance cameras, checkpoints and critical infrastructures on a single GIS-map, VCS provides dispatchers a comprehensive view of incident status and available resource. With auto recommendation and easy selection of first responders and resource on a map, the system empowers dispatchers to make accurate decisions and fast responses.

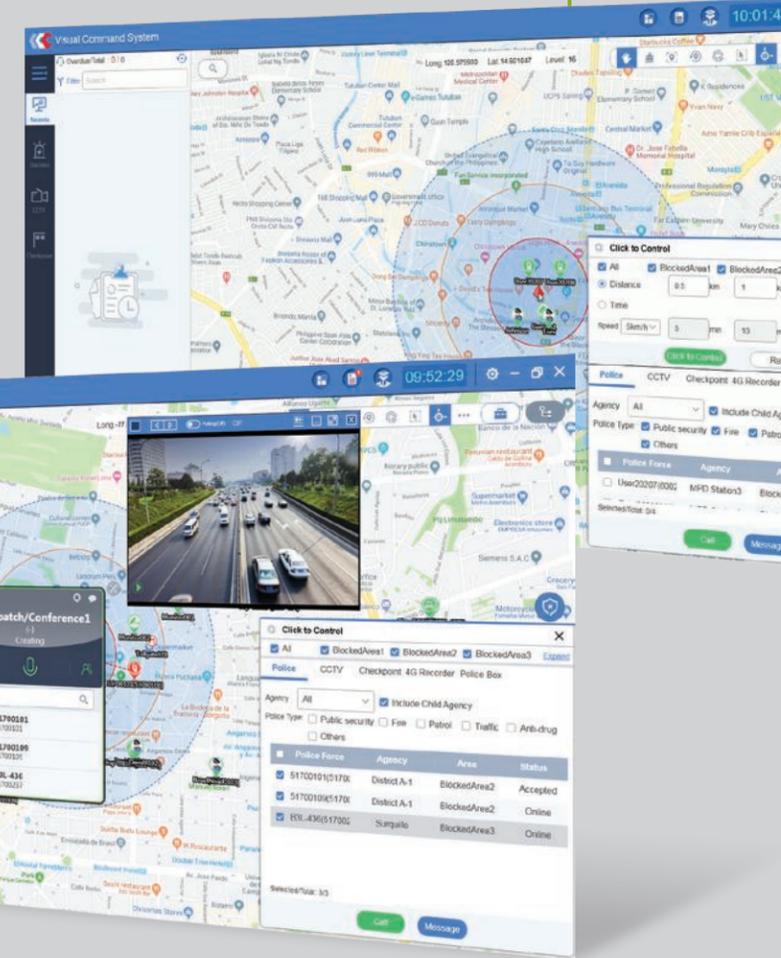


5 One-click control

- One click on a target point to generate three concentric circles with configurable radius;
- Available resources will then be displayed in each circle by category;
- The operator can perform batch processing such as group calls, SDS/SMS and video display for fast joint capturing operation.

4 Seamless integration with 3rd party CCTV system

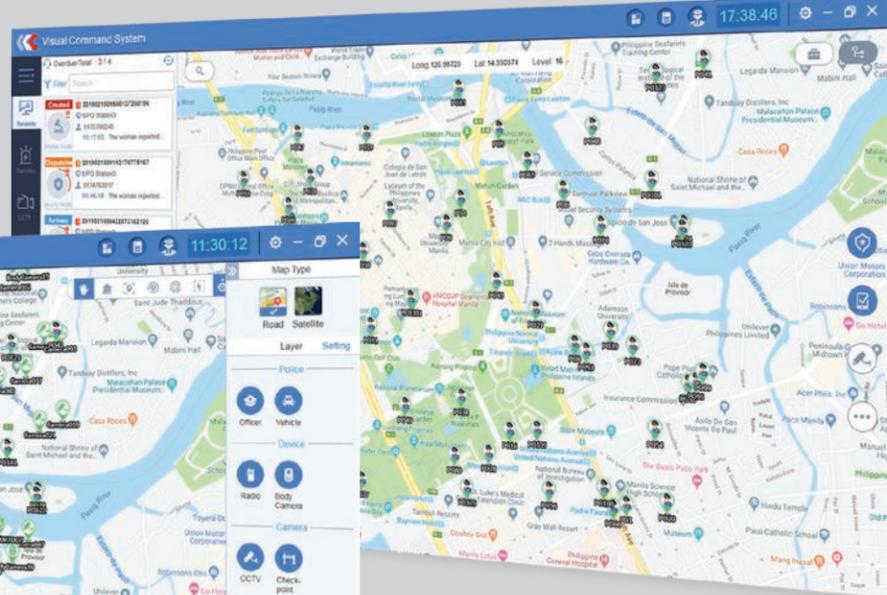
- Display CCTV camera locations on the map
- View real-time video captured by CCTV cameras
- Grouping of cameras by agency/activity/incident/area
- Supports up to 3x3 display



Main features

1 Unified display of resource

All the available resource can be displayed on one single map, such as police officers, police vehicles, incident locations, CCTV cameras, IoT sensors, and etc.

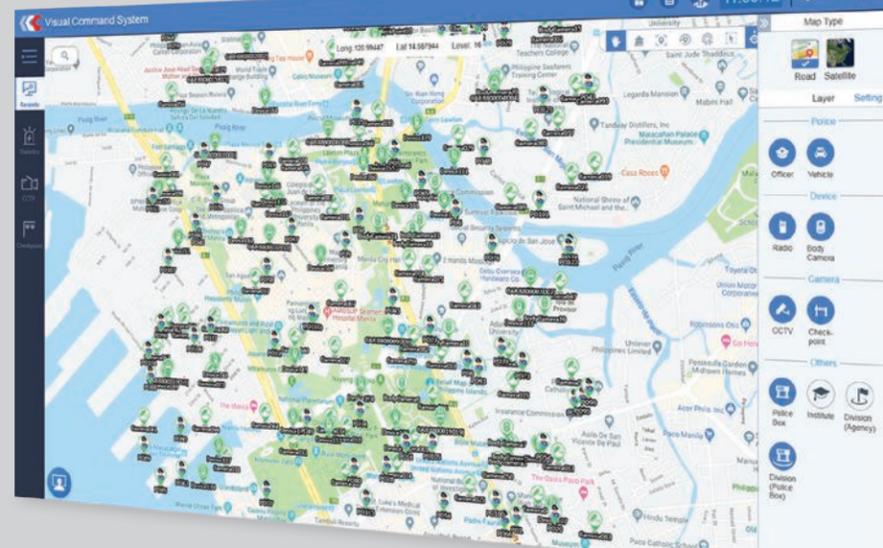


3 Rich communication functions supported

- Voice calls to public network and PMR respectively
- Individual, group call, DGNA, cross patch in PMR
- Conference call across public network and PMR, allowing a 3 parties call among the alarm caller, dispatcher and officers in the field
- Video calls as well as multimedia messages
- On-site video pulling

2 Controllable and traceable incident handling process

- Real-time display and tracking of police officers' location
- Timeline based recording and display of the entire process including; action performed, incident status change, SMS and voice calls involved
- Timeline based instant playback voice and video calls



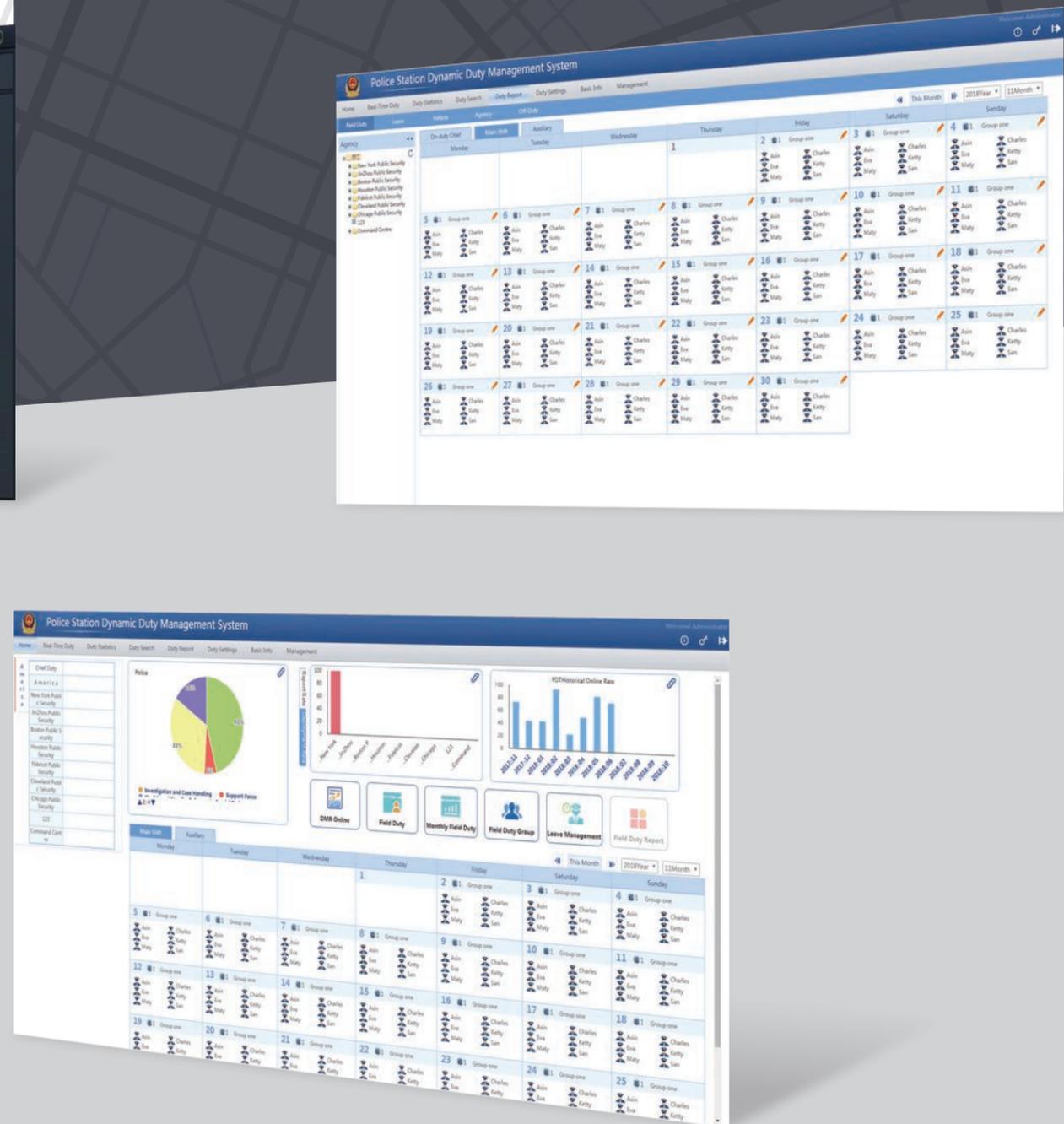
Alarm Incident Analysis (AIA)

As a web application, this module receives incident data and resource deployment data for specified areas periodically from other modules, and then generates visualized reports in various forms such as charts, 4-colour maps for a comprehensive view to assist directors in more accurate decision making.



Duty Management

As a web application, this module is designed for staff and equipment information management, shift management, real-time display of field officers and equipment status on map, historical tracking, and statistics.



Major Event Command

Major Event Security System (MESS)

Designed for security and emergency response at major sports events, festivals and summits as well as disaster rescue, the MESS provides pre-event scheme and task design, resource deployment and route security planning.

During an event security force monitoring and dispatch, real-time surveillance camera video viewing, and comprehensive situation display is available for better awareness.

For post-event, reports are available for reviewing the security scheme and tasks, allowing for assessments and potential improvements.

3 Easy deployment of various posts

- Various functional posts available and configurable, i.e. commander, patroller, traffic guide, fire inspector and etc.
- One click to place a post on any location of the map
- Select and Drag to assign security units to post

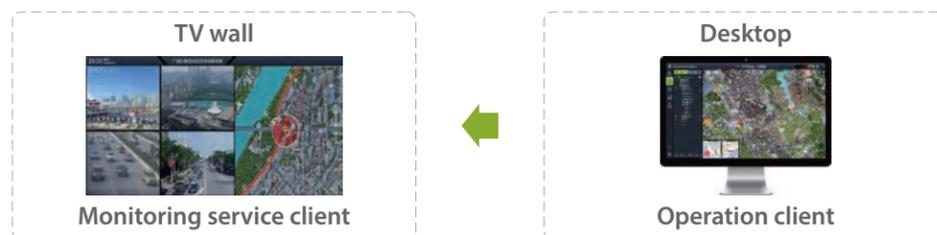
Main features

1 Abundant information integration and display



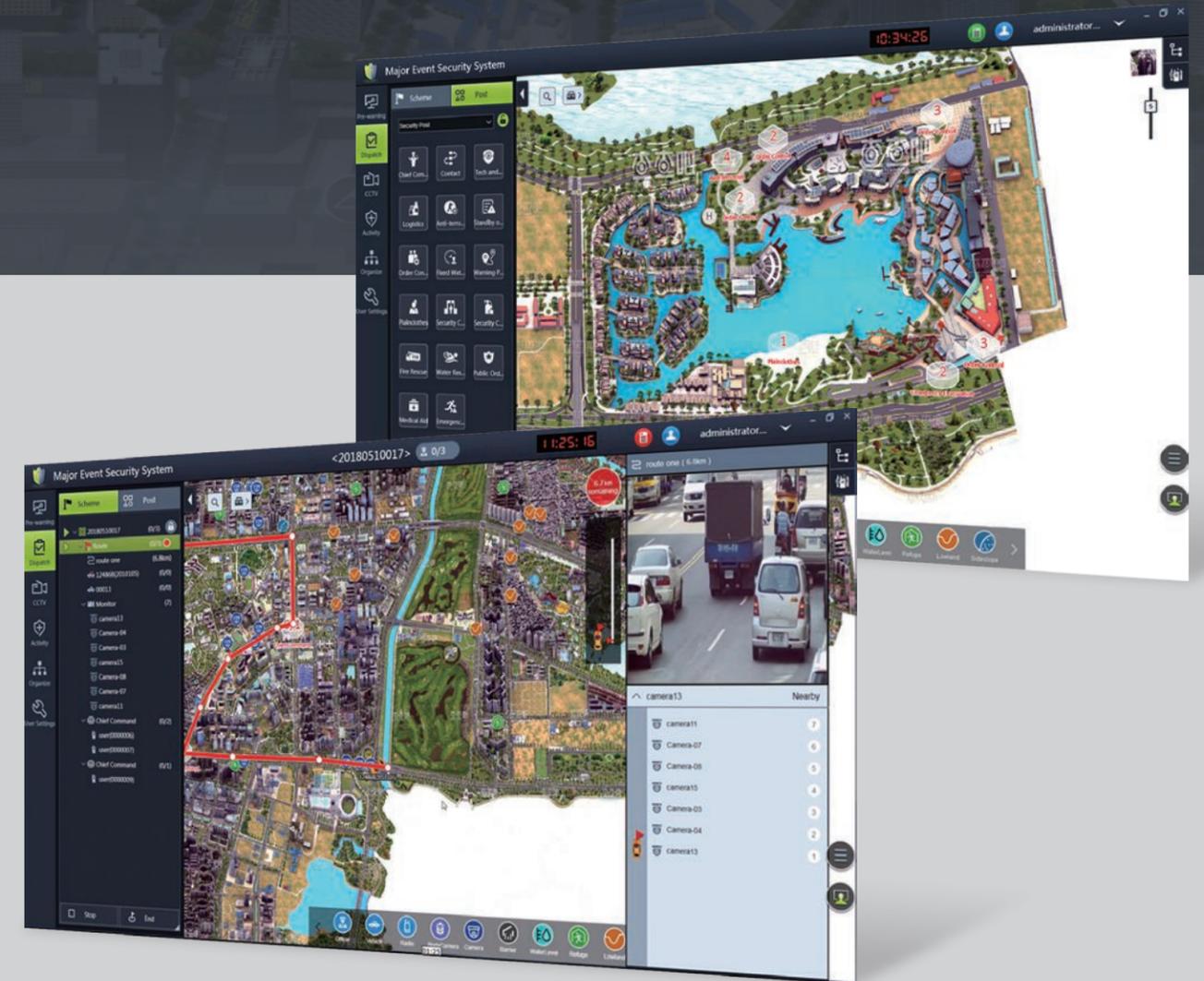
2 Separation of monitoring service client and operation client

A separate client to display monitoring services on a video screen whose layout is configurable by operation client.



4 Convenient and comprehensive route security

- Easy drawing of security routes on the map, setting of guide & tail cars, security posts along the routes, and inclusion of surrounding CCTV cameras
- Notice to relevant posts or guided vehicles during the event, including kick-off time, fleet approaching, surrounding risks, and etc.
- Automatic display of nearest CCTV cameras around the fleet



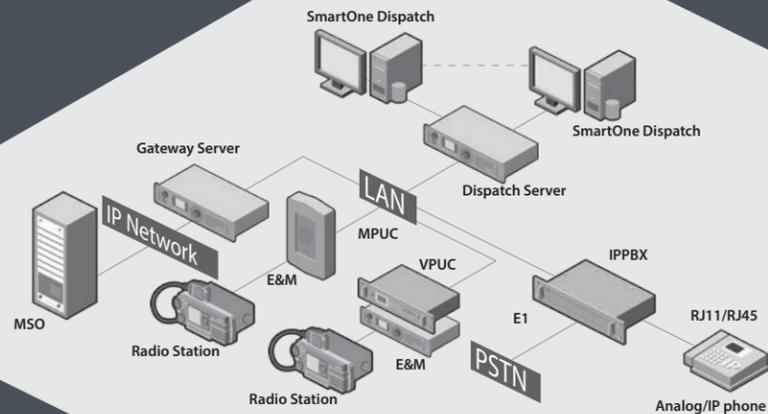
Unified Communication Platform

Professional Unified Communication (PUC) Platform

The PUC supports interconnection and unified voice dispatch across multiple voice communication systems and terminals; including PMR systems such as digital trunked radio (DMR/TETRA), digital conventional, analog trunked radio, analog conventional, public network systems such as PSTN, PLMN, and VoIP.

The PUC also provides visualized dispatch based on the map and a real-time poll of radios' GPS data. The PUC supports for flexible networking to enable flat and multi-level dispatch.

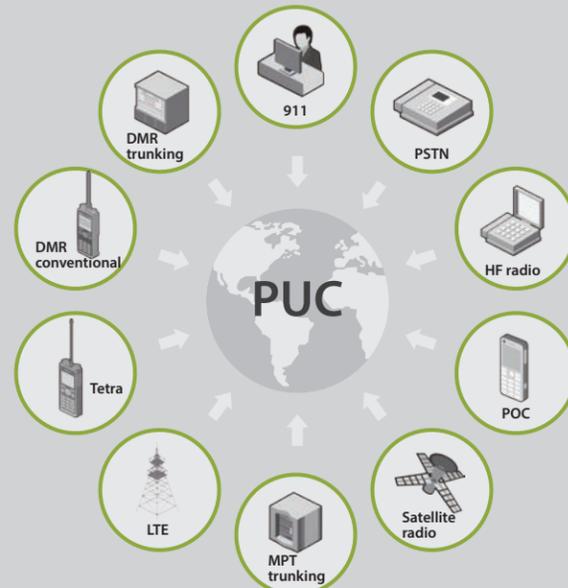
Interconnection Topology



Main features

1 Interconnection between various kinds of systems

- Support wired and wireless access by MPUC, VPUC and Server Gateway
- Support multiple communication interfaces, such as API, ISSI, CSSI, and SIP
- Support access of various systems, such as TETRA, DMR, MPT, XPT, PSTN, PABX, and UHF



* To see more about MPUC and VPUC gateway, please check the PUC product brochures

2 Diverse voice and message dispatch functions

- Support individual calls, group calls, crosspatch, broadcast calls, priority calls, emergency calls, conferences, concurrent calls, call interruption, call overriding, call transfer, call hold and resume, call alert, discreet listening, ambience listening
- Support status and text messages

3 Map-based dispatch

- Periodical pulling of radios' GPS data
- Display of real-time locations of radios on the map
- Calling or messaging directly on the map

4 Unified dispatch

- All systems and radios can be operated on one interface
- Users can create several workspaces for different kinds of operations
- Functions can be controlled by license



5 Hot standby

- The dispatch server supports hot standby which enables quick switch to the standby server whenever the active one fails

6 Open platform

- Support access of third-party systems through APIs or by Standard protocols such as CSSI, ISSI, or SIP
- Support being invoked by 3rd party systems through APIs, web services, or OCX interfaces

7 Multi-level dispatch

- Support inter-sectors and multi-level dispatch through server interconnection and unified authority management

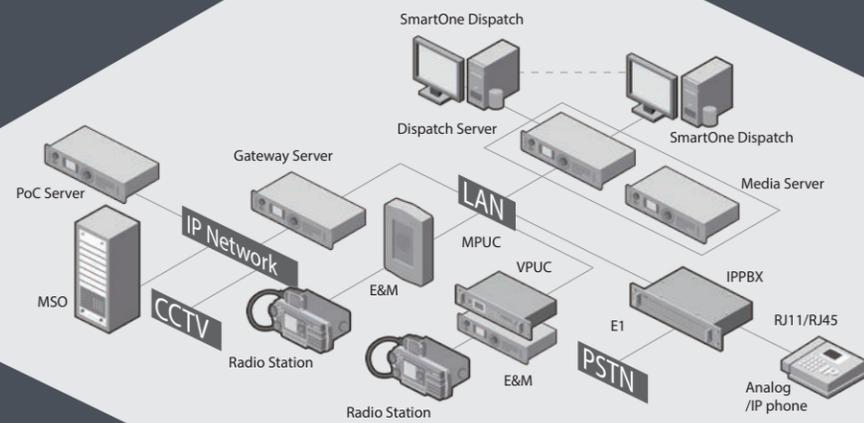
Specification

Number of SAPs Supported	100 per server
Number of Radios Managed	200,000 per server
Number of Concurrent Calls Supported	1,000 per server (Lenovo Think System SR550)
Processing Capacity of GPS Data	1,500 pcs per second
Number of Concurrent Messages Received	200 per second per server
Number of Clients Supported	280 per server (Lenovo Think System SR550)
Number of Radio Stations Managed by One Client	200,000 per client
Number of Concurrent Calls Supported by One Client	70 per client (Including monitored calls)
Number of Radio Location Updates	250 per second on one client's map

Multimedia Unified Communication (MUC) Platform

Built on top of PUC platform, the MUC adds broadband multimedia features which enables it to connect to CCTV, private LTE network and PoC (push to talk over cellular). This allows live streams from CCTV cameras to be viewed, video calls to be initiated, video conferencing and sending/receiving multimedia messages to/from broadband terminals, while at the same time maintaining all the functions of the PUC platform.

Interconnection Topology



Main features (Natively supports all the features of PUC)

1 Video dispatch

- Video individual call, video group call, video pull, video push, and video transferring and so on are available for broadband terminals



4 Multimedia conference

- Participants include Broadband radios, dispatchers, and surveillance cameras

3 Video surveillance

- Interworking with IP video surveillance platforms, MUC platform enable dispatcher to play the camera videos real-time via the surveillance platform, supporting PTZ control for PTZ cameras

2 Multimedia message

- Images, video clips, and other attachments can transmit among terminals and dispatchers



Specification

Number of SAPs Supported	100 per server
Number of Radios Managed	200,000 per server
Number of Concurrent Calls Supported	1,000 per server(Lenovo Think System SR550)
Processing Capacity of GPS Data	1,500 pcs per second
Number of Concurrent Messages Received	200 pcs per second
Number of Concurrent Multimedia Conferences	50(One conference includes one 1080p, one VGA, one 720p, and one CIF video stream, as well as one audio stream.)
Number of Video Transcoding Channels Supported	32 x H.264 @1080p per VCA card(One media server supports at most four VCA cards. Transcoding is required in a video conference or when the formats of the sender and the receiver don't match. Viewing of video surveillance doesn't involve transcoding.)
Video Transferring Capacity	500 Mbit/s(No need of transcode, bottleneck lies in network.)
Number of Clients Supported	280 per server(Lenovo Think System SR550)
Number of Radio Stations Managed by One Client	200,000 per client
Number of Concurrent Calls Supported by One Client	70 per client(Including monitored calls)
Number of Radio Location Updates	250 per second on one client's map