Integrated Safety and Security platform
PROTEI-TODAY

• Full range of solutions for 112 Systems (Call Emergency system).
• System and equipment for population alert.
• Command centers and contact centers.
• More than 17 year experience in the telecommunications.
• More than 240 specialists.
• Full manufacturing cycle of hardware and software development, research laboratories.
• Experience with major operators of fixed and mobile communications.
• PROTEI solutions installed on 1000+ sites in Russia and abroad.
• Collaborative projects with the Ministry of Emergency Situations, Ministry of Interior, Ministry of Defense of the Russian Federation, Russian Railways.
PROTEI Integrated Safety and Security platform

PROTEI integrated solution fully fits the requirements of «112 / 911 Emergency Management Systems», «Safe city» and many other concepts of public safety.

Our Integrated Security and safety platform is a modern hardware and software solution allowing to deploy systems of any complexity and adjust them to the specific characteristics of the object. Due to specifics of the architecture based on IP technology it is easy to expand functional possibilities of the platform.

Advantages

• In house software development.
• 24-hour technical support service.
• Modern technologies.
• Time tested reliance.
• Fast implantation.
• Integration with external data bases.
• Easy adjustment to the client requirements.
• All necessary licenses and certificates.
• Running systems.

Subsystems

• Telecommunication subsystem.
• Information communication subsystem (incl. call processing center).
• Geo-information subsystem.
• Monitoring subsystem.
• Subsystem of video analysis and video conference call.
PROTEI Integrated Safety and Security platform allows to implement solutions that fully comply with the requirements of international standards for System-112 and can be easily integrated with other components of region security.

PROTEI security platform provides all necessary functions for receiving and processing one number emergency calls, for controlling reaction to requests, for interdepartmental coordination and for information authority support.

Thanks for great functional possibilities PROTEI security platform is the effective solution for building System-112, Unified Emergency Duty-Dispatcher Service of any mobile operator, and automatization of emergency services (Ambulance, Fire, Police, Gas, etc.)

Advantages

• Processing of any requests received on a single number «112»Field-proven technology of integration with data bases.

• Maximum automatization of operators’ work.

• «Single window» principle functioning.

• Convenient instrument of information support for the region administration.

• A number of operators of «112» service is not limited.

• High reliance and stability of work.

• Flexible scaling of the system.

• Powerful system for collecting and analyzing the statistics information.

• Possibility of connecting remote operator’s workplaces.

• Possibility of building the system accounting for the existing infrastructure.

• Practical experience of deployment.

• Technical solutions that successfully passed independent expertise of the Ministry for Extraordinary Situations (MCHS) of Russian Federation and 2 steps of federal testing.

Successful experience of deployment, operation and maintenance of “System -112” based on PROTEI developments in Kursk and Kursk region allowed to create a unique solution adapted to the needs of emergency services and to the requirements of standards and regulations.

Reference list

• Emergency service 112 for Kursk, Kaluga, Novosibirsk, Sverdlovsk, Nizhny Novgorod, Chelyabinsk regions, the Republic of Komi, the Republic of Udmurtia, the Chechen Republic and others;

• Technical projects of emergency systems-112 for dozens of Russian regions;

• Intelligent video surveillance center for LLC «RZD». A unified system of at 100 stations, more 5000 video cameras;

• «Web election 2014» - video surveillance at the polling stations of the Republic of Sakha (Yakutia);

• Monitoring systems for a number of RF subjects (Barnaul, Volgograd, Tyumen);

• Photo-video recording (Tomsk Region, Republic of Khakassia);

• PJSC "MGTS" (modernization of 152 analog LE, 1,5 mln subscribers);

• PJSC "Rostelecom" North-West and Far East Macroregional Divisions (more than 50 000 subscribers);

• LLC "Gazprom Telecom" (10 000 subscribers, 110 E1).
PROTEI Call Center is the basic element of System-112. It is designed to equip the emergency services of different type and designation. It provides great possibilities for increasing the effectiveness of reacting to incoming requests and for increasing the productivity because of automation of work of services that receive requests from the population.

Functional Possibilities of PROTEI Call Center

- Support of any number of services (operator groups) in one system. Each has its own queue in each group.
- Control system of queue size
- Call monitoring.
- Built-in subsystem of call recording.
- Built-in subsystem of call back functionality.
- Flexible interaction with databases.
- Subsystem of flexible call routing.
- Sorting of calls by several algorithms.
- Ability to search the location of mobile client.
- Redirecting of calls.
Deployment Schemes of System-112

Distributed Scheme

Specifics

• Unique base of processing and storing the data for the whole region.
• Call processing centers and local systems for data storing are set in each district.

Advantages

• Independent elements of System-112 on the base of Unified Emergency Duty-Dispatcher Service of the municipal district.
• High reliability because of modularity and duplicating functions ability.
• Effectiveness of using the channels.

Disadvantages.

• High expenses to deploy.
• Long terms of deployment.
Centralized Scheme

Specifics

• Single data processing center for the whole region.
• Single center.

Advantages

• Optimal solution for small territories.
• Economic effectiveness thanks to minimal size of appliances.

Disadvantages

• Reliability reduction because of centralize call processing functions.
• Increasing demands to the channel capacity for services on the level of call processing center for all of the municipal districts.
Mixed Scheme

Specifics

- Single center of data processing for all of the municipal district.
- Data processing centers may be created for certain groups of municipal districts in accordance with the principle of gravitation.

Advantages

- Optimal solution of the territory distributed municipal districts.
- Economic effectiveness thanks to ability to take into account specifics of different country regions.

Disadvantages

- Time consuming designing stage.
- Complexity of the system.
“Cloud” Scheme

Deployment of the “cloud” scheme of System-112 is the alternative for the “traditional” deployment model. The use of “cloud” technologies allows to create convenient and highly functional platforms to acquire full complex of services on the base of provider infrastructure.

Specifics

• Providing the infrastructure as the service.
• Single call processing center on the base of service-provider equipment.
• Single data processing center on the base of service provider equipment.

Advantages

• Single HW-SW space with the option of efficient allocation of the resources.
• Universal access to the service from any terminal.
• Economic effectiveness.
• High reliability.

Disadvantages

• Issues associated with information security.
• Dependence on the provider and his connection channels.
System Components

PROTEI Integrated Safety and Security platform is built using modern technologies, where functional possibilities are implemented by application servers. Each application is responsible for its set of services. Depending on the requirements it is possible to build different systems starting with municipal district unified emergency duty-dispatcher service to integrated solution of municipal district security.

PROTEI Unified Emergency Duty-Dispatcher Service platform is a powerful integrated solution of receiving and processing emergency calls from the population using a single number.

With the implementation of PROTEI Unified Emergency Duty-Dispatcher Service the heads of municipal districts receive the access to the information about the situation in the region from a single source. It allows them to react operatively to the emerging incidents and to make effective management decisions.

The key advantage of PROTEI Unified Emergency Duty-Dispatcher Service platform is the possibility of independent functioning on the municipal district level prior to inclusion to a single System-112 of the region.

The practical experience of the exploitation allowed to maximum adjust the solution for the needs of emergency services and showed that the use of PROTEI Unified Emergency Duty-Dispatcher Service platform lets to substantially reduce the time of reaction to the emergency situations.
PROTEI Emergency Duty-Dispatcher Service Platform

Basing of PROTEI platform it is possible to build the systems of automatization of work of Duty-Dispatcher Service of different emergency services.

- "Fire Department"
- "Police"
- "Ambulance"
- "Gas Emergency Service"
- "Anti-terror Service"

PROTEI Emergency Duty-Dispatcher Service platform provides all of the call reception and processing speeds the reaction process and lets administrative and legislative administration operatively receive the information about the security in the region in general.

Thanks to the possibility of integration with the geo-informational services, PROTEI Emergency Duty-Dispatcher Service platform provides the continuous escort of the crew in times of emergency situation liquidation, showing the location of the emergency and the movement of the crew on the map.

Advantages

- All-inclusive solution for the emergency services.
- Full automatization of work the on-duty crews.
- Work with the system using the "one window" principle.
- Self-contained solution of part of System-112.
- Specialization and adaptation for the needs of specific services.
- Reception and processing of requests from the operator of Unified Emergency Duty-Dispatcher Service or processing of the calls directly to the number of emergency service.
- Integration with the geo-informational systems.
- Built-in subsystem of management of forces and resources.
- Easy integration with the external data bases.
- Adjustment of security access to the specialized data bases.
- Call recording.
- Built-in subsystem of statistics collection and reports generation.
- Convenient GUI of the operator.
- Practical experience of operation and maintenance (O&M).
Components of HW-SW integrated System-112 on the Regional Level

PROTEI platform can be scaled horizontally. Integration with different servers substantially expands its functionality and allows to create complex solutions that are easily interconnected with the security systems of the region.
**System Architecture**

**PROTEI Softswitch m.Gate.NG**

PROTEI Softswitch m.Gate.NG is the key element of PROTEI Unified emergency duty-dispatch service platform that functions as a trunk IP-telephony gateway and softswitch based on unified call distribution server. It allows to convert calls coming from Public Switched Telephone Network (PSTN), into IP-telephony format and provides the management of the process of connection setting to a certain operator.

**Call Distribution Server**

Generates the queue and distributes incoming calls to the operators using different algorithms according to the system settings.

**Call Cards Server**

Allows to manage the process of creation, modification, storing and analysis of call cards, formed at the reception of emergency calls.

**Call Recording Server**

Provides the 100% call recording in the system with the possibility to listen to certain separate fragments.

**Subscriber Gateway m.Access.MTU**

Allows to connect up to 24 analog phones via two-wire circuit to IP network.

**Operator Workplace**

Hardware: PC with two monitors (one for calls receiving and calls processing, another - for operative data derivation (e.g. electronic maps, video content from the cameras, etc.), SIP-phone and phone headset.

Software: set of specialized applications installed on the PC that lets the operator to receive calls, fill and send out call cards to the specified emergency services, to control responses to the requests and to form necessary reports.
Geo-Locating System Integration Server

- Provides interaction with any Locating Systems.
- Allows to make the linkage and representation on the electronic map of the addresses or geographic coordinates of the emergency location.

Integration Server with “ERA-GLONASS” (Global Navigation Satellite System)

- Provides the receiving and processing of data from the terminals of «ERA-GLONASS».
- Transmits to the server the data from the call cards for the automatic formation of the map.

System of Positioning and Satellite Navigation

- Receives location and time coordinates of moving objects using SGPS/GLONASS (Global Navigation Satellite System) technologies.
- Displays the received data in the form of the text or graphic objects on the electronic map.
System Components

Subsystem of receiving subscriber’s location information

• Receives subscriber location information in any format from the devices of mobile or fixed operators.

• Shows location of the calling subscriber on the electronic map.

Notification Subsystem

• Provides notification about the emergency situation for mobile subscribers via SMS.

• Provides outbound call notification playing of a given phrase in accordance with fixed-line subscriber lists.

Monitoring subsystem

• Provides the receiving and processing of the signals from the server of monitoring the potentially dangerously objects.

• Forwards information to form call cards to the co-responding emergency service and, at the same time, to Unified emergency service duty-dispatch service.
**Video Surveillance Subsystem**

- Provides the access to the images from any cameras set on different objects in the real-time or from the archives.
- Allows integration with the external video analysis systems.
- Represents images from accessible cameras on the electronic map.

**SMS Receiving Server**

- Provides integration with mobile operators network equipment for processing of SMS messages, received by emergency services.
- Provides the receiving and processing of the SMS, received from the special MS application "SOS Button"
Integrated Security System of Population Vital Activity (PVA)

PROTEI Integrated Security System of PVA intended for collection, analysis and providing of the information about the current situation from different sources in the given inhabited locality or in the whole region. Implantation of the system allows to predict emergency situation and the most effectively liquidate its consequences. PROTEI platform supports integration of different technical security systems within the framework of a unified integrated solution, allows controlling of functioning means of life-support, and provides effective monitoring of the current situation and information support for the executive authority. Thanks to the specifics of its architecture of PROTEI Integrated Security System of PVA deployment can be done stepwise without interruption of the operation of the already exploited systems.

Advantages

‒ Integrated solution for increasing security systems of inhabited localities.
‒ Integration with the System-112.
‒ Integration with geo-locating system and displaying of the objects on the electronic map.
‒ Video cameras developed by PROTEI.
‒ Multi-functional automated operators’ workplaces.
‒ Information display on the high-resolution screen (video wall).
‒ Providing interaction with the of emergency situation area.
‒ Built-in lawful interception subsystem.
‒ Flexible scaling.
‒ Collecting and analysis of the information from the different sources.
‒ Analysis of the risks.
System Components

Notification Subsystem

• Notification mobile and fixed-line network subscribers
• Mass distribution of SMS messages (bulk SMS campaigns)
• Distribution of Cell Broadcast messages
• Generation of outbound calls with auto-information phrase
• Integration with the system of video distribution (e.g. with all-Russian comprehensive system information and warning the population in crowded places)
• Simultaneous distributions using several lists and network channels at the same time
• Manually or automated distribution initiation
• Real time conducting of distribution statistics

System-112

• Receiving and processing of calls to emergency services using a single number “112”
• Control and coordination of responses to requests
• Information support for executive administration

Monitoring Center

• Integration with the 3rd-party monitoring systems into a unified information space
• Possibility of building multi-leveled distributed monitoring system

Subsystem of Monitoring of the Moving Objects

• Information integration from several different monitoring boards
• Receiving coordinates of moving objects with use of GPS/GLONASS technologies in real time mode
• Displaying information in textual of graphic form on the electronic map

Crisis Management Centre

• Integration with the higher-level emergency situation centers
• Providing information exchange between the different security systems
• Providing control and coordination form persons in charge
• Generating reports and statistics about the situation in the region in general
PROTEI "Safe City" Video Monitoring System

• Usage of high resolution 16 megapix. cameras developed by PROTEI.
• Possibility to connect 3rd-party production video cameras.
• Number of video cameras is not limited.
• Figure recognition on considerable distances.
• Possibility to display video from several cameras.
• Control of open spaces or the perimeter of extended objects.
• Integration with external systems of video analysis.
• Authorized access to the video cameras from any 3G terminal.
• Possibility of video cameras remote configuration.
• Viewing of the image in real-time mode or from the archive.
• Possibility of connecting external sensors of the security systems.
• Depicting accessible video cameras on the electronic map.
• Search of a certain camera by different criteria (identification of a camera or a group of cameras, address, location coordinates, etc.).
• Convenient GUI of the operator.
Transport Security

PROTEI platform allows to create solutions providing integrated security and to adapt it to the specifications of the object, for example a transport sector.

R&D PROTEI integrated solution for transport security allows to provide video control of all strategically important objects (e.g. railway stations), creation of a single data base of emergencies occurred, and decision making support in the emergency situations.

Specific feature of PROTEI integrated solution is its possibility to allow access to all video cameras on the object under control and to display it on the electronic map.

PROTEI integrated solution allows to effectively solve such tasks as predicting emergency situations, antiterrorism, operative management at liquidation of emergency situations, control of completing the set tasks and directive instructions.

Advantages

• Adapted solutions for the specific tasks (objects).
• Automatization of receiving and processing the requests from different sources of information.
• Integration with geo-locating systems.
• Displaying cameras, sensors and events on the electronic map.
• Remote access to the information about the current situation on the object.
• Integration with the existing data bases.
• Control of completing tasks of liquidating emergency situations.
• Practical experience of operation and maintenance (O&M).
• Fully Russian development.
• Flexible scaling.
• High reliance.
Functional Possibilities

• Receiving emergency requests from outside sources of information (video cameras, sensors, etc.).

• Classification of emergency requests.

• Remote management of technical equipment, control of work efficiency of appliances and information channels.

• Call cards formation, sending to the operators of emergency services and responsible parties.

• Decision making support for emergency reaction.

• Objects monitoring.

• Creation of reaction plans to the different events.

• Recording of all given information (video, audio, text, telemetry), correlating to the emergency situation with the possibility of its further processing.

• Population and administrative parties notification of the emergency situations (outbound calls to all listed numbers with the recorded phrase by auto informer or sending SMS messages to mobile terminals).

• Sending all given information to automated workplace or to the higher-level emergency situation center.

• Generating system operation statistics and reports.
Monitoring of Potentially Dangerous Objects

The goal of creating monitoring of potentially dangerous objects is an on-time informing about out of order situations and operative reaction. Maximum effectiveness of work of system of monitoring the potentially dangerous objects can be reached only with creation of a single monitoring center that unifies information received from different systems (e.g. monitoring of engineering systems, perimeter security, fire alarm and others). PROTEI Monitoring of Potentially Dangerous Objects system effectively solves tasks of information integration from the 3rd-party systems of monitoring, automates the process of receiving and processing information from any monitoring centers and forwards it to the corresponding services (unified emergency -duty-dispatch service, Ambulance service, Police, etc.) for providing quick reaction. Thanks to its architecture PROTEI integrated solution allows to build multilevel distributed systems for deployment of monitoring centers for federal executive branches, executive power of the country and machinery of government.

Advantages

• Integration with 3rd-party monitoring systems into a single information space
• Possibility of building multilevel distributed monitoring system
• Integration with System-112
• Full interaction with different systems of video monitoring
• Automatization of receiving and analysis of incoming information
• Integration with geo-locating systems
• Real-time mode operation
• Unlimited number of connecting objects to the system
• Information protection from illegal access
• Modules structure of system architecture
• Fully Russian development
Functional Possibilities

- Integration with any existing systems of monitoring (access control, perimeter security, etc.).
- Processing of any information flows from different sources.
- Emergency situation cards formation basing on received information from different monitoring systems.
- Integration of events processed by separated systems.
- Automated classification of received requests.
- Automated completion of correlated plan of reaction.
- Displaying locations of the objects and the sensors on the electronic map.
- Forwarding emergency situation cards and all the information related to the event into adjacent emergency situation centers, System-112 and specialized emergency services.
- Forwarding emergency situation cards for the control to the responsible parties.
- Operative and expert analysis of the situation.
- Control under execution of regulations of event liquidation.
- Modeling of scenarios of the situation evolution.
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