



GENERAL PRESENTATION / 2021

# TASSTA SOLUTION

COMMUNICATION, LOCALIZATION, ORGANIZATION AND SECURITY

2021\v 6.0

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# INNOVATIVE COMMUNICATION

- PTT-based radio system
- For Android, Windows & iOS
- For mobile and desktop clients
- User-friendly and intuitive design





## PUSH-TO-VIDEO

Video communication for a better situational awareness and service activity.

- Push-to-Video to an individual
- Push-to-Video to a defined group
- Push-to-Video to channel
- Remote video
- One-one video call
- Emergency video call



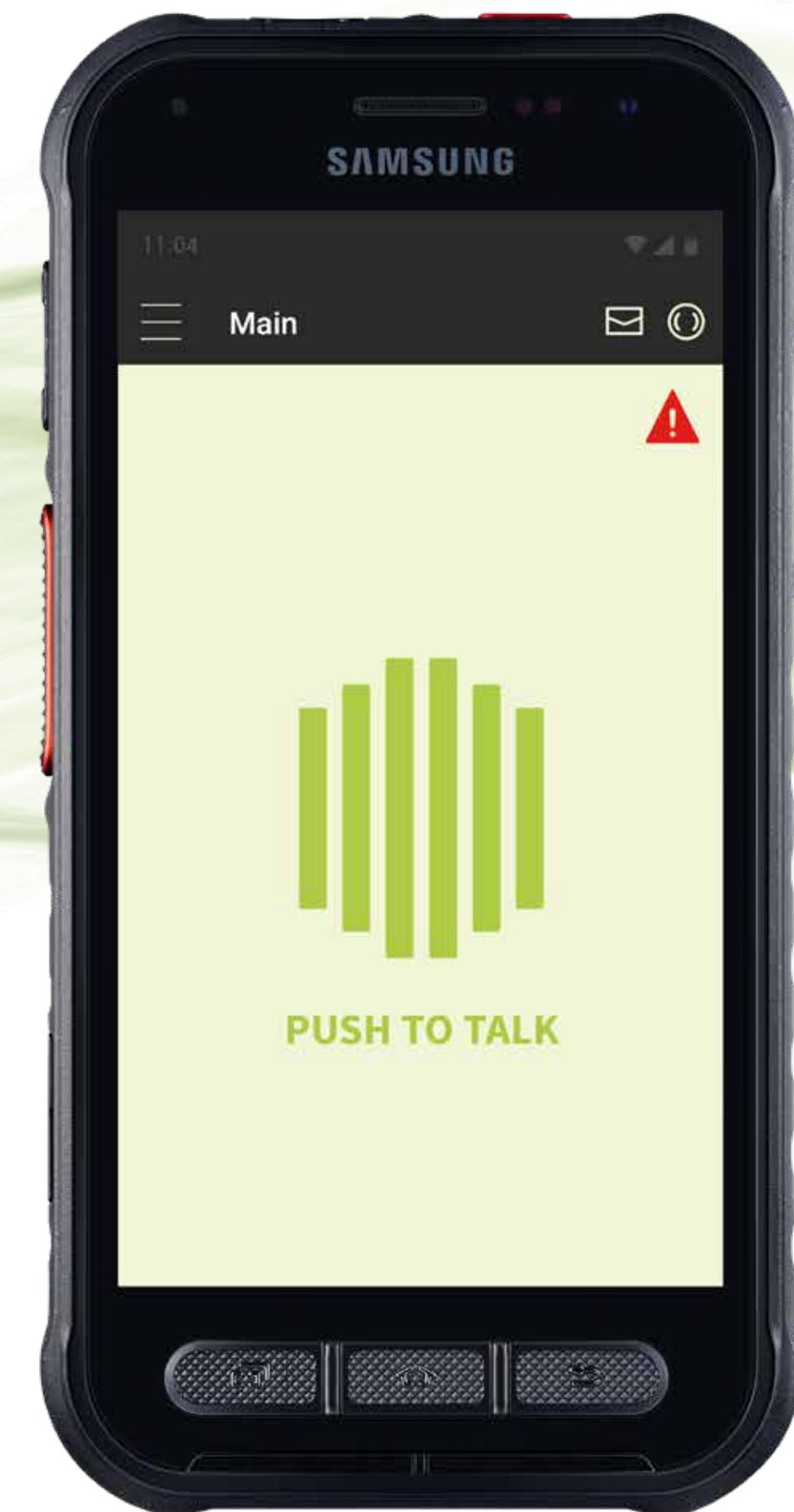
# KEY FEATURES & BENEFITS





## RELIABLE COMMUNICATION

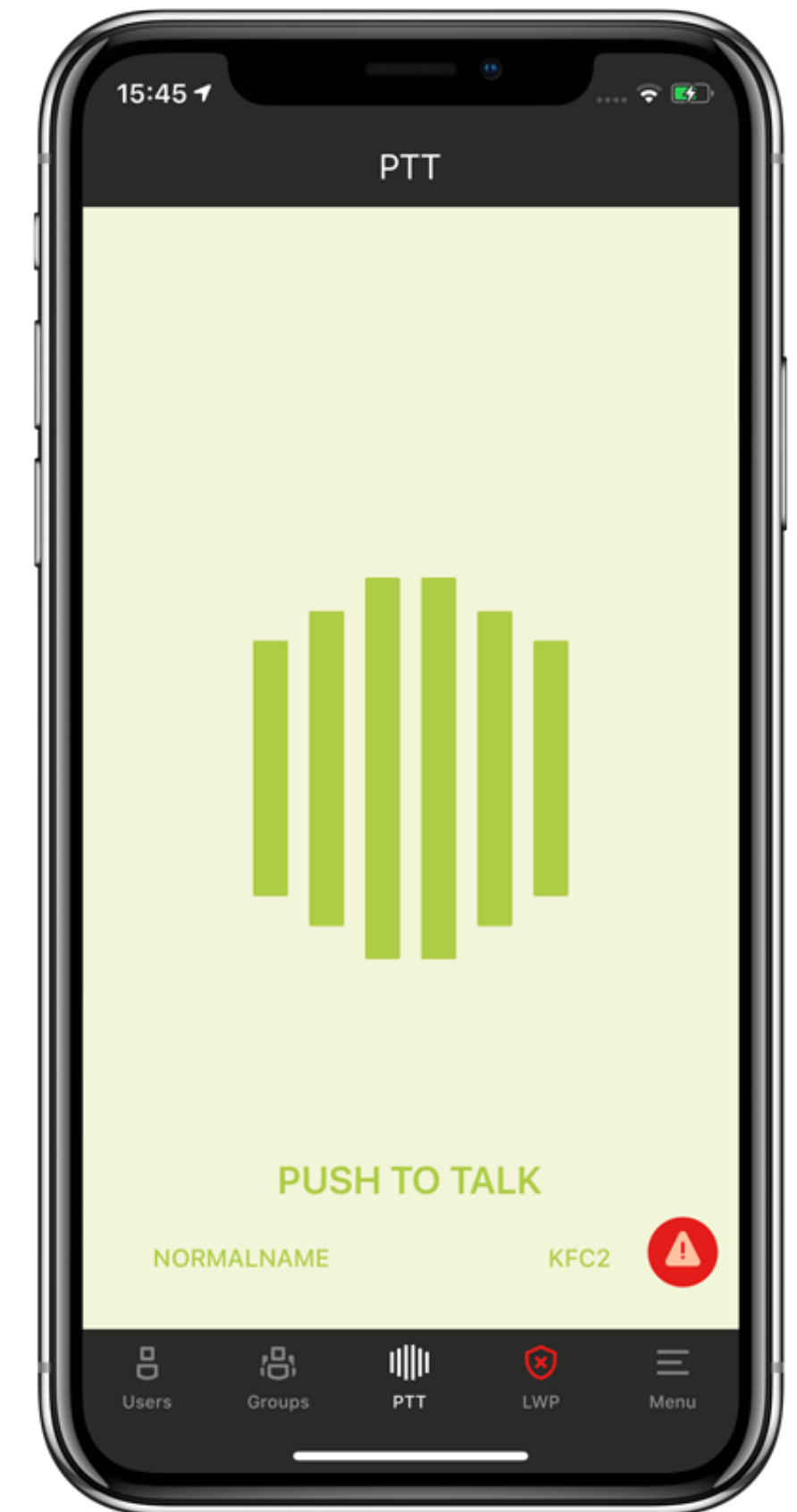
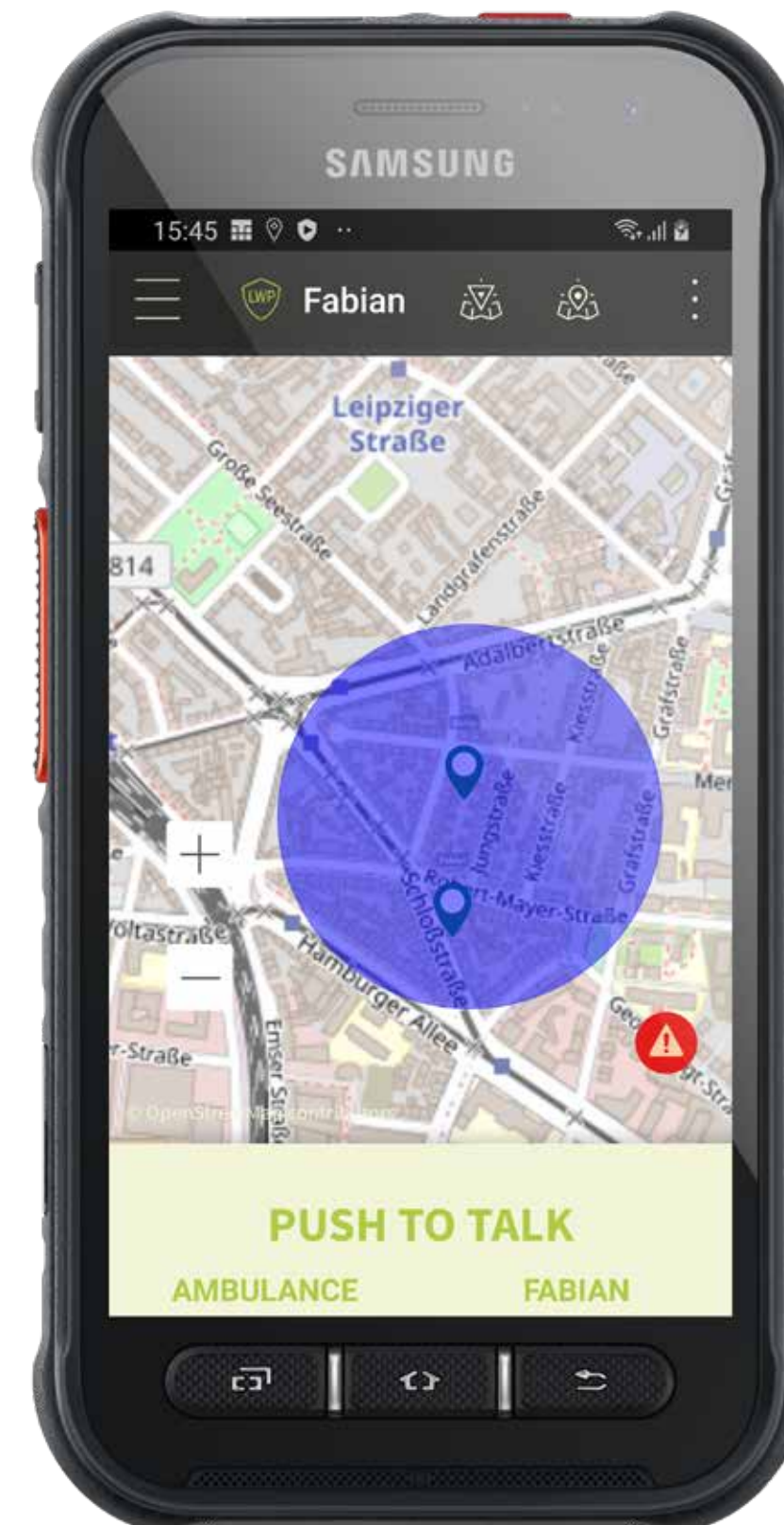
- 2G
- 3G/4G
- E1
- DMR
- BLUETOOTH
- IP
- LTE
- TETRA
- WIFI
- NFC



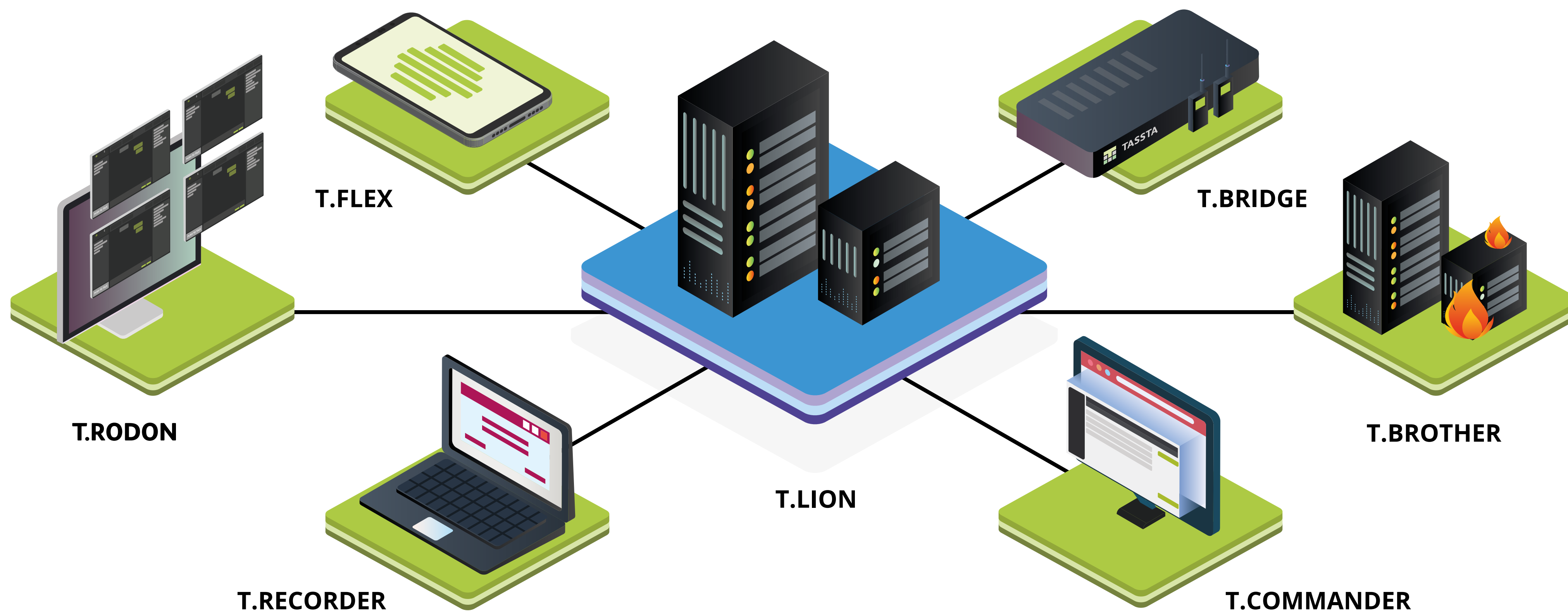


## FLEXIBLE HARDWARE

- Applicable for different hardware
- Professional Bluetooth handsfree equipment
- Compatible with different smartphones
- Special solutions for different carriers
- Employment of IP certified devices  
(special outdoor devices: fire-, water-, dust-resistant)



# TASSTA PRODUCTS

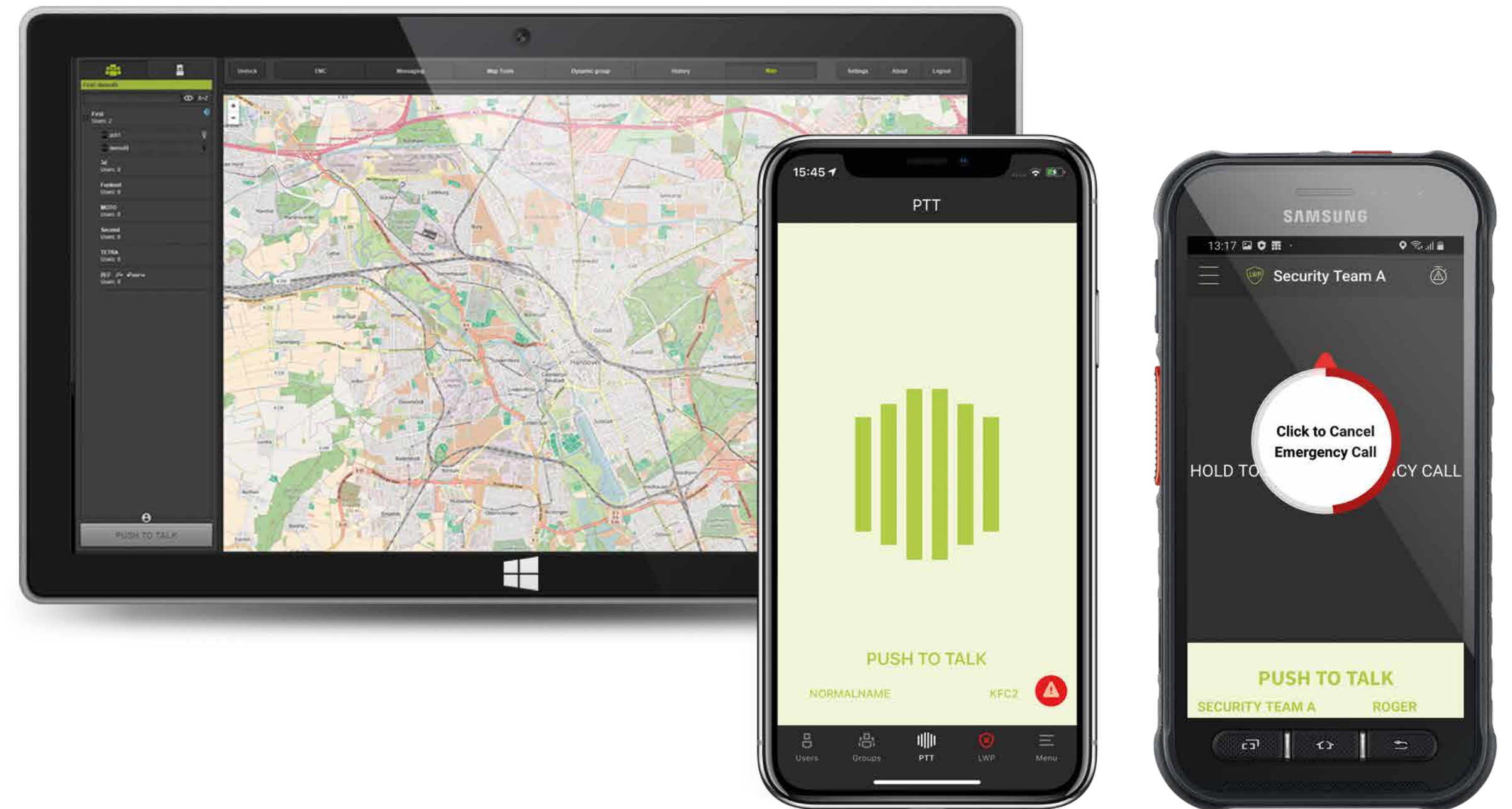




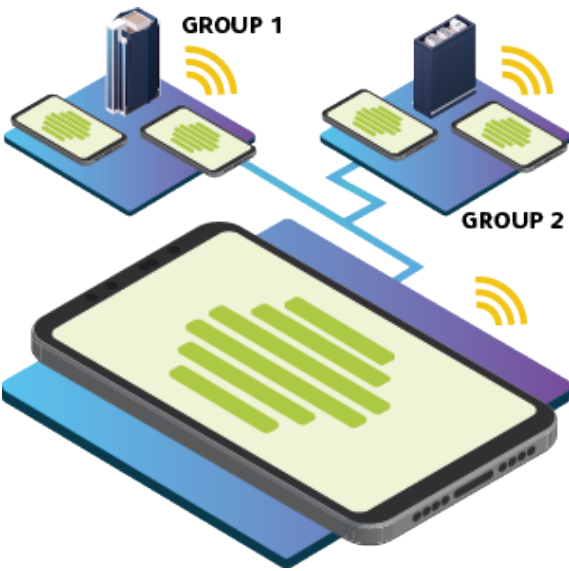
## T.FLEX

Professional Push-to-Talk over broadband solution

- For Android and iOS
- Excellent communication with different mobile networks
- Complete package for Data and Voice Transfer
- Innovative PTT in mobile radio



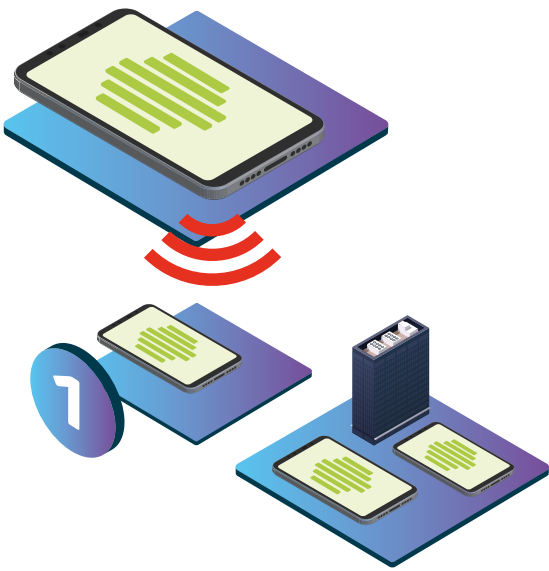
**YOUR MOBILE  
CAN DO**



**GROUP CALL**



**INDIVIDUAL CALL**



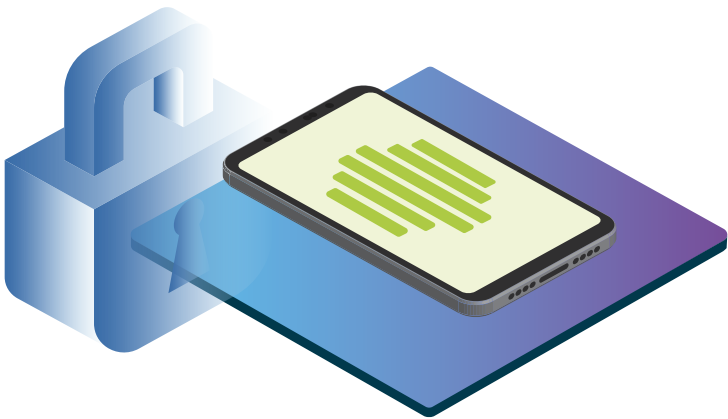
**PRIORITY CALL**



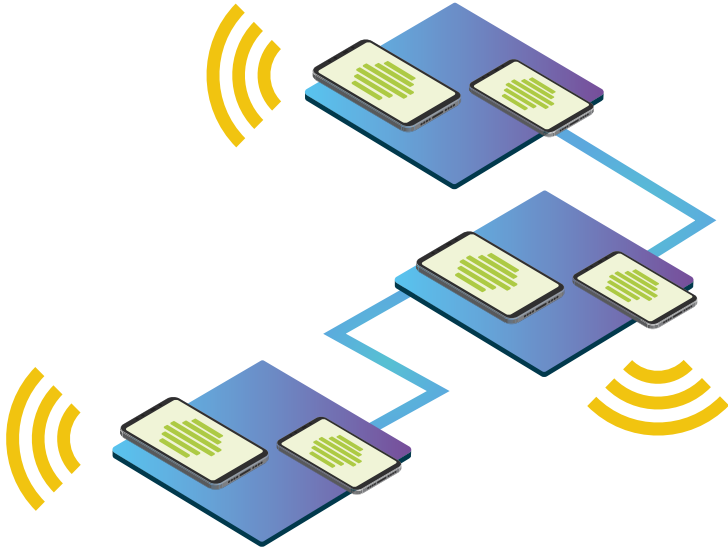
**EMERGENCY CALL  
& LONE WORKER  
PROTECTION**



**STATUS MESSAGES,  
TEXT AND DATA  
EXCHANGE**



**E2E ENCRYPTION**



**DYNAMIC GROUP CALL**



**INDOOR LOCALIZATION**



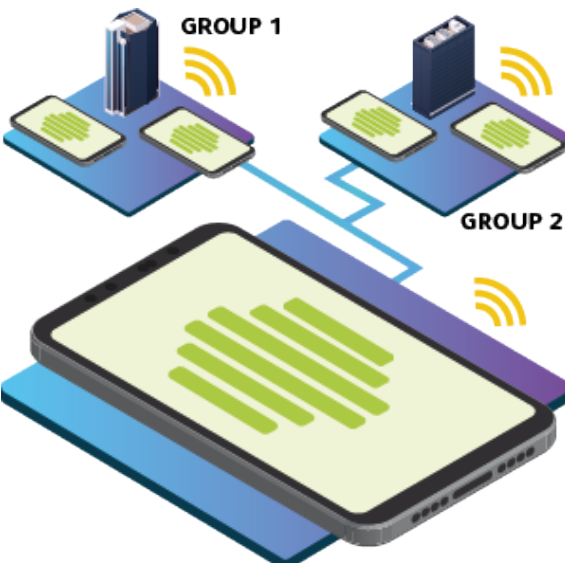
**REMOTE CONTROL**



**VIDEO**



**VOICE RECORDING AND  
CALL HISTORY**



**GPS LOCALIZATION**



**GPS HISTORY TRACKER**



**GPS ROUTE**

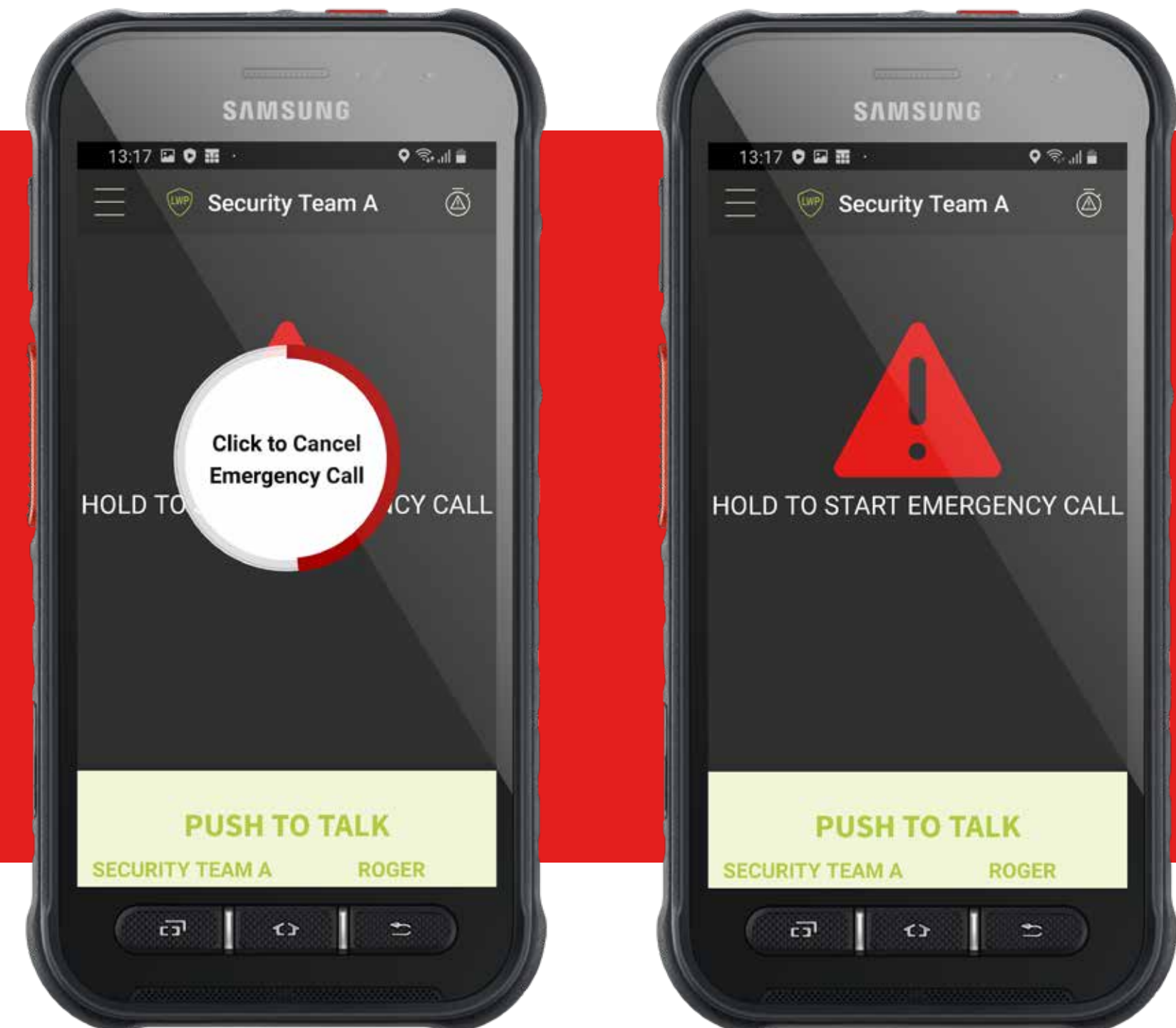


**TASK MANAGEMENT**

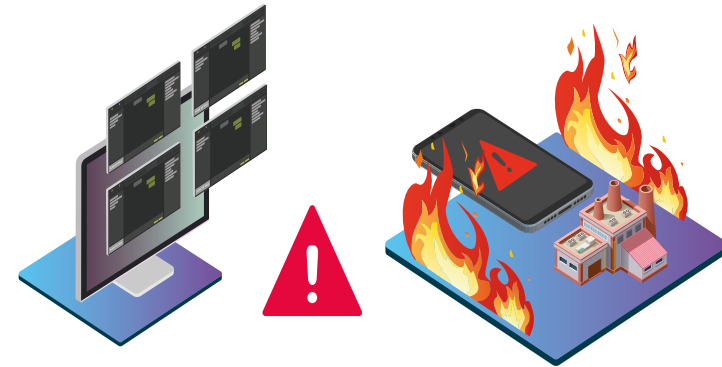


# LONE WORKER PROTECTION

Emergency solution

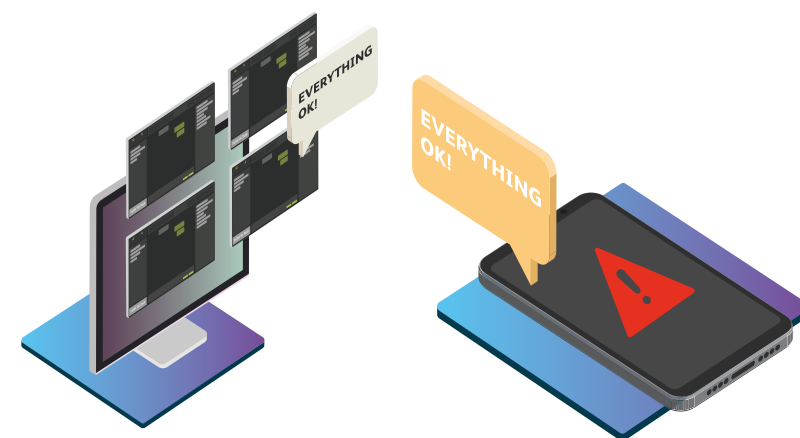


## MANDOWN



An automatic emergency option uses an accelerometer on the mobile device to detect a fall and sends a text message alert to the emergency contact. The text message indicates username, group membership and GPS coordinates with a link to a map and the exact location.

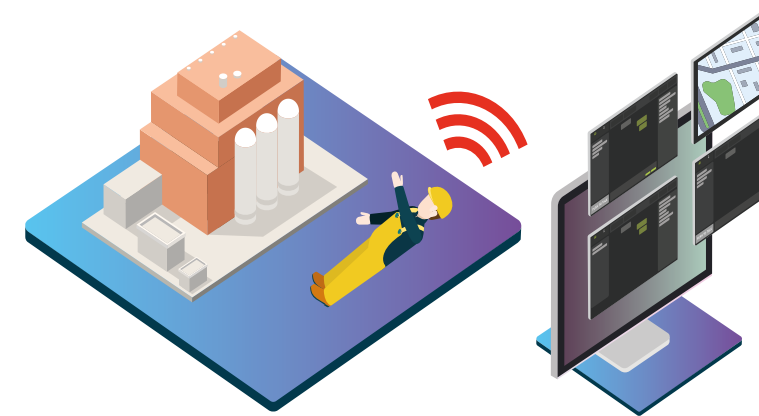
## PERIODIC CHECK



LWP Periodic Check provides a pop-up dialog window "Everything fine?" after a specified time interval that can be set in T.Commander.

If a worker doesn't respond, the application initiates an Emergency Call and an Emergency Alert.

## NO MOVEMENT ALARM



An effective way to make a pathway of workers safer. Being active, the app uses GPS location data obtained from a mobile device to detect a user movement.

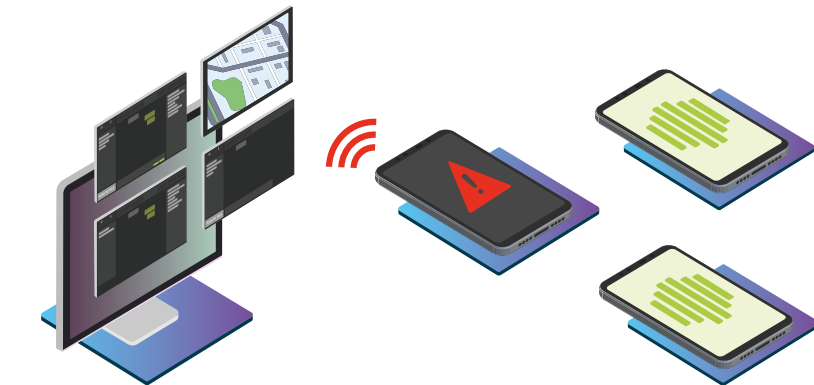
If a user remains motionless for a certain period of time, an Inactivity Timer will start. If there is still no movement, the application sends an Emergency Alert and automatically initiates an Emergency Call.

## REMOTE CAMERA / RECORDING



An operator is able to access the microphone or camera of the desired user remotely. It might be very important for critical environments like security services or military where the person can be attacked or working in high-risk conditions.

## EMERGENCY CALL



For use in emergency or distress situations. A user initiates this feature from the display or a pre-programmed emergency button on the device. The activation of Emergency will immediately send an acoustic and visual alarm to the dispatcher, alerting him of an emergency situation.

## CRISIS TEAM

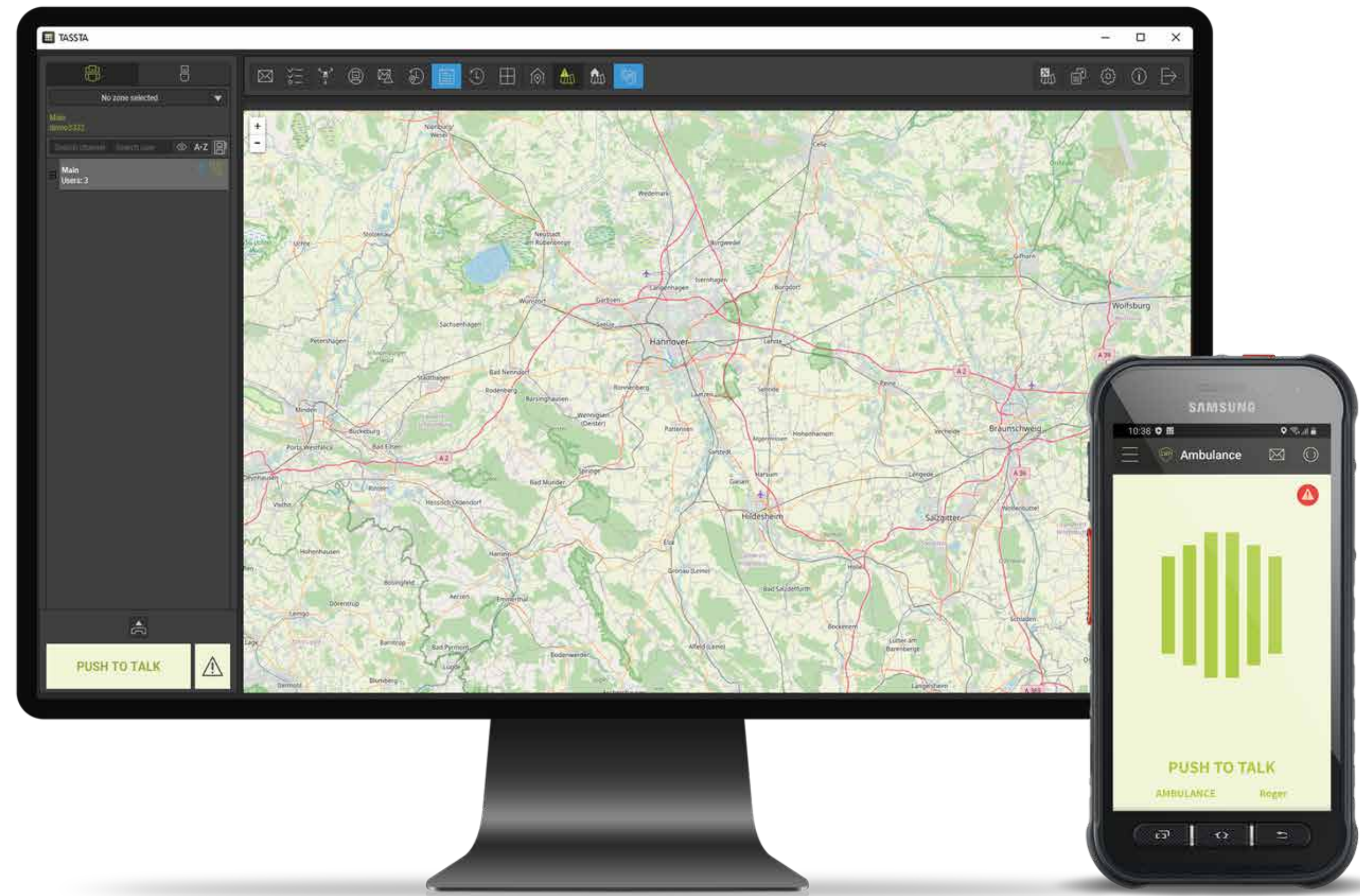


A user is provided with the possibility to include the other members of the team to a crisis team. They will receive an Emergency Call in case of an accident or an emergency situation. The members of the crisis team are defined in T.Commander.



# T.RODON

Command and control center  
dispatcher solution.





**YOUR DESKTOP  
CAN DO**



**GROUP CALL**



**INDIVIDUAL CALL**



**PRIORITY CALL**



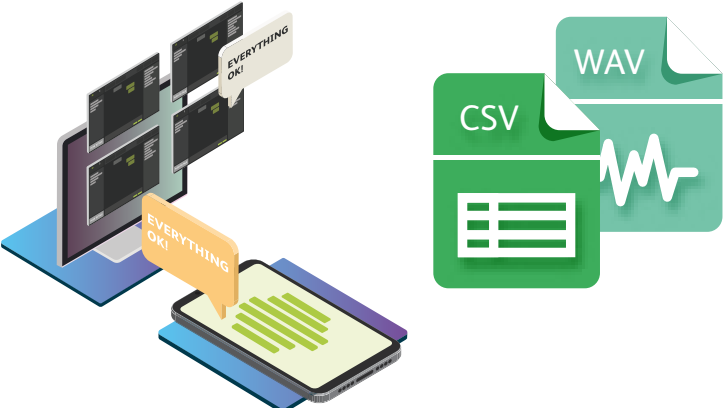
**DYNAMIC GROUP CALL**



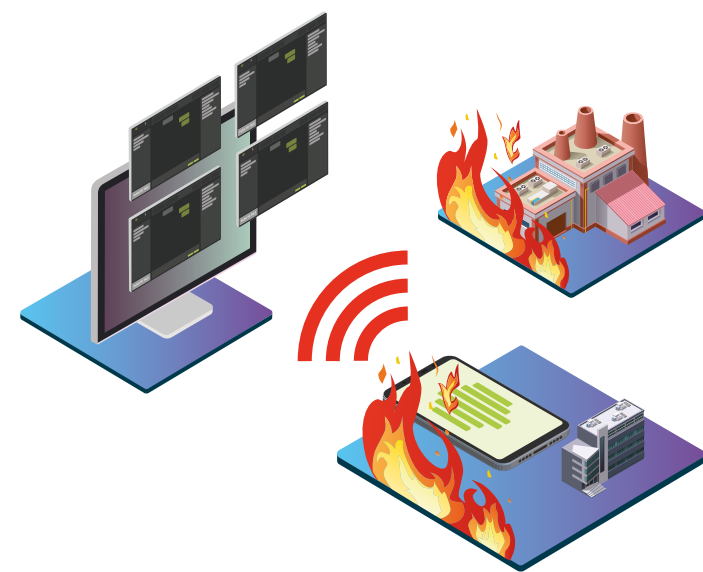
**EMERGENCY CALL  
RECEIVING**



**REMOTE CONTROL**



**STATUS MESSAGES,  
TEXT AND DATA  
EXCHANGE**



**LONE WORKER  
PROTECTION**



**E2E ENCRYPTION**



**VOICE RECORDING AND  
CALL HISTORY**



**MAP TOOLS**



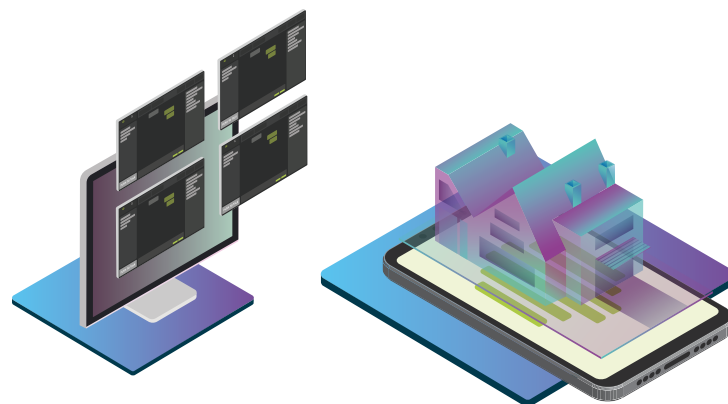
**GPS LOCALIZATION**



**GUARD TOUR**



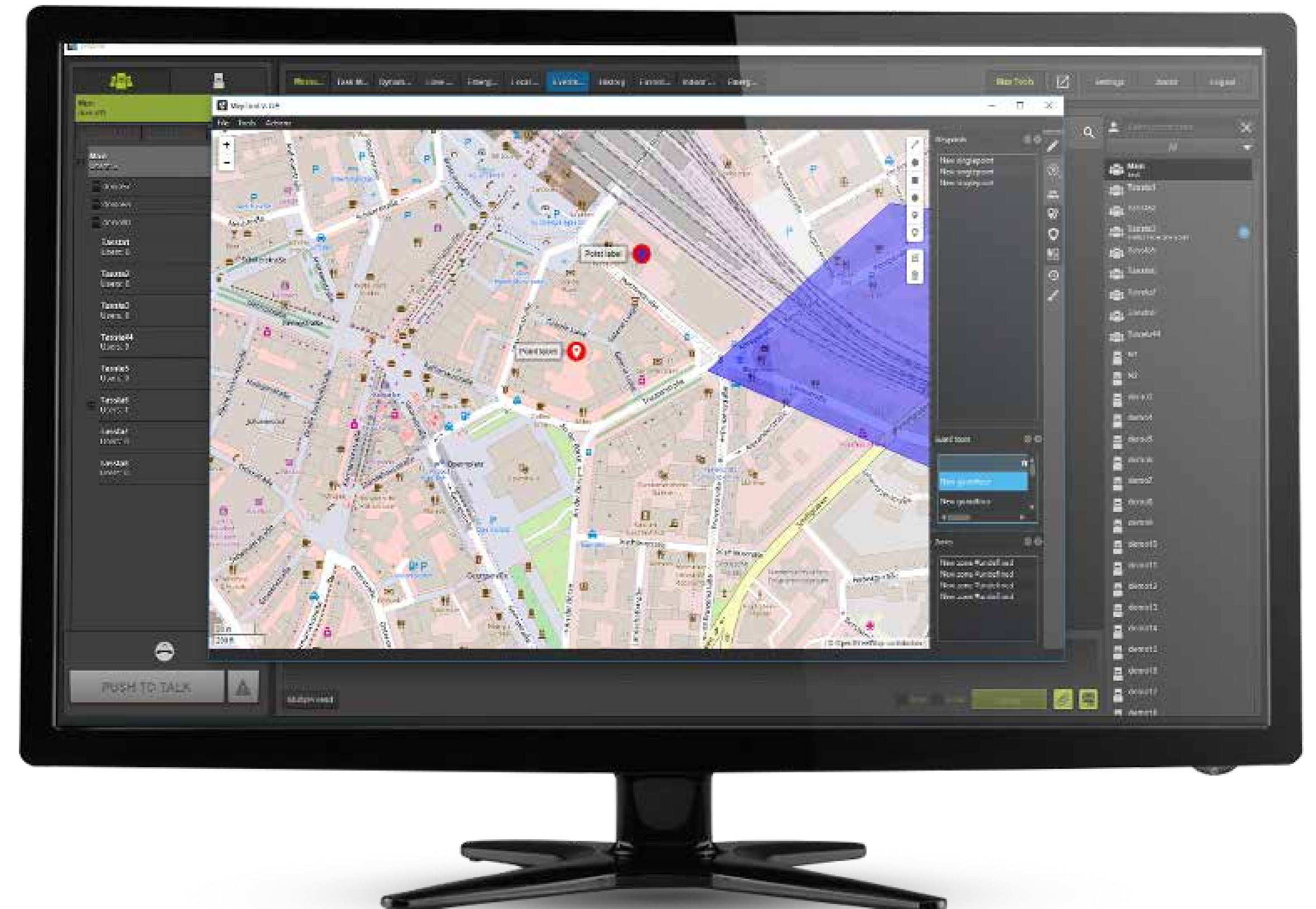
**TASK MANAGEMENT**



**INDOOR LOCALIZATION**

# GPS TRACKING ON WIDE SCREENS

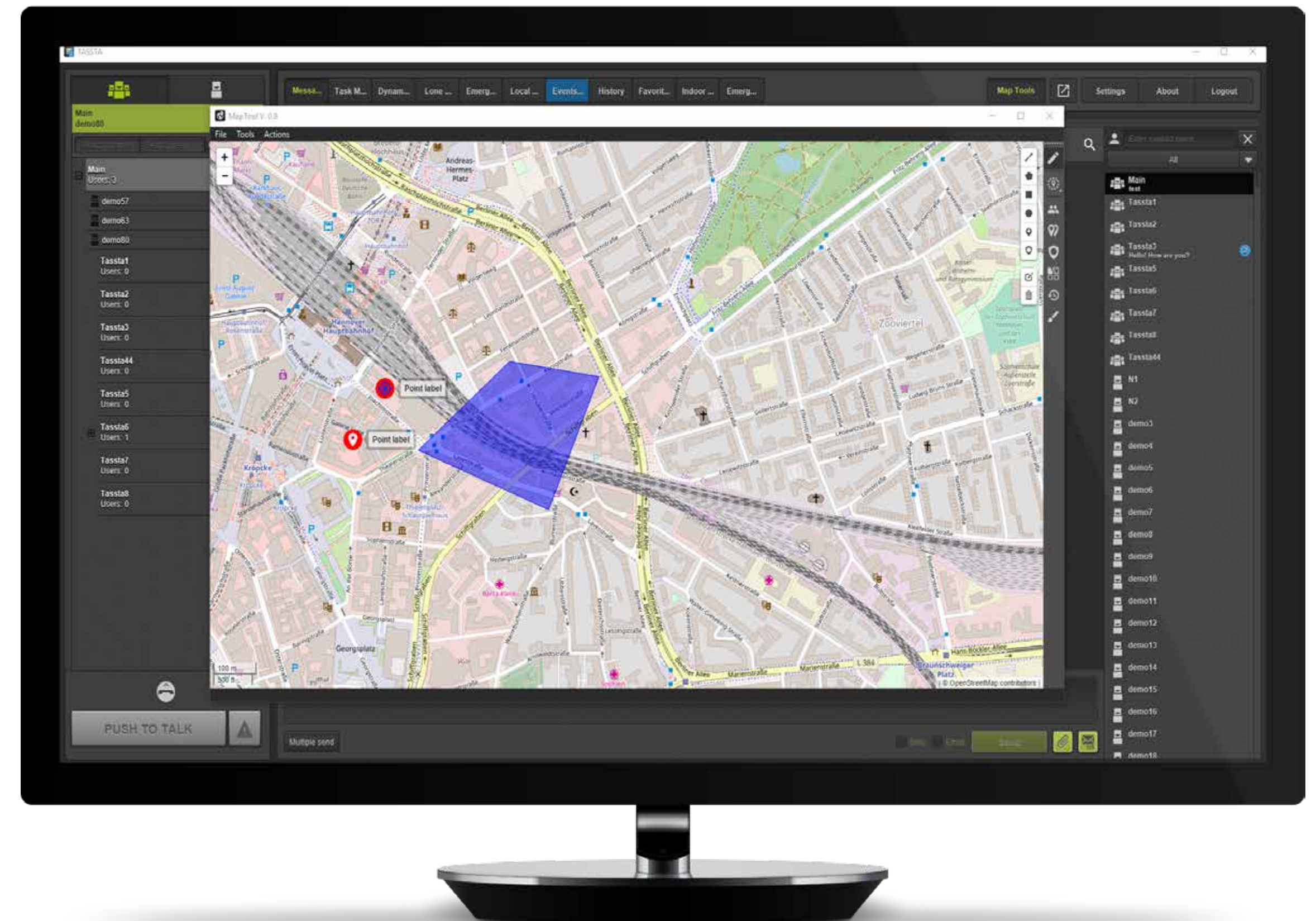
- Real-time visualization of the user coordinates on the map
- Allocate the nearest user for placing the order and increase your productivity





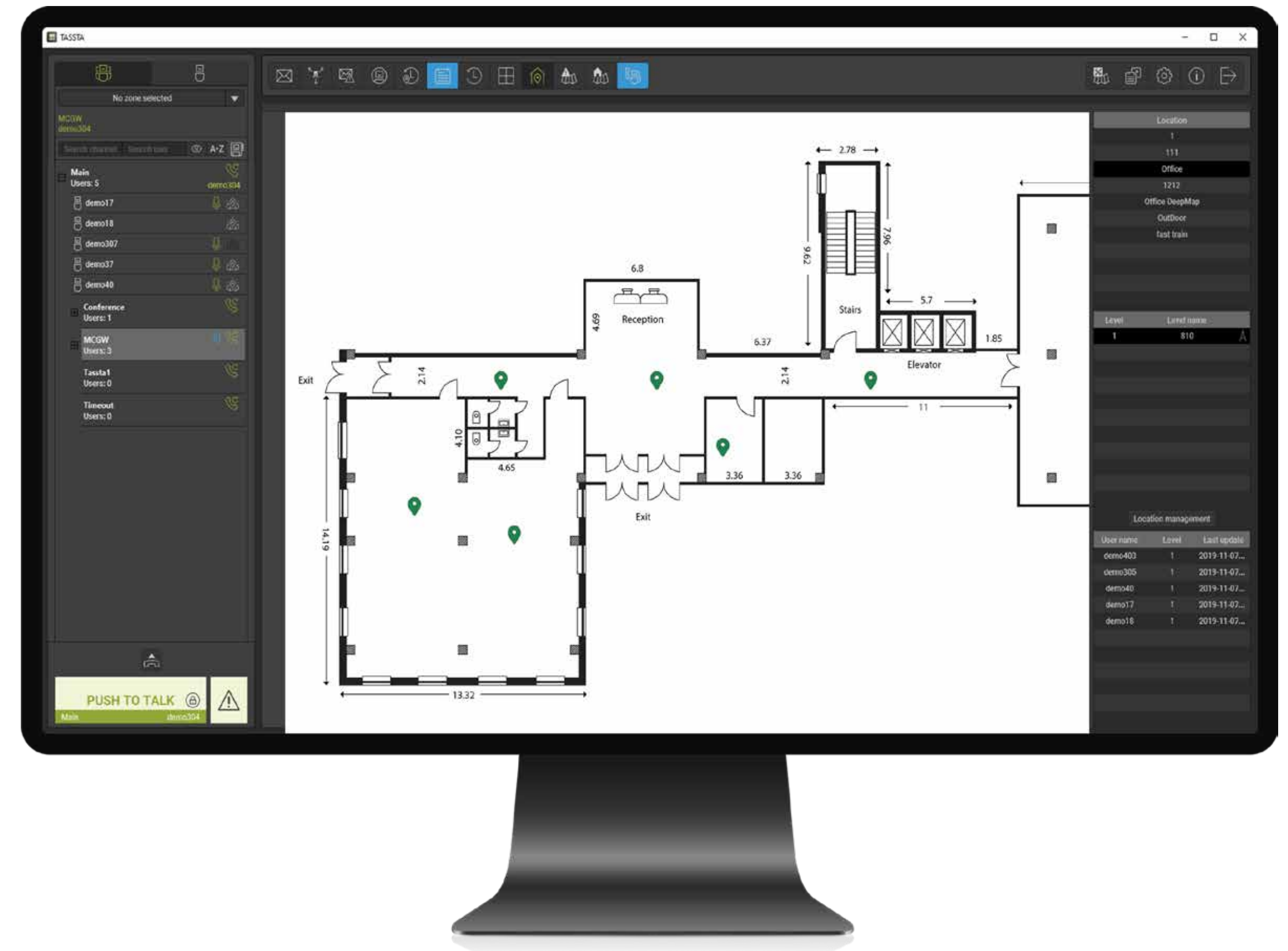
# DEFINE GEOGRAPHICAL ZONE

- User tracking
- Assignment of consequences if a specified zone border is crossed
- Dynamic group formation when changing geo-zones



# INDOOR TRACKING IN WLAN, GSM, UMTS

- Localization in buildings as extension to GPS
- High accuracy also in multistoried buildings
- Support of new services





## WITH THE ORDER MANAGEMENT SYSTEM:

- Distribute orders (to multiple users)
- Specify orders while sending files
- Different order-types and priority





# WITH THE ORDER MANAGEMENT SYSTEM:

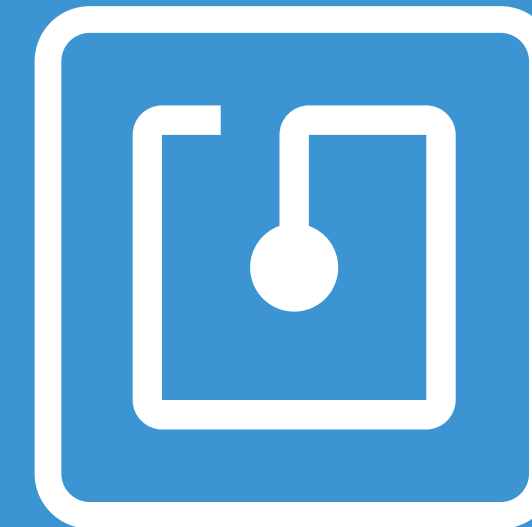
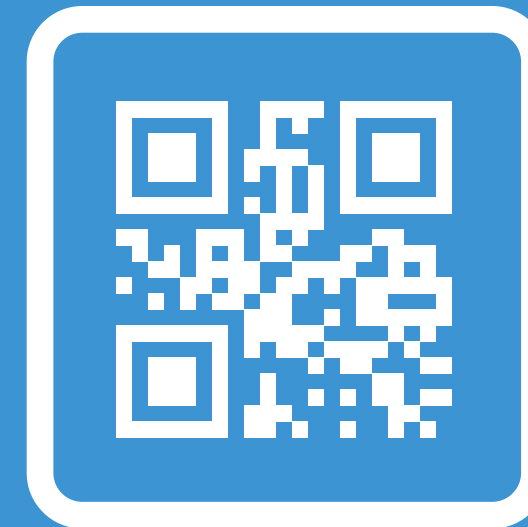
Real time:

- Track the status of the orders
- Configurable fields
- Guard tour system
- Close order-types



## WITH THE ORDER MANAGEMENT SYSTEM:

- Scanning of ID by QR code or NFC
- Verification of ID by requesting information from the database
- Time & Location Registration
- Access Control



## T.BRIDGE

- Extend your existing PMR system
- Connect different PMR systems
- Low technical and financial investment

Supporting networks:

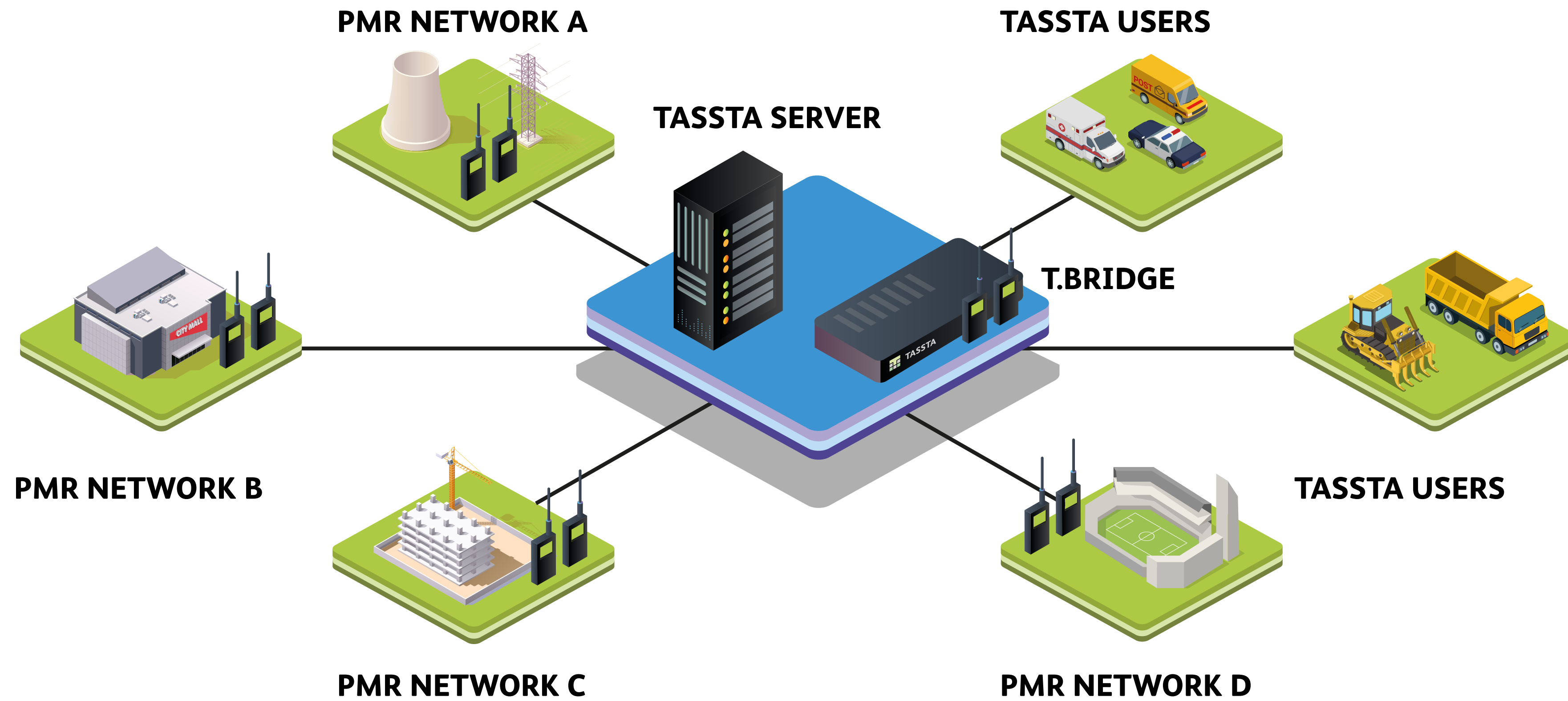
TETRA HYTERA ®  
 TETRA DAMM ®  
 TETRA SEPURA PEI ®  
 DMR HYTERA ®  
 MOTOTRBO ®  
 KENWOODCONVENTIONAL ®  
 KENWOOD DMR®

KENWOOD  
 NEXEDGE ®  
 P25 ®  
 MPT 1327 ®  
 ANALOG RADIO ®  
 TAIT ®  
 ICOM ®





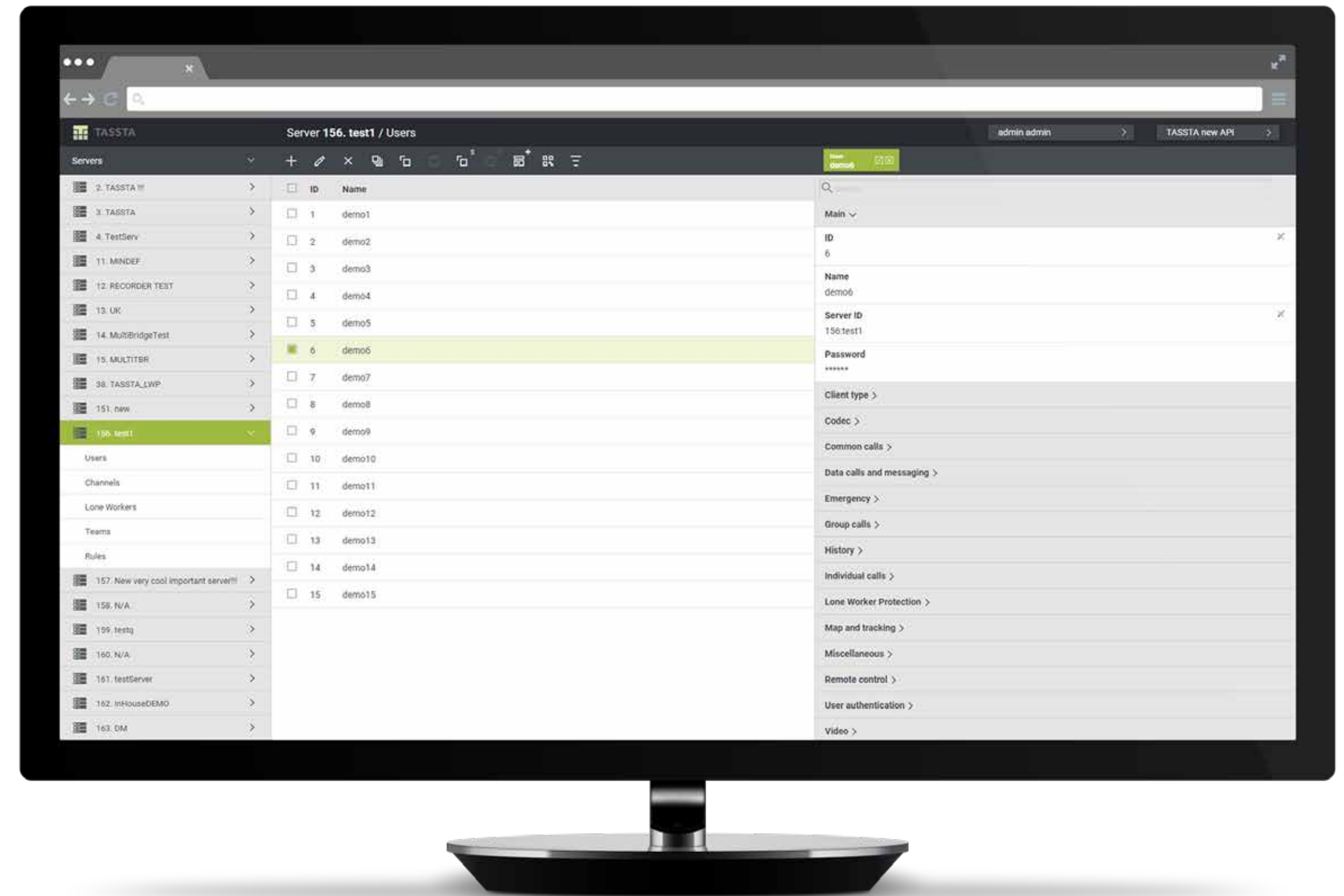
# BRIDGE TO PMR



# T.COMMANDER

Everything is in your hands with the account manager.

- Define the framework of your system
- Select your functions
- Manage users and groups





**USER-FRIENDLY  
GRAPHICAL WEB  
INTERFACE**



**ADMINISTRATION**



**SYSTEM  
MANAGEMENT**



**SERVICE**

The T.Commander is a web-based application created to control resources and features on TASSTA servers. It is designed for a large number of servers and nodes. The nodes are the logic representation of hosted resources, that handle groups of servers. With this approach T.Commander allows flexible maintenance and system expansion, deployment of new servers and nodes.

This way you have only one tool to control your environment. In details, T.Commander allows the administrator to create/delete/edit new users, teams, groups or manage functions for each individual user. All the functions that T.Flex and T.Rodon have, can be individually managed via T.Commander as well as turned on / off.



## T.LION AND T.BROTHER

T.LION is a main component of the overall TASSTA communication solution. It shares resources on request between the clients and provides reliable communication with sub-second performance.

By using T.Brother, the redundant TASSTA server in different geographically dispersed datacenters, you ensure that end users use TASSTA services with maximum reliability.



## SECURE COMMUNICATION

- E2E Encryption
- Authentication
- IMEI number verification

Prevents potential eavesdroppers from being able to access the encrypted conversation even they are illegally intercepting the communication channel.

The E2EE in TASSTA provides a way of communication where only the communicating users with a right set of user's keys pair (encryption and decryption keys) can hear the voice messages. It is an additional level of protection to ensure that no third parties can intercept the voice data being communicated or stored without having the keys.





# MISSION CRITICAL SOLUTION: MCPTT, MCVIDEO, MCDATA

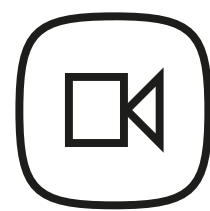
The MCX TASSTA solution is applicable primarily to mission critical solutions using LTE access.

Certain MC service functions such as dispatch and administrative functions could also be supported via non-3GPP access networks.



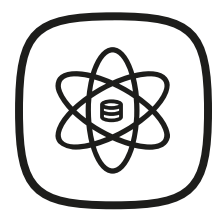
**MCPTT**

Mission Critical Push-to-Talk



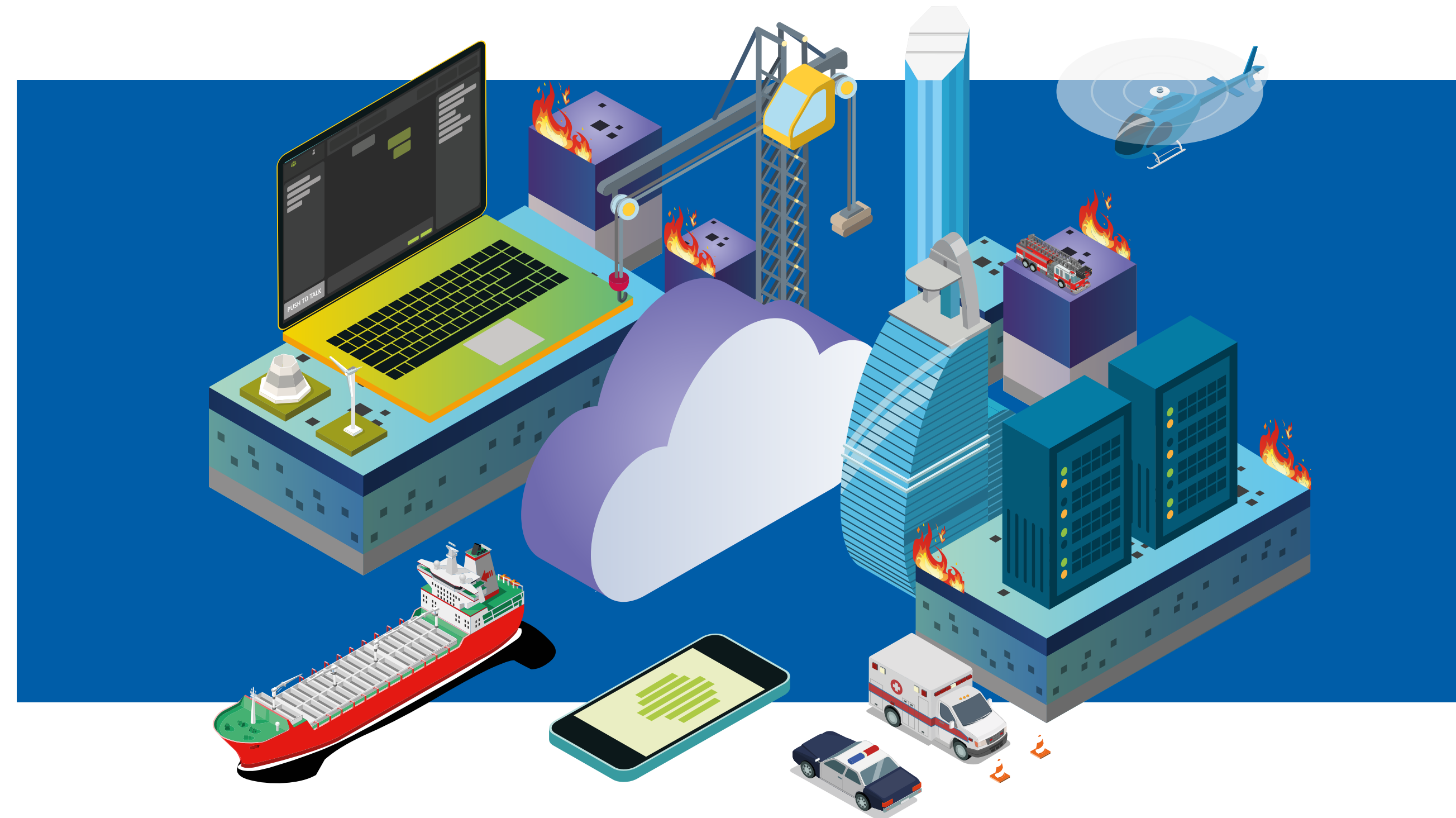
**MCVideo**

Mission Critical Video



**MCDATA**

Mission Critical Data



# INTRODUCTION

The solution can be used for public safety applications and also for general commercial applications e.g. utility companies and railways.

- MCPTT - Mission-Critical Push-to-Talk over LTE
- MCDATA Mission-Critical Data
- MCVIDEO Mission-Critical Video



## MCPTT: MISSION CRITICAL PUSH-TO-TALK

A Push-to-Talk service provides an arbitrated method by which two or more users may engage in communication. Users may request permission to transmit (e.g., traditionally by means of a press of a button).

The MCPTT Service is intended to support communication between several users (a group call), where each user has the ability to gain access to the permission to talk in an arbitrated manner. However, the MCPTT Service also supports Private Calls between pairs of users.







## Private Call 1 - 1

MCPTT user calls another user in private mode



## First-to-Answer Call 1 - 1 (many)

MCPTT user calls the group of users who participates this group



## Ambience Listening Call

The dispatcher calls the remote employee and receives the audio stream in unidirectional mode



## Remote Ambience Listening

The employee sends a request to the dispatcher and the latter begins to receive the audio stream in unidirectional mode



## Group Call 1 - many

Mandatory call-up of group members



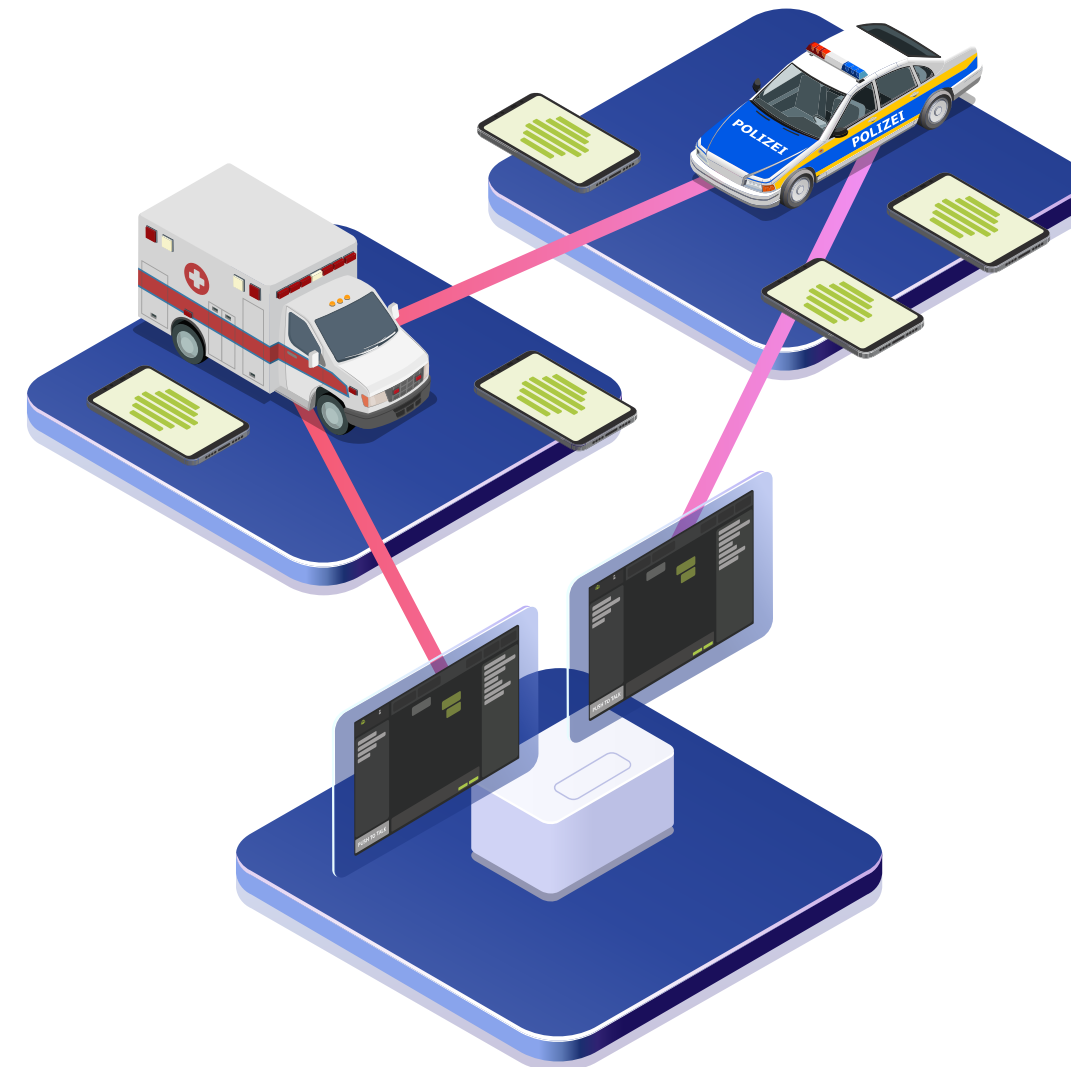
## Chat Call 1 - many

With notification for the group members



## Broadcast Call 1 - many

Short-term group session, which ends as soon as the caller finishes sending a voice message



## Temporary Groups

When conducting joint operations, different departments combine communication channels by creating temporary groups that consist of ordinary ones



## Two modes

In the presence of a network / without network



## Priority Modes

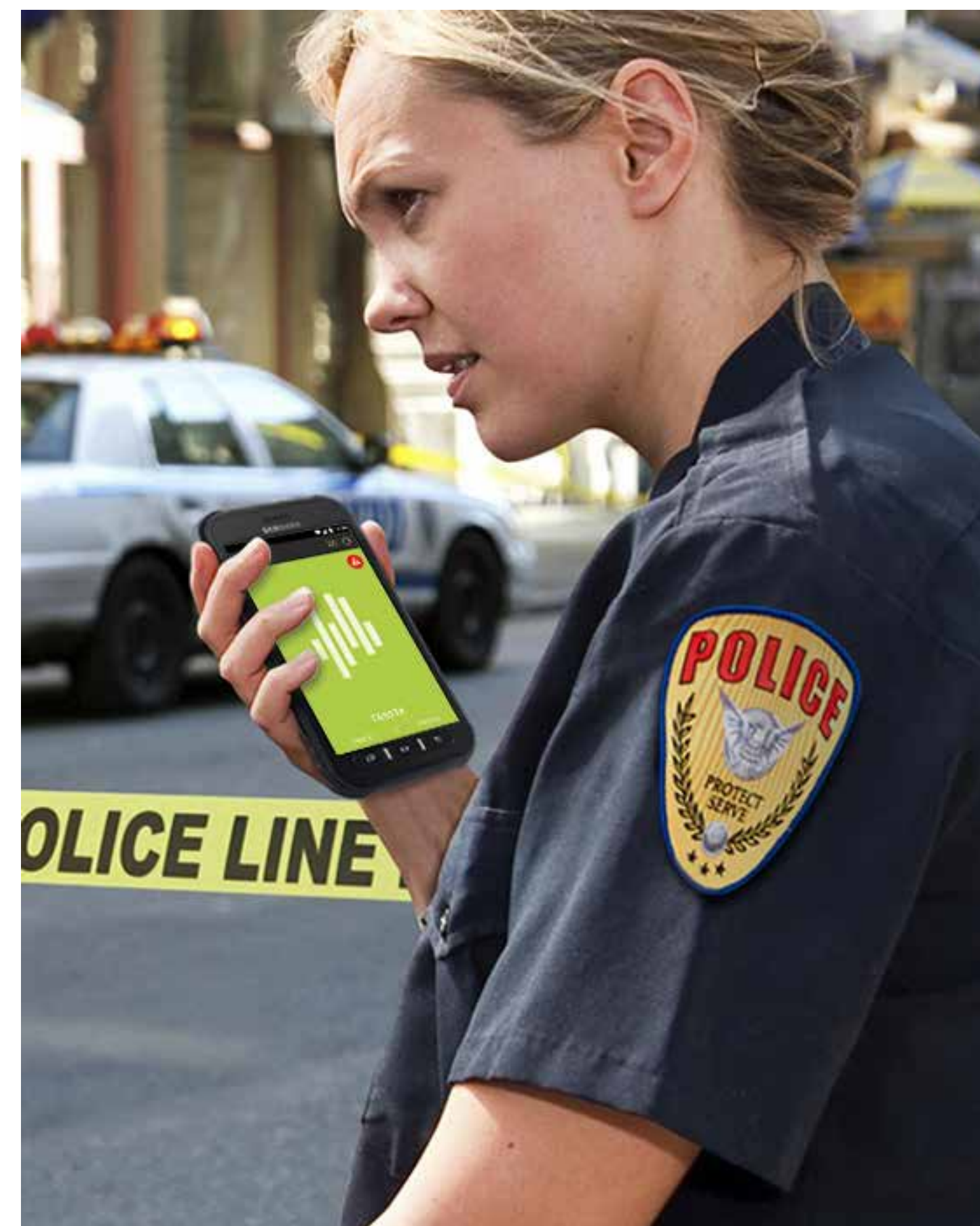
Normal without priority  
Emergency threat to the life and health of an employee of the department  
Imminent peril threat to the life or health of third parties



## MCPTT: MISSION CRITICAL PUSH-TO-TALK

A Push-to-Talk service provides an arbitrated method by which two or more users may engage in communication. Users may request permission to transmit (e.g., traditionally by means of a press of a button).

The MCPTT Service is intended to support communication between several users (a group call), where each user has the ability to gain access to the permission to talk in an arbitrated manner. However, the MCPTT Service also supports Private Calls between pairs of users.



## MCVIDEO: MISSION-CRITICAL VIDEO

Mission Critical refers to meeting the needs of agencies providing Public Safety services such as Police, Fire and Ambulance services. Those needs include high reachability, availability and reliability of the service, low latency, realtime operating capabilities, highly secured operations, private and group communications, handling of emergencies and ability to provide prioritization.

MCVideo service includes:

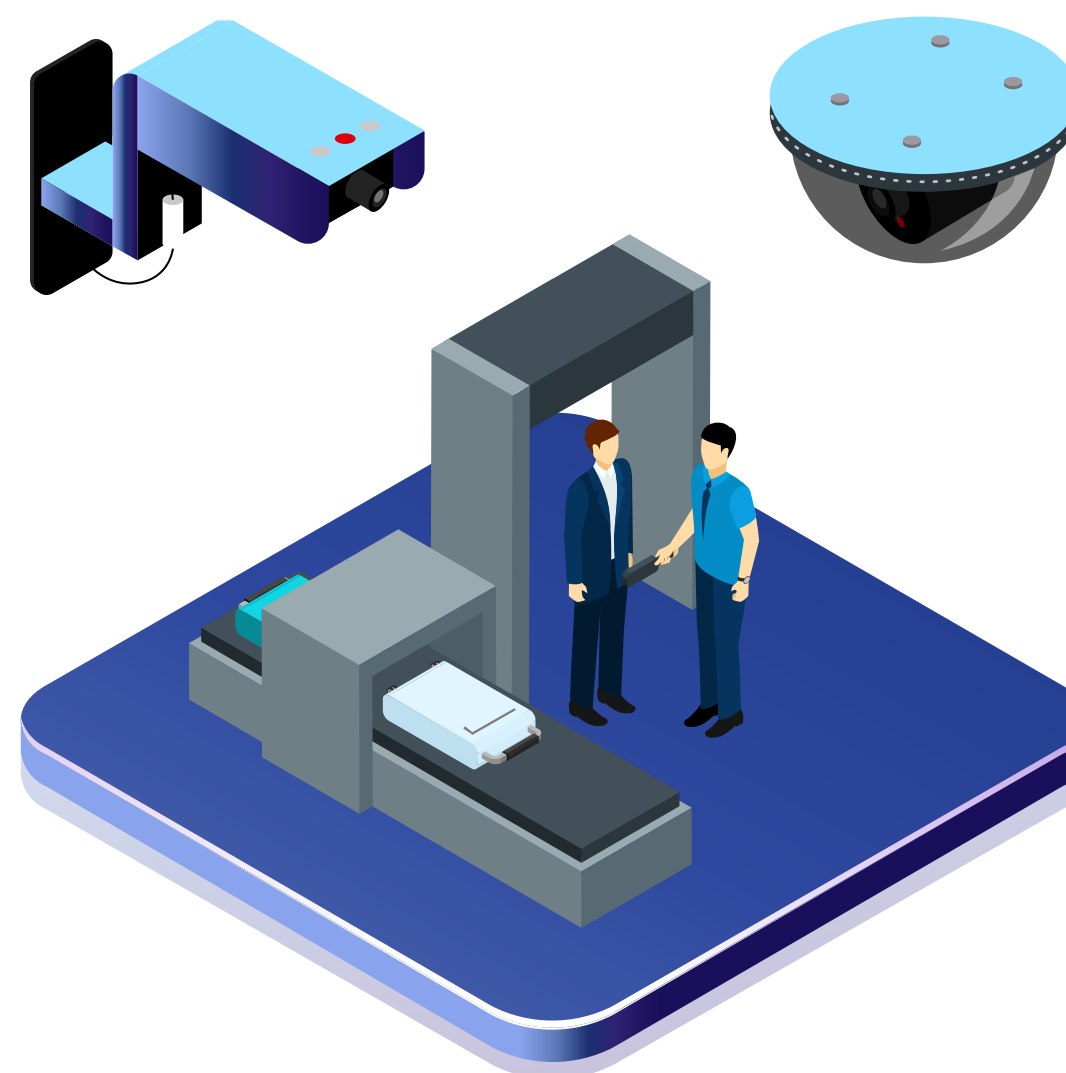
- Video capture of the video information;
- Secure streaming and storing of the video information;
- Processing of the video information, including the ability to annotate video frames and recognize video features;
- Transmission and control of the parameters relevant to those functions;
- Interoperability with other services and systems.





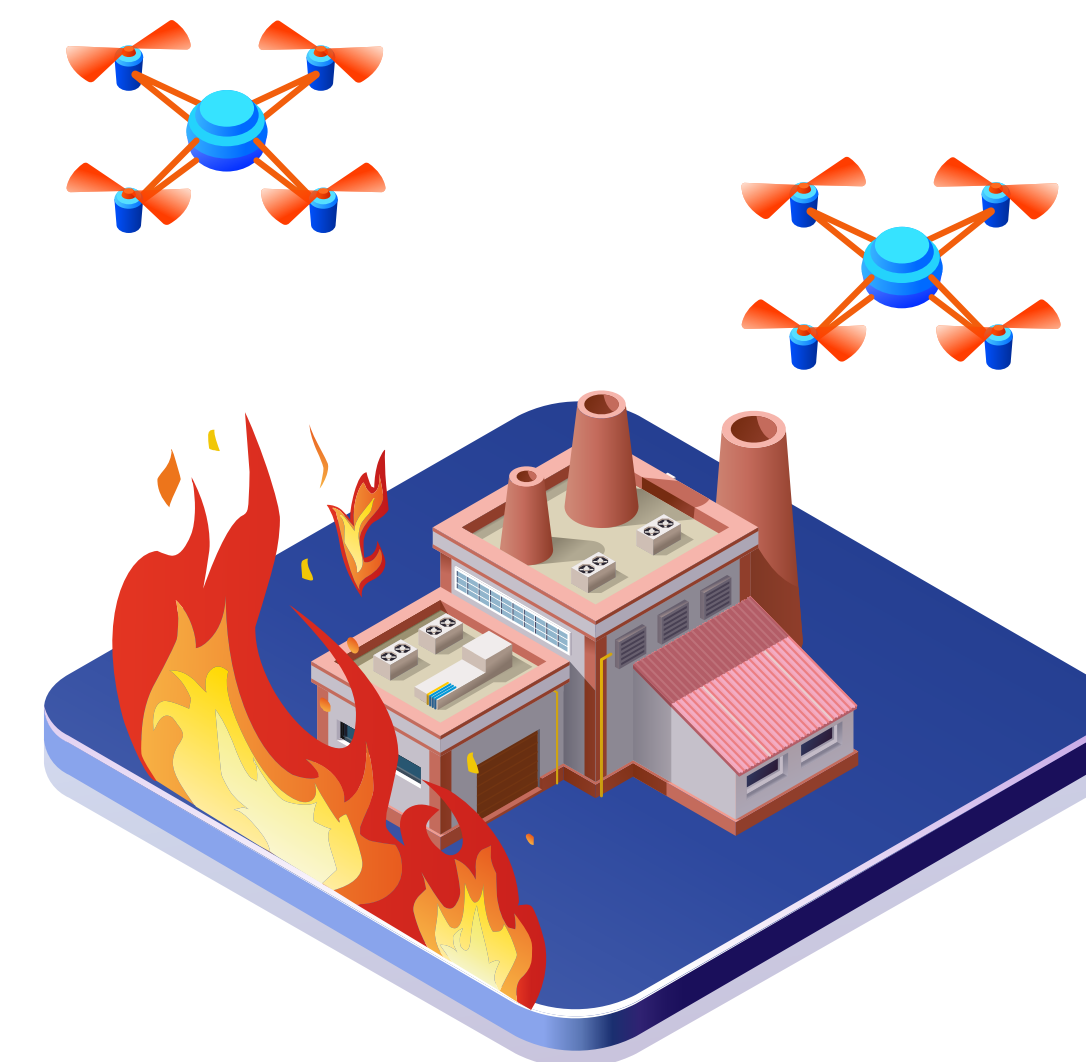
## Video Streaming

A policeman starts streaming a video stream from a camera installed in a patrol car, when a suspicious vehicle is stopped, thanks to the high resolution, the dispatcher can check the vehicle registration numbers



## Surveillance Cameras

A security company employee located in the coverage area (according to GPS coordinates) of surveillance cameras that are compatible with the MCVideo standard may request a video image



## Unmanned Aerial Vehicles

Employees involved in the elimination of the consequences of a man-made accident conduct a survey of the area dangerous to human life using an unmanned aerial vehicle equipped with a video system compatible with the MCVideo standard



# MCDATA: MISSION-CRITICAL DATA



## Short Instant Messaging (private / group)

MCDATA user sends short text message to another user or to all users who participates the group



## File Sharing

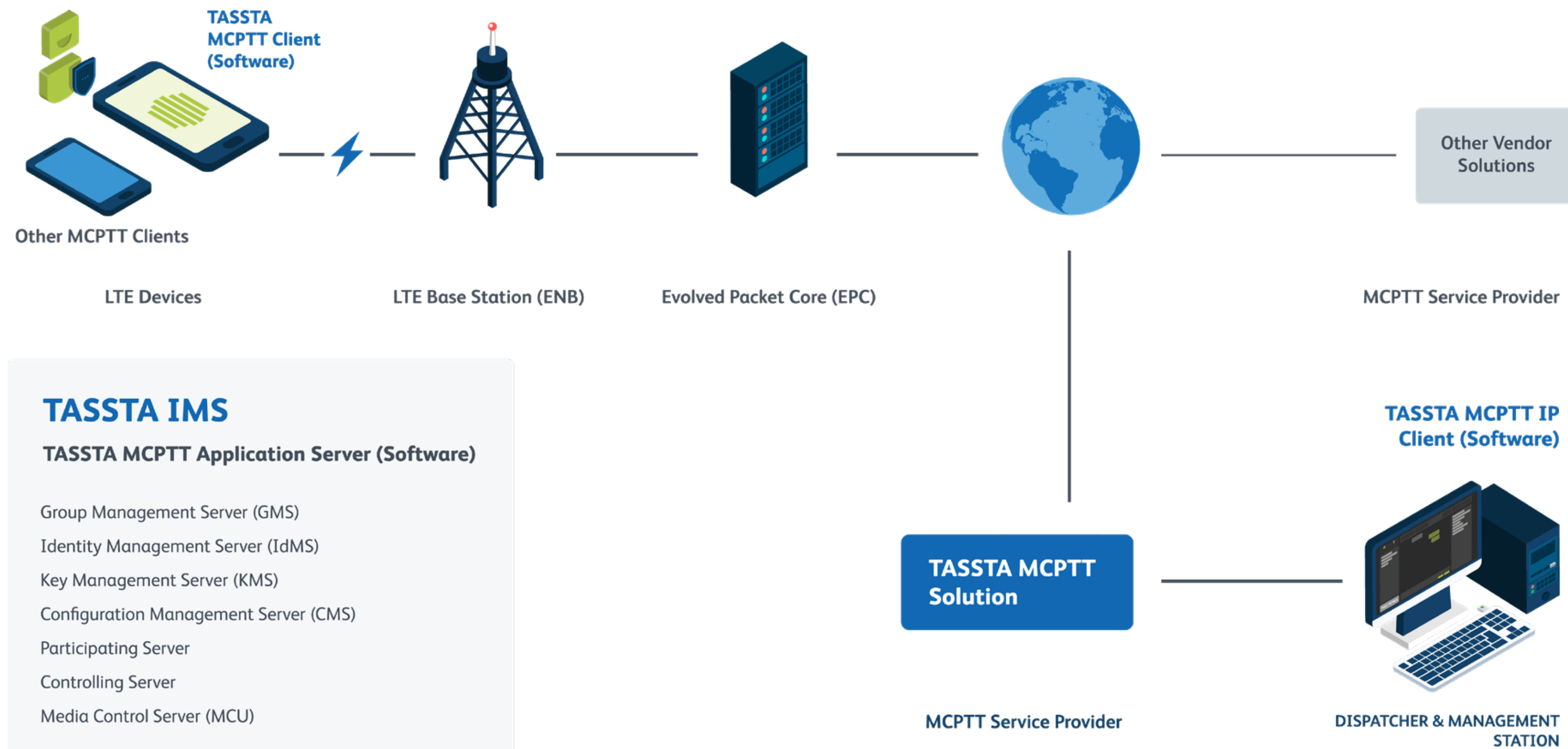
Including recorded video streams (private / group). MCDATA user shares file(s) between another user or group of users who participates the group



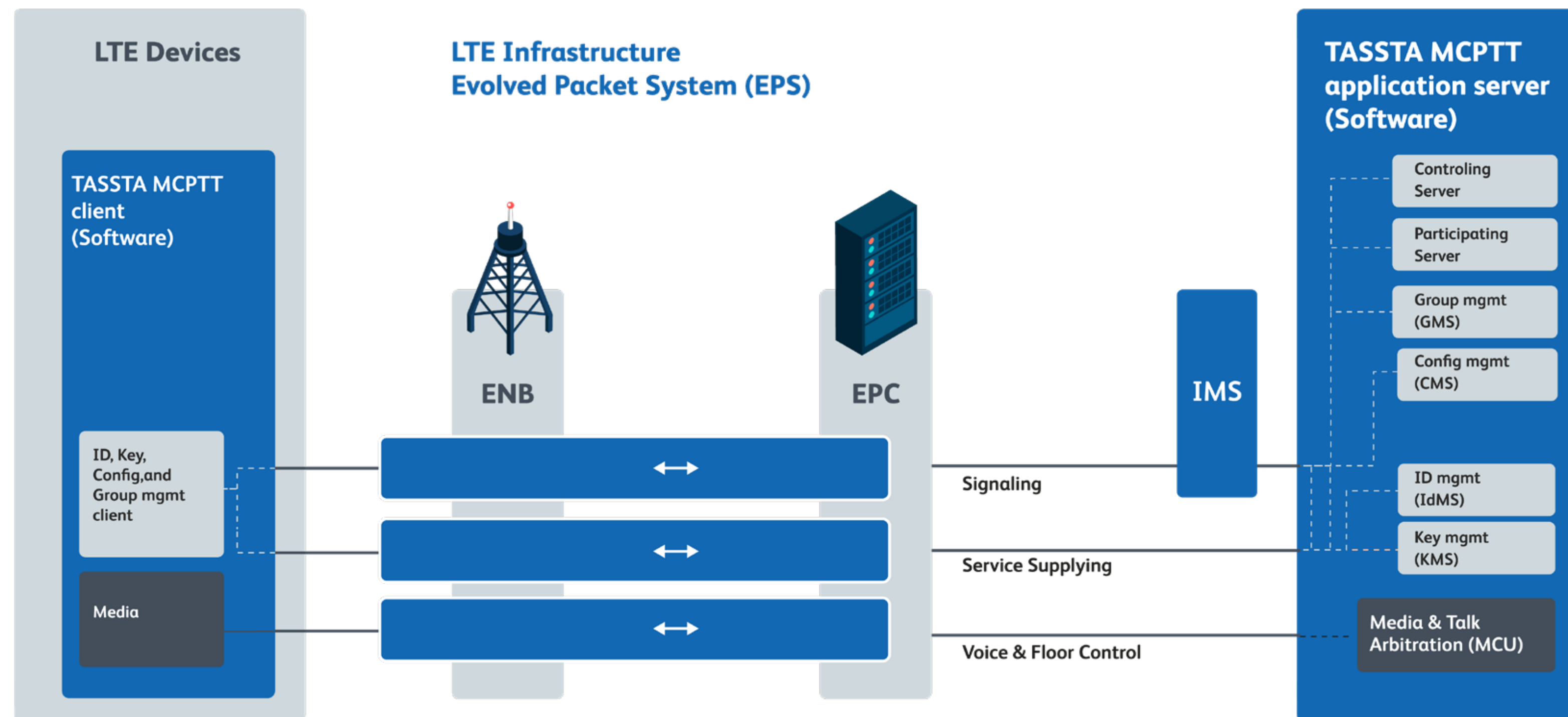
## Location Sharing

Periodically or by configured triggers (for example, when entering a preconfigured zone)

# TASSTA MCPTT SCHEME



# TASSTA MCPTT TECHNICAL SCHEME



- GMS** Group Management Server
- CMS** Configuration Management Server
- IdMs** Identity Management Server
- KMS** Key Management Server
- MCU** Media Control Unit
- IMS** IP Multimedia System
- EPC** Evolved Packet Core
- ENB** Evolved Node Bs



## T.CONNECTOR

### TASSTA's patching solution.

Professional middleware solution for interconnecting different channels from different radio solutions, which run on the same server.

### Supporting networks:



```
1 func patchChannels(ctx context.Context, chn1, chn2 *radio.Channel) {  
2     for {  
3         select {  
4             case <-ctx.Done():  
5                 return  
6             case a1 := <-chn1.audio:  
7                 chn2.Send(a1)  
8             case a2 := <-chn2.audio:  
9                 chn1.Send(a2)  
10            case sig1 := <-chn1.signaling:  
11                chn2.Signal(sig1)  
12            case sig2 := <-chn2.signaling:  
13                chn1.Signal(sig2)  
14        }  
15    }  
16 }
```

## WHY TASSTA?

- Fast call set-up
- Secure communication
- Communication in groups (Group Call) and Individual Calls
- Assigning different priorities (Priority Call)
- Independent management of permissions
- Fast and reliable data transmission
- Order management system for easy procurement and tracking
- Low investment costs for infrastructure and hardware
- Low maintenance time
- High level of acceptance among users by convenient terminals
- Integration into existing PMR systems
- Expansion of the already available and existing systems by an almost global reach



**TASSTA**