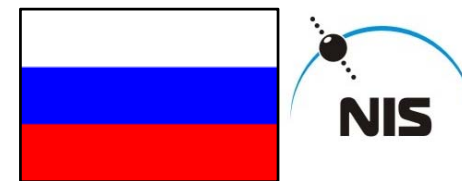


Joint Stock Company “Navigation-Information Systems” Proposals in the field of utilization/commercialization of GLONASS-based technologies

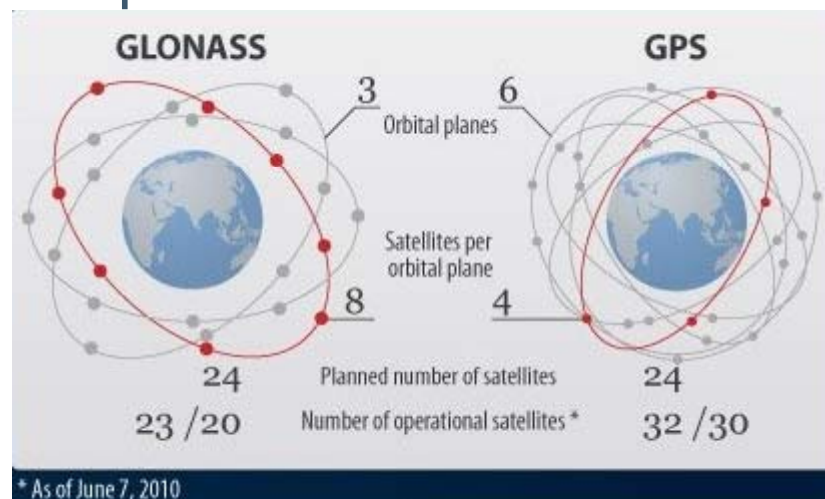
- Why Dual System?
- Software products/applications
- Precise positioning systems application
- User telematics terminal
- Basic accessories
- Conclusions

Why integrate different Global Navigation Satellite Systems?



- ✓ More visible satellites providing better geometry
- ✓ Additional measurements giving redundancy and also the potential for rejecting questionable data
- ✓ Additional data allowing multiple parameter estimation
- ✓ Better accuracy when new or modernized signals become available
- ✓ More signals at different frequencies aids resilience to potential interference

Existing global navigation satellite systems		
	USA	GPS (Navstar) fully operational
	Russia	GLONASS limited operation
	EU	Galileo in development
	China	Compass (BeiDou) currently being deployed
	India	IRNSS in development



Why integrate different Global Navigation Satellite Systems?

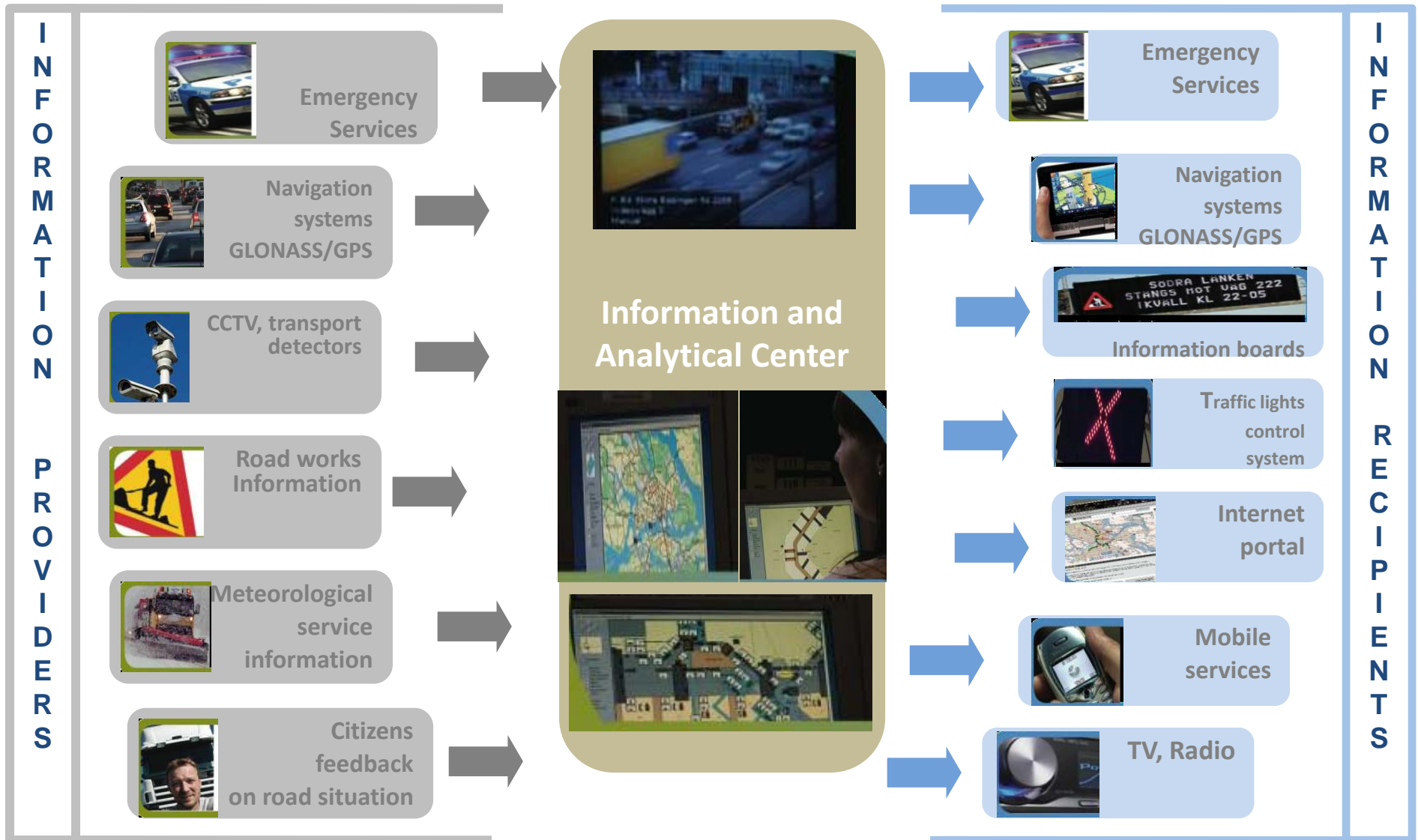


Integration of different GNSS helps prevent the reliance on just one system and provides more opportunity to provide a more robust position solution

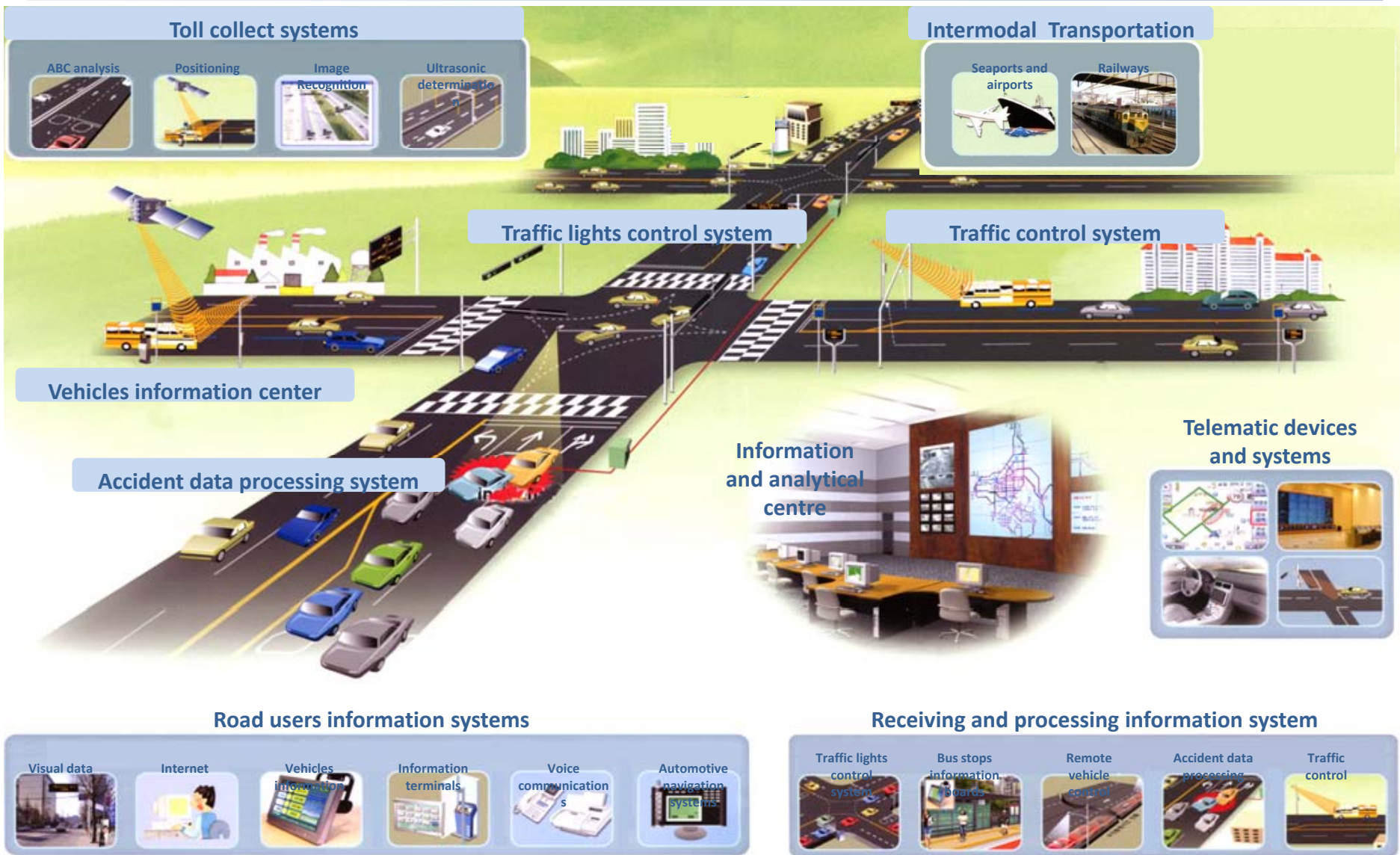
Performance

- At present, GLONASS is used as an augmentation to the GPS system to provide better redundancy
- Results show that the utilizing the GLONASS system does not degrade the position solution
- With the launch of more GLONASS satellites it should be possible to calculate a GLONASS only solution (can be done today but coverage limited, will be completed by the end of 2010)

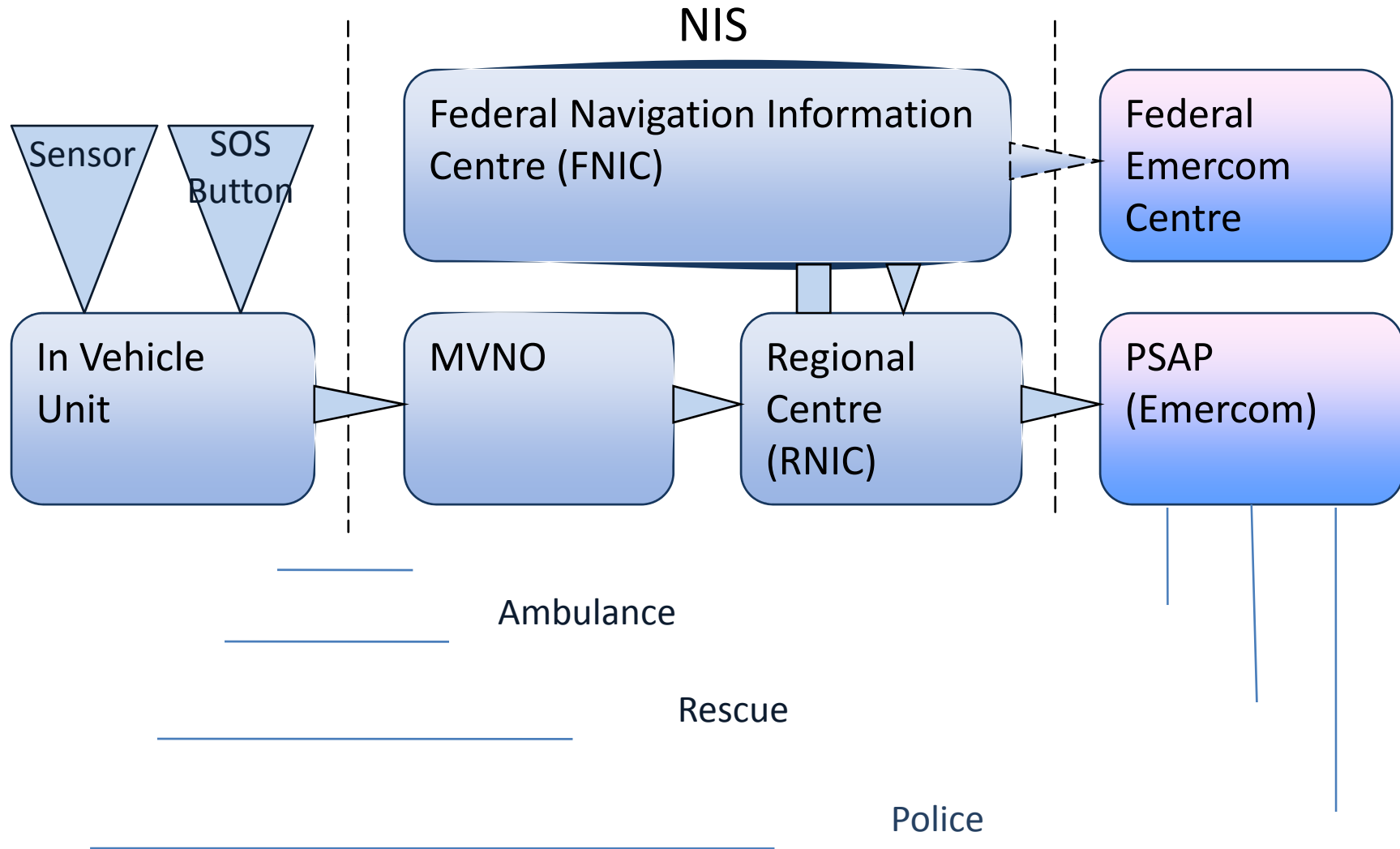
ITS interaction scheme



ITS technological basis



SAFE CITY working process



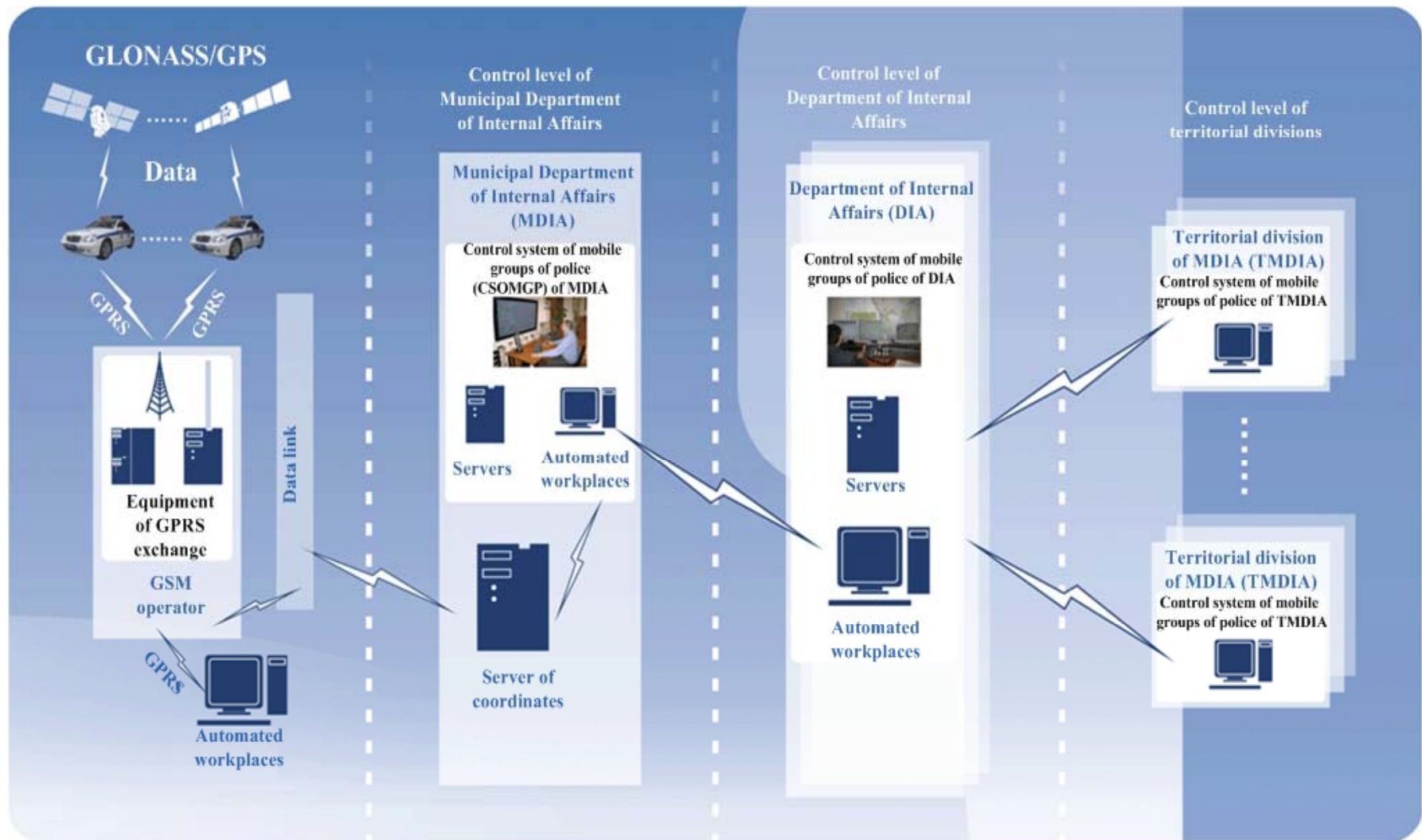
SAFE CITY Objects



- Central Police Department of Moscow
- Regional Police departments
- Home Affairs departments
- Patrol forces
- Police units
- Separate police units
- Road traffic police forces



Architecture



Implementation of a SAFE CITY in Moscow



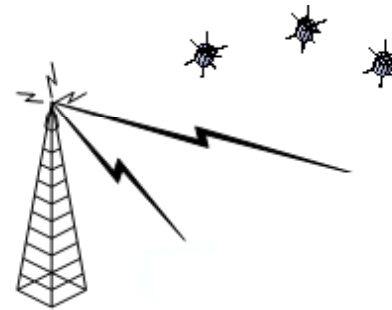
Moscow, April 2009.

System demonstration for Police Ministry and Moscow Mayor

Precise positioning systems application



- Building monitoring
- Agricultural technology
- 3D cartographic complex
- Cadastral works
- Geodetic support of building activity
- Landslides monitoring
- Cartographic works



- Satellite navigation based methods of precise object location determination
- Installation of stationary and use of mobile basic stations
- Application of modern results processing and geoinformation systems

Usage of satellite technologies during geodesic, cartographic and cadastral works allows:

- To increase productivity of works for planning and determination of objects boundaries and altitude characteristics, resulting in labor costs reducing in 50 and more times;
- To increase productivity of surveying. Real-time implementation of surveying will provide labor costs reducing in 20 and more times;
- To reduce time of topographical plans updating by using of field geoinformation systems controllers for an object coordinates determination

User telematic terminal



The multifunctional CLONASS/GPS user telematic terminal, Cyber GLX, is installed into mobile objects and is a part of a transport monitoring and fleet management system.

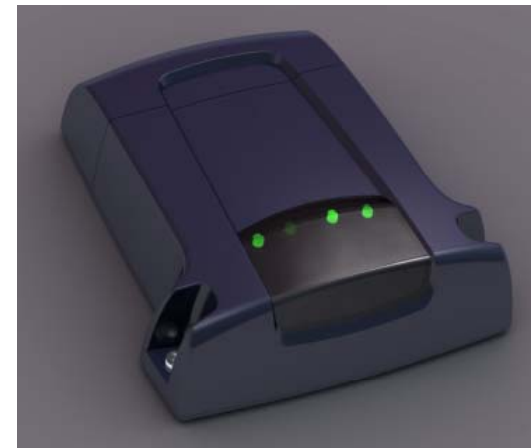
It is the first telematic terminal in Russia which simultaneously receives and processes signals of two navigation system – GLONASS and GPS.

The terminal relays information as follows:

- location determination
- excessive speed
- data on systems' conditions
- fuel consumption
- mileage
- and etc.

Characteristics:

- overall device dimensions 150x120x45 mm.
- weight 300g
- memory volume min 16,000 events
- number of discrete-inputs: 8
- port RS-232
- power supply voltage range: from 9 V to 36 V.



Basic accessories



LCD-display



Voice



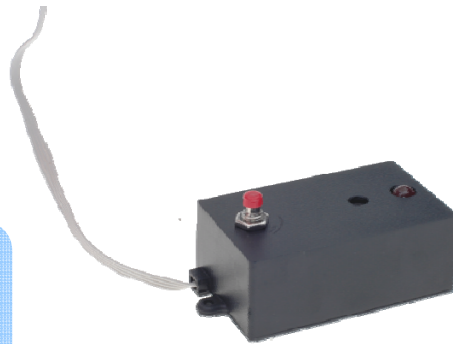
Panic button



Camera module



Fuel Level Sensor



Buzzer



Temperature Sensor



- 1) Dual Systems receiver GLONASS/GPS – better accuracy, higher reliability**
- 2) Our offer for India – long term experience in development and implementation of highly customised solutions on the basis of GLONASS/GPS**
- 3) The best available solution for your money**



THANK YOU FOR YOUR ATTENTION!

Vladimir Finov

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