



Surveillance System in Service-Oriented Manner

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Agenda

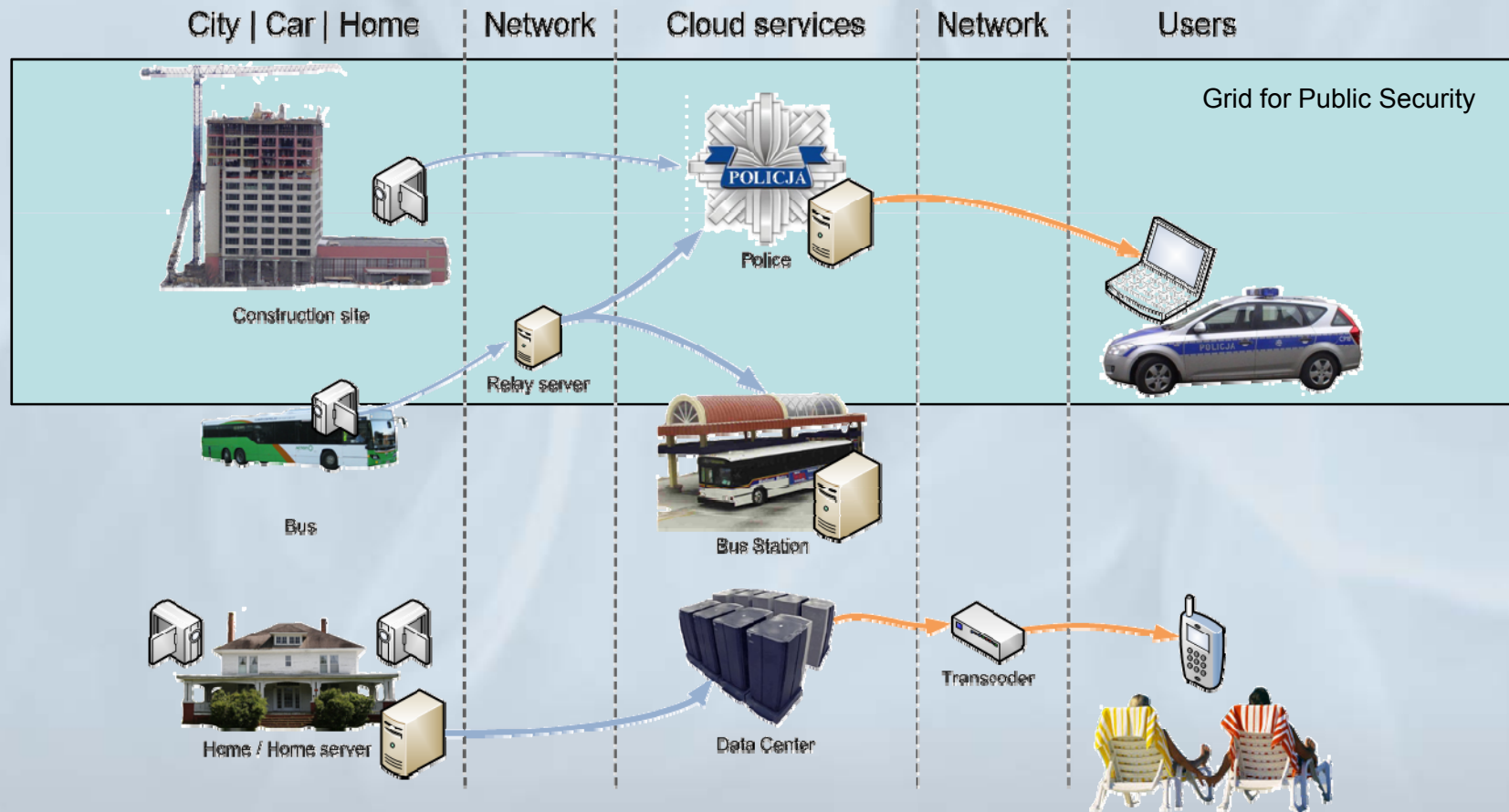
- Short introduction
 - About PSNC
 - Motivation
- System architecture
 - Prototype
 - Mobile Monitoring Station
 - User Interface
- Distributed architecture
- Evaluation
 - Streaming through 3G tests
 - End users functional tests
- Conclusions & further work

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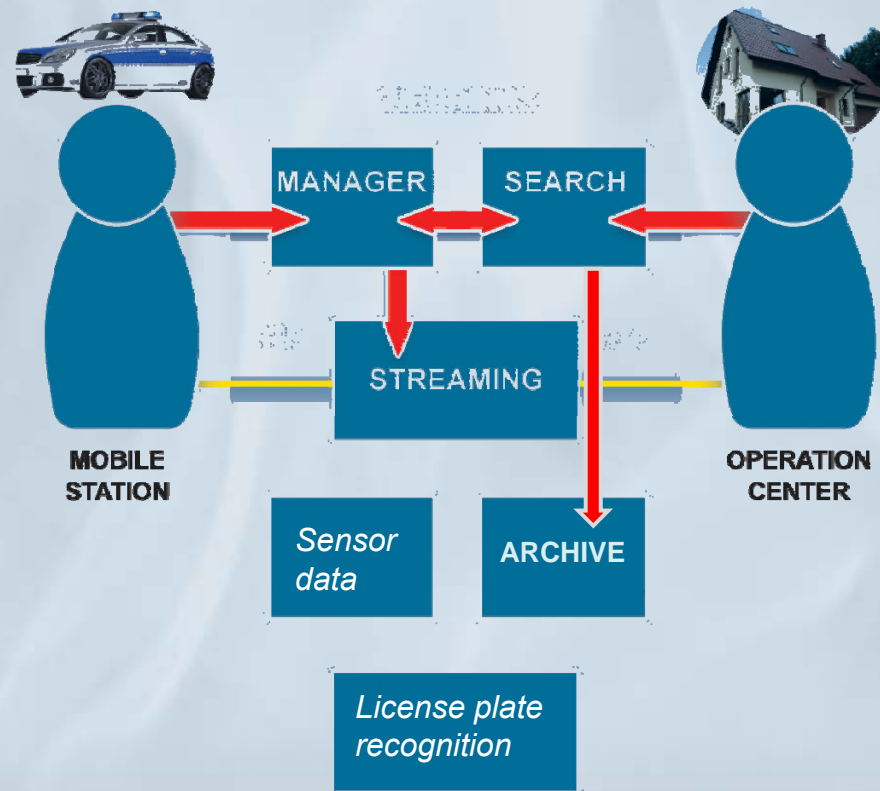
- Our mission: Integration and development of the information infrastructure for science
- PSNC is multifunctional:
 - providing computing power and network services
 - research and development
 - the operator of the PIONIER and the POZMAN network
 - promotion center
- Total computing power 23,9 TFlops
- About 250 people work at PSNC



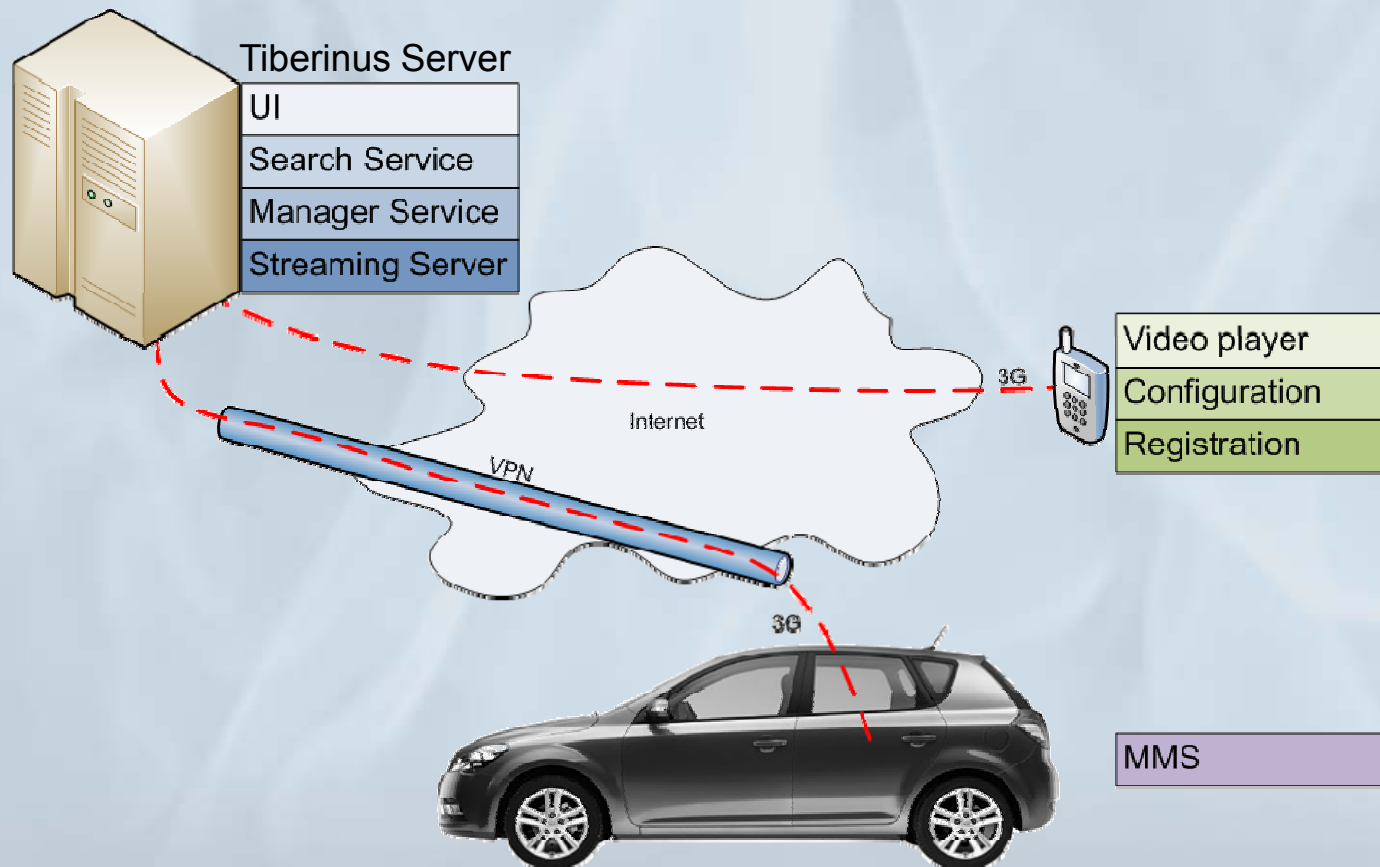
Motivation



System architecture



Prototype



Mobile Monitoring Station

Prototype:

- Axis Spy Camera with M7001 video server
- 3G Modem with WiFi Access Point
- HTC smartphone

Different configurations:

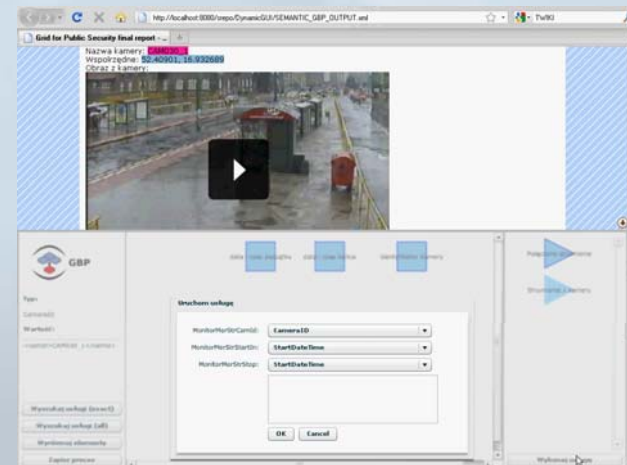
- Office camera Axis M1011-W, Military camera Pixel Henderson CCM-4227X/IRD-8
- Tested in the office, outdoor and in the moving car



User Interface

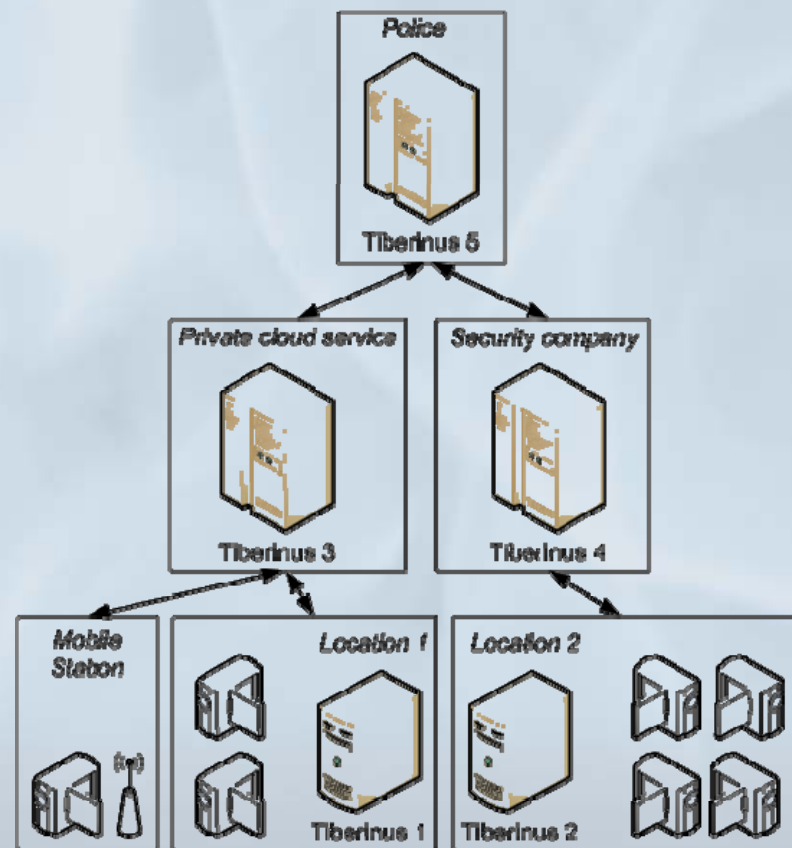
- Tiberinus user interface
 - Web page based on manager and search services
 - Similar to CCTV systems
 - Advanced search form
- Smartphone application
 - Local preview via WiFi
 - Remote via 3G and Tiberinus server
 - MMS management
- „Smart” Agent proposed in GBP*
 - Generic GBP interface
 - Search and uses Tiberinus services

* Mazurek C., Stroiński M., Walczak D., Wolski M.,
*Supporting high-tech crime investigation through dynamic
 service integration*, ICNS 2009



Distributed architecture

- Unified streaming interface
- Tiberinus can receive and send video stream
- Tiberinus is kind of „virtual” video source
- We can send the same stream to many receivers without stressing the camera and the network link
- We can easily share live streams



Evaluation

- Video upload over 3G
 - Proof of 3G usability for video upload
 - In order to find proper configuration
- TCP vs UDP
 - Multiple resolutions
 - Multiple frames rates
- Log analysis and video comparison
 - Frame lost
 - Peak Signal to Noise Ratio

