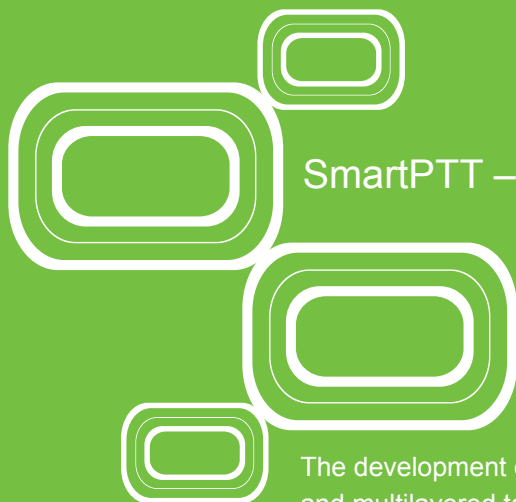


SMART DISPATCHING SYSTEM



SmartPTT – smart dispatching system

The development of a dispatching system is a non-trivial and multilayered task. Today's consumer requirements for such systems are often not limited to just facilitating voice communications via a radio network. More efficient bandwidth use, greater flexibility and prioritization of calls, monitoring of subscriber movements, enhanced subscriber-specific equipment management functions, integration with IT infrastructure etc. are also required. Current analog systems are almost reaching the limit of their capacities.

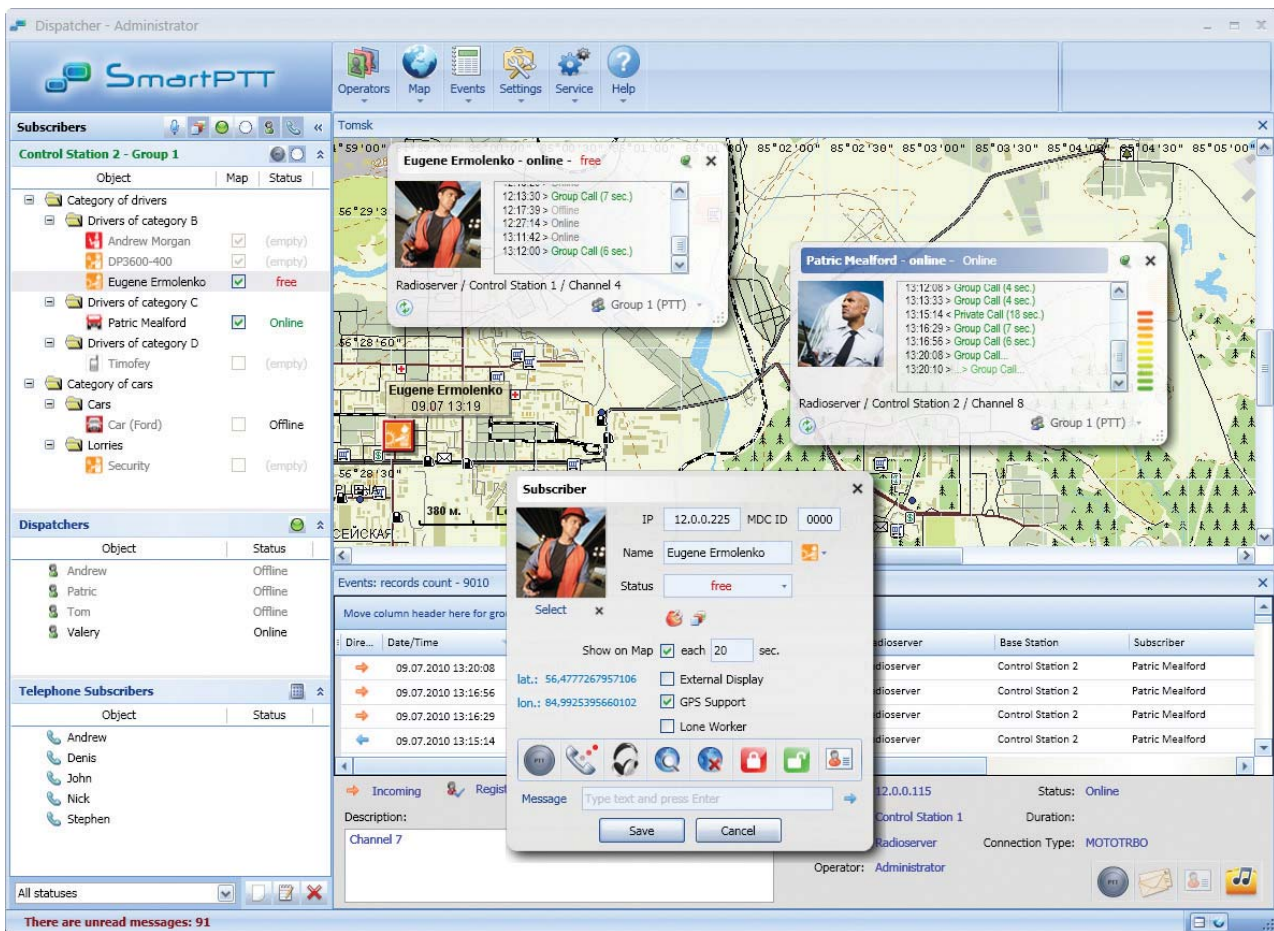
Digital Radio Communications

Digital telecom technology innovators such as Motorola develop and manufacture digital IP-platforms that include all the advantages and features of digital communications. But a modern dispatching system is not only a hardware suite. Software is the system's key component. It implements the digital platform's potential and facilitates the maximum adaptation of the hardware platform's features to customer-specific requirements.

SmartPTT is a software package which facilitates the construction of an automated dispatching system and includes all benefits of the MotoTRBO digital platform (Motorola).

SmartPTT architecture can manage subscriber networks of any size and topology.

SmartPTT allows the use both of the digital features of MotoTRBO radio stations and analog mode to facilitate gradual upgrade to the new radio communication standard by means of a "mixed" mode of operation when some sites operate in an analog mode and others operate in digital.

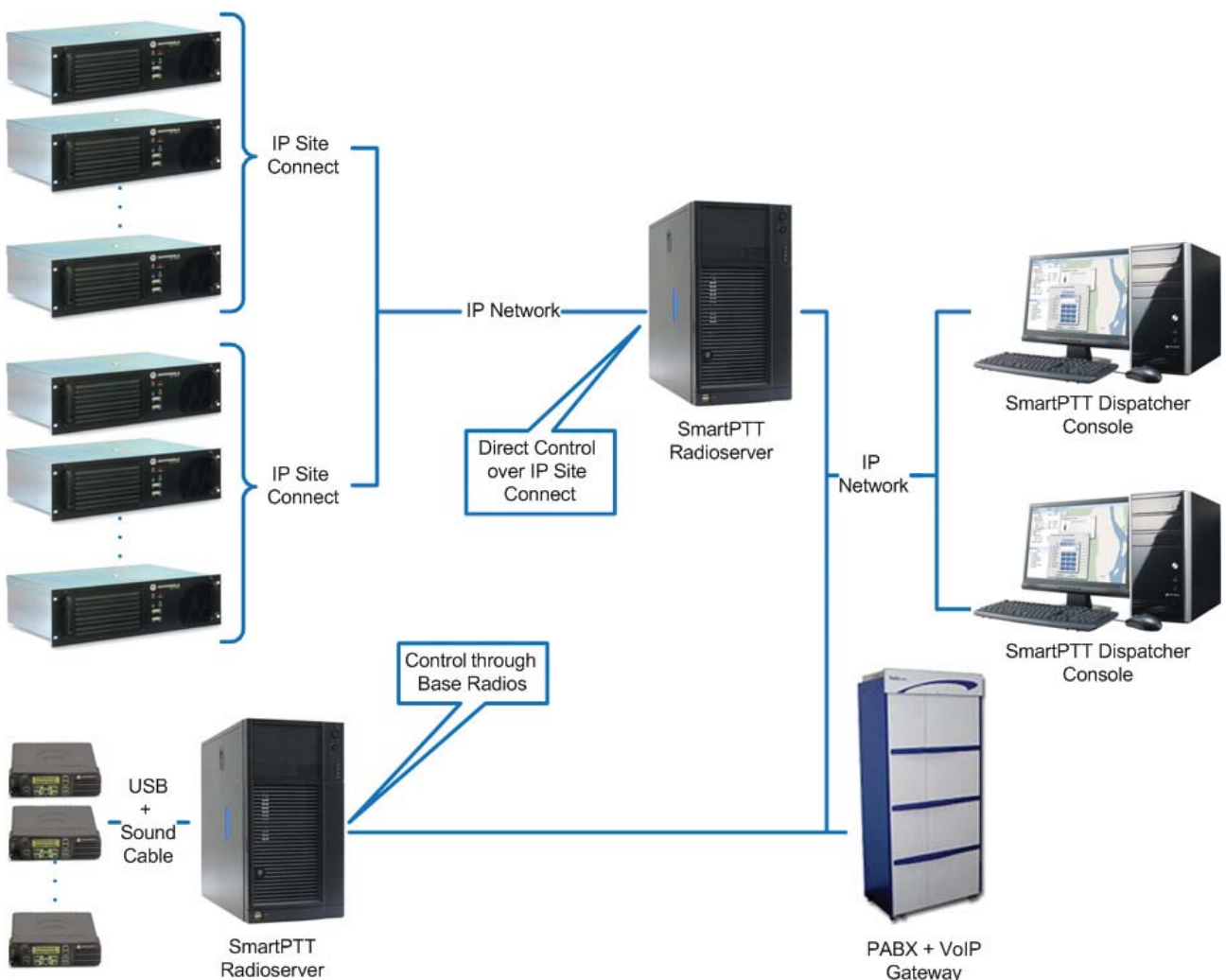


SmartPTT Enterprise

SmartPTT Enterprise software implements complex dispatching control over MotoTRBO digital radio networks.

SmartPTT Enterprise includes all functionality of SmartPTT Advanced, but considerably differs in architecture approach.

The key feature of SmartPTT Enterprise is possibility of direct control over IP Site Connect networks (SmartPTT Enterprise connects directly to DR3000 repeater through IP protocol).



SmartPTT Enterprise Architecture



SmartPTT Enterprise Advantages

■ Enhanced Functionality

Direct control over IP Site Connect allows enhanced control over radio subscriber:

- Logging all data and voice activity in IP Site Connect including private calls and text messages.
- Logging information about the repeater used by subscriber for calls. Having this information it is possible to know approximate location of subscriber with the radio without GPS-receiver.

■ Scalability

Because of the optimized architecture and enhanced means of dispatching control, **SmartPTT Enterprise** allows effective building dispatching systems of any size and topology.

■ Reliability

SmartPTT Enterprise architecture requires considerably less amount of functional blocks to build the dispatching system in comparison to other applications. **SmartPTT Enterprise** doesn't need control stations (MotoTRBO mobile radios) to communicate to subscribers. Also, it is not necessary to put Radioservers in radio coverage area.

■ Cost Efficiency

SmartPTT Enterprise saves considerable money for dispatching system in comparison with solutions based on control stations, because **SmartPTT Enterprise** requires considerably less units of server infrastructure and control stations are not needed at all.

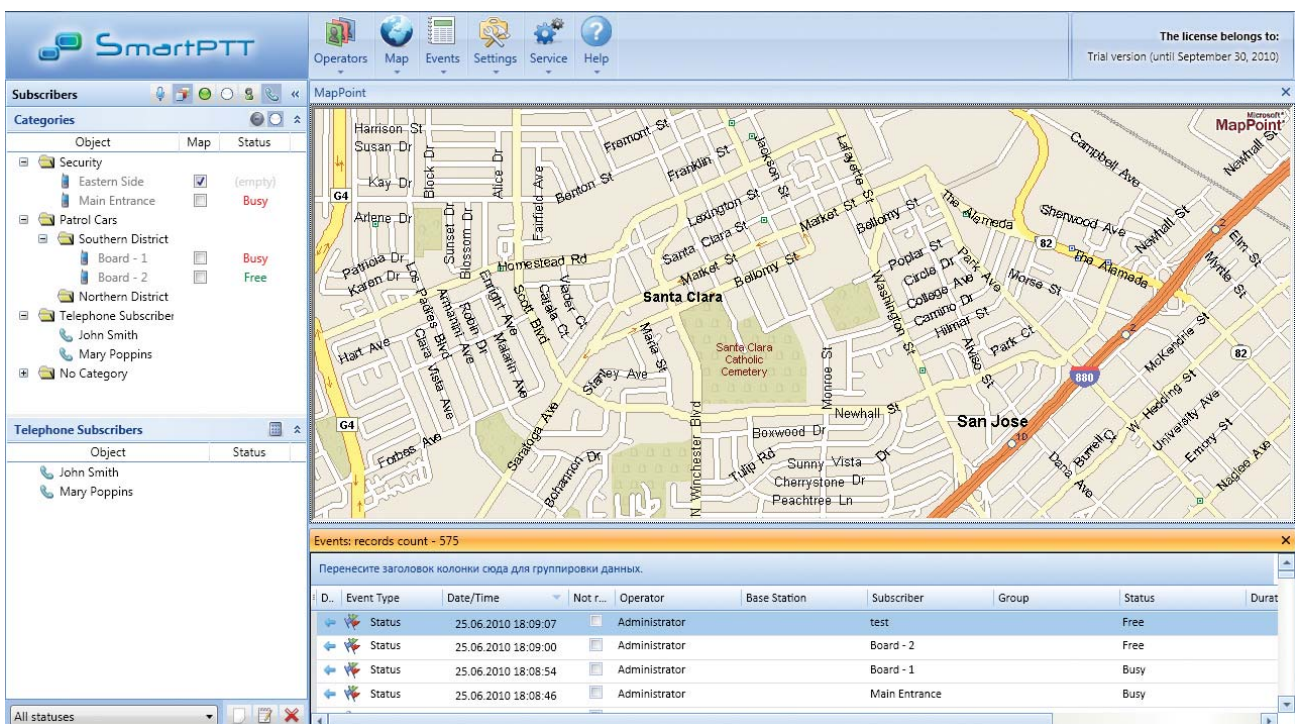
Radio Dispatch

SmartPTT Radio Dispatch functionality

- Two-way individual, group and all calls at **SmartPTT** Dispatcher Console;
- Calling subscriber identification;
- Remote voice monitoring;
- Dispatcher Intercom calls;
- Telephone subscriber calls from **SmartPTT** Dispatcher Console;
- Telephone Interconnect;
- Voice Logging.

SmartPTT Dispatcher Console supports 4 subscriber types for dispatcher voice communication:

- MotoTRBO Subscriber Radios (individual, group, all calls);
- Analog Subscriber Radios (all calls);
- Telephone Subscribers (full duplex voice connection by SIP-protocol);
- Other **SmartPTT** Dispatcher Consoles (full duplex voice connection).



! Please Notice

SmartPTT Dispatcher Console consists of ordinary Windows-based PC and **SmartPTT** software only. Installation of radios is not required at the dispatcher console.

SmartPTT voice logging system stores sound files in mp3 format. Files can be played back from the dispatcher console event viewer or by ordinary sound player from the folder where the mp3 files are stored.

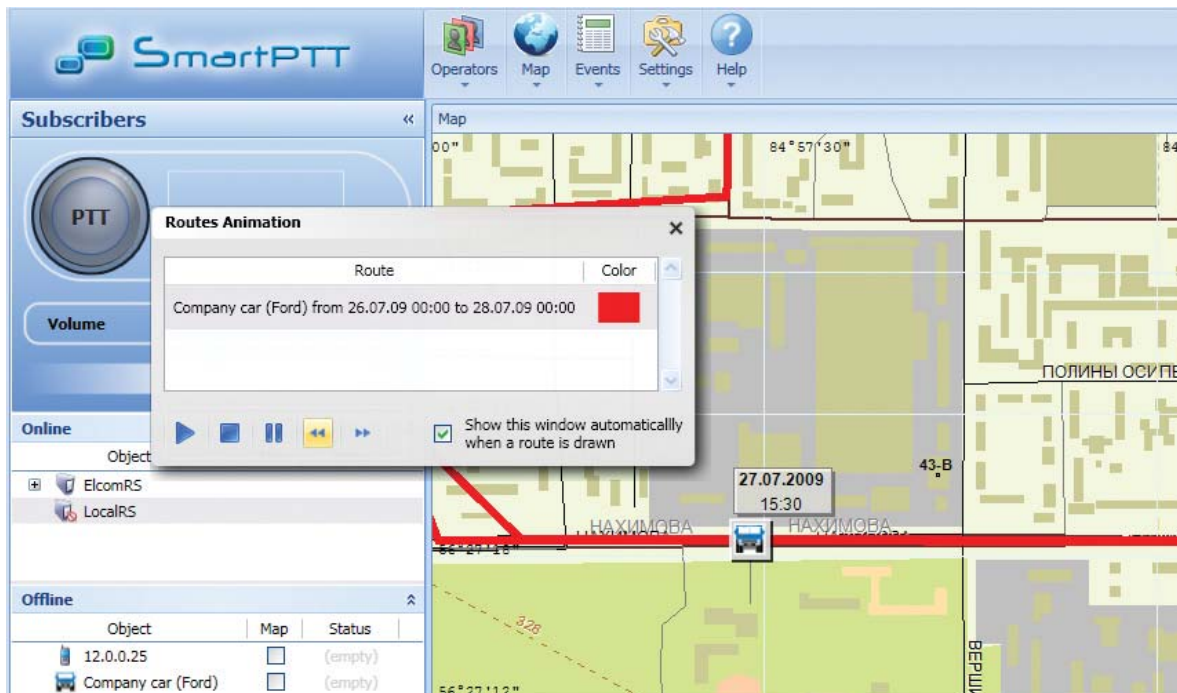
Subscribers of all types, Control Stations and Groups can be arranged in the flexible Category tree. Each subscriber can belong to multiple categories simultaneously.

GPS Monitoring

SmartPTT allows monitoring of MotoTRBO subscriber radios with embedded GPS-receiver.

SmartPTT AVL Functionality

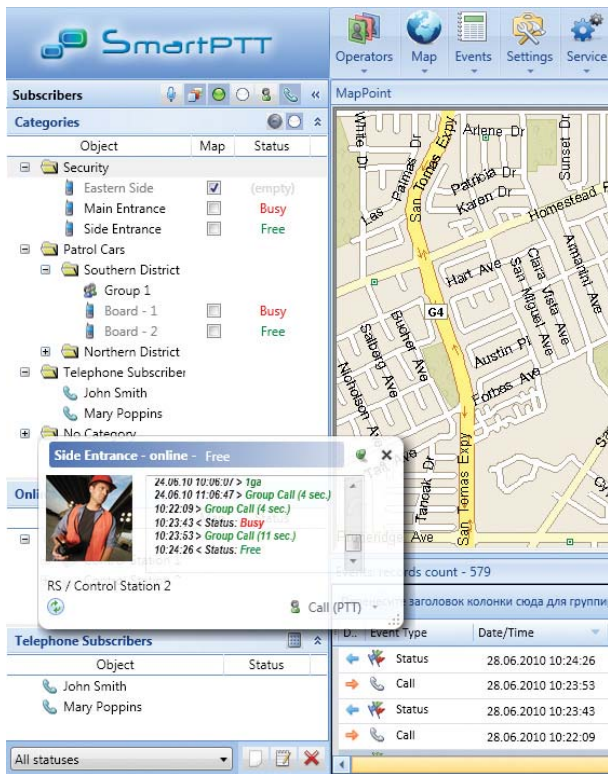
- Real time MotoTRBO subscribers monitoring;
- 5 map formats support (open vector maps, raster maps, MapPoint and others);
- Subscriber locations logging;
- Subscriber route analysis for specified period of time;
- Route draw and animation;
- Subscriber movement detailed report;
- Geofencing. Control zones input/output monitoring;
- Alert on subscriber stop;
- Automatic subscriber location request (time interval for location request can be specified for each subscriber individually);
- Location request by event;
- Manual location request;
- Export locations to KML file by specified period of time (for example, it can be useful to do monitoring in Google Earth).



! Please Notice

SmartPTT Dispatcher Console allows opening several maps of different types arranged in convenient way. Maps in the dispatcher console can be displayed in independent windows on external display or plasma panel.

Data Transmission and Storage



SmartPTT data transmission functionality

- Text message exchange

SmartPTT Dispatcher Console allows sending text message either to individual MotoTRBO subscriber or group. Subscribers with the radio having display and keyboard can send text message back to the Dispatcher Console.

- Telemetry

SmartPTT Dispatcher Consoles allows controlling over GPIO contacts of MotoTRBO subscriber radios.

- Status Control

SmartPTT supports flexible list of statuses for subscribers. (Every status can have its own color). Statuses can be assigned to subscribers, either from the dispatcher console or by pressing accessory button on subscriber radio. Status filter in the dispatcher console allows easy selection of the subscribers having specific status.

Data storage functionality

SmartPTT logs all system events (registration, voice calls, text message, status change, radio kill, telemetry signal, GPS location) into database. **SmartPTT** uses MS SQL Server for storing the data (**SmartPTT** setup package includes MS SQL Express free edition).

Voice logging in **SmartPTT** is done by saving sound files (mp3 format) to specified folder.

Data and voice logging can be done on both client and server side of **SmartPTT** software.

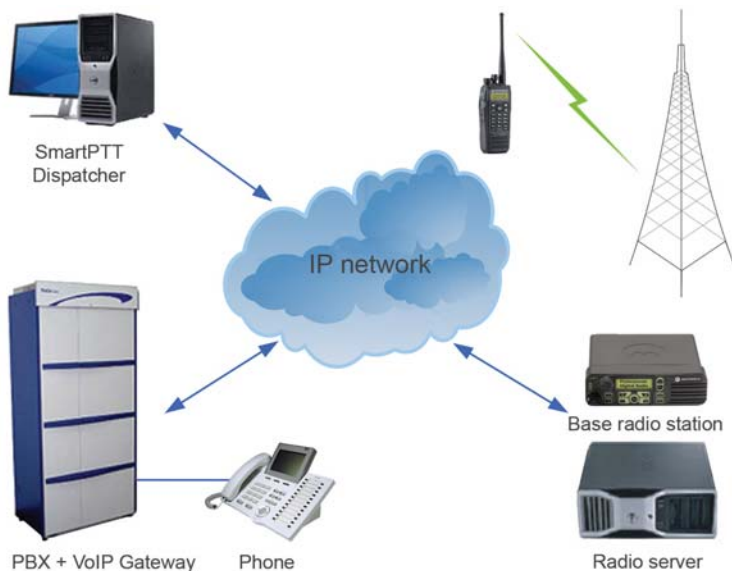
! Please Notice

Event viewer in **SmartPTT** Dispatcher Console has embedded functionality to filter, group and sort records displayed in the viewer.



Telephone Interconnect

SmartPTT software introduces Telephone Interconnect Gateway to make calls between MotoTRBO Radio and telephone subscribers. The gateway is the software component embedded into **SmartPTT** Radioserver service. Telephone interconnection is established by SIP through VoIP-Gateway connected to PBX.



Telephone Interconnect Features

- Multiple concurrent channels to telephone network;
- Possibility to limit list of authorized radio subscribers;
- Voice call recordings in MP3 format.

Communication with radio subscribers is established by means of one or several MotoTRBO Control Stations. Control Station quantity using different frequencies corresponds to amount of concurrent channels dedicated to telephone interconnection.

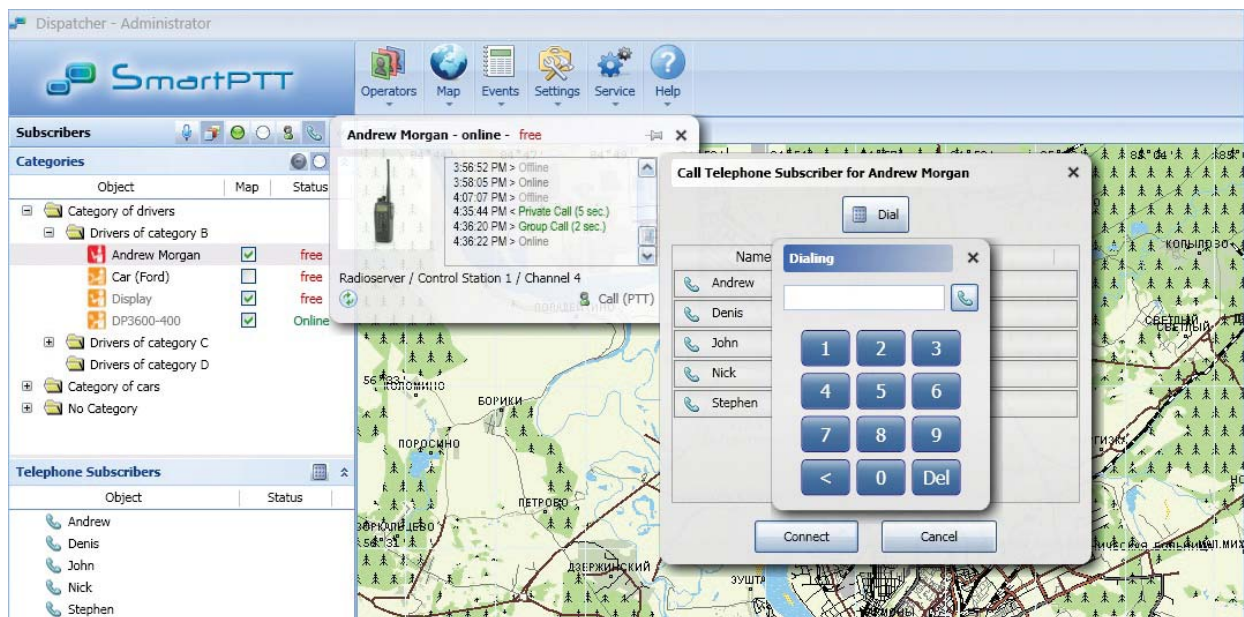
Upon successful connection between **SmartPTT** Telephone Interconnect Gateway service and telephone subscriber, the transmission on the Control Station is activated by automatic detection of voice coming from telephone set. In the moment when

telephone subscriber stops talking the Control Station ends the transmission and radio subscriber can do call back by pressing PTT button.

SmartPTT Telephone Interconnect Gateway service allows limitation of radio subscribers granted to communicate with telephone subscribers. Also it makes possible to record all voice calls going through the gateway. These features provide an efficient radio channels utilization and eliminate possibility of unauthorized subscriber calls.

Interconnection initiated by dispatcher

Operator of **SmartPTT** dispatcher console can connect radio and telephone subscriber by means of the Call Window. Radio subscriber makes voice call on the channel dedicated to telephone gateway requesting the dispatcher for interconnection. Functionality of the Call Window allows easy dialing of target telephone subscriber number and establishment of the interconnection.



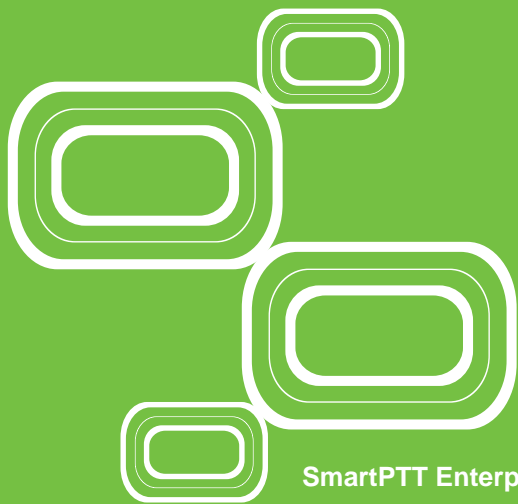
Automatic interconnection initiated by telephone subscriber

Telephone subscriber can make voice call to a radio by dialing prefix number and Radio ID programmed in MotoTRBO radio. Preliminarily, it is necessary to perform settings of VoIP Gateway with the range of numbers corresponding to IDs of MotoTRBO radios and their forwarding to SmartPTT telephone gateway.



Automatic interconnection initiated by radio subscriber

To do telephone call, Radio subscriber sends text message with the number of the subscriber to the Control Station installed for telephone interconnection. **SmartPTT** telephone gateway service transforms the number into SIP-address and makes the call to VoIP Gateway. When telephone subscriber picks up the phone and start talking, **SmartPTT** transmit the voice to the radio by means of the Control Station.



SmartPTT Enterprise Best Application

SmartPTT Enterprise is ideal solution for dispatching control over radio networks based on IP Site Connect or standalone DR3000 repeaters. Such systems are most applicable for:

- **Linear-extended objects.** Dispatching systems for oil and gas pipelines, electrical networks.
- **Geographically-distributed objects.** Dispatching systems for emergency services, municipalities, public transportation, security services, etc.

