Mobile services for access to remote devices on the basis of Ubiq Mobile platform

Yulia Gladisheva, Valentin Onossovski, Kristina Tumanova

Saint-Petersburg State University

yuilia.gladisheva@gmail.ru
v.onossovski@gmail.com
kristina.tumanova@gmail.com

Task overview

- Remote devices and systems

  - Video surveillance systems
  - House automation systems
 - Security and warning systems

Existing approaches

- "Ad hoc" native mobile applications

- SMS/MMS interfaces

- Web/WAP interfaces

Ubiq Mobile Platform

- Encapsulation of most mobile-specific technical details

- Terminal architecture

- User session persistence

- Energy saving "standby" mode

- Support of alert signals

- Relatively static character of UI

- Inability to work offline

The general model

UBIQ MOBILE SERVER
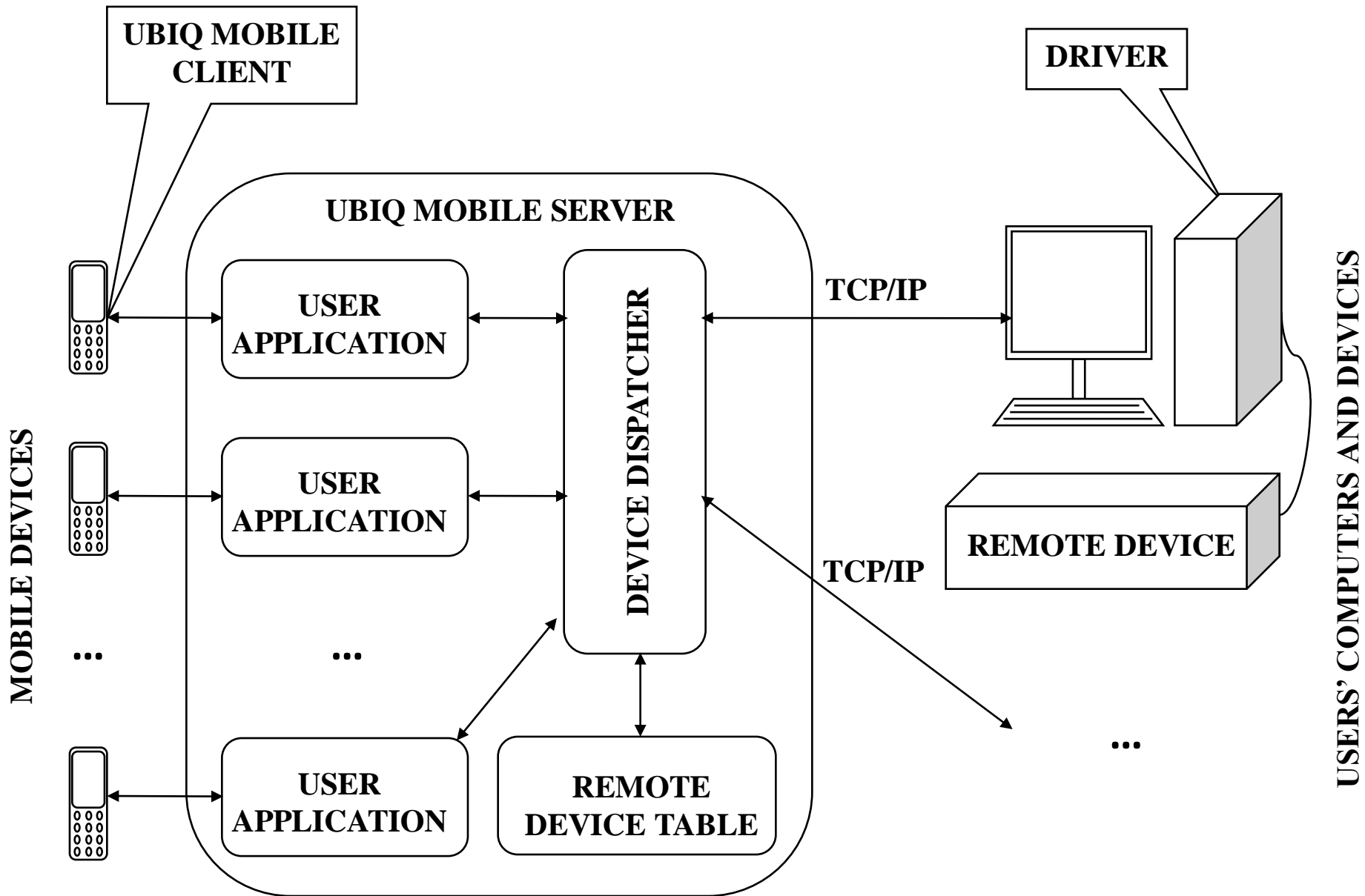
APPLICATION
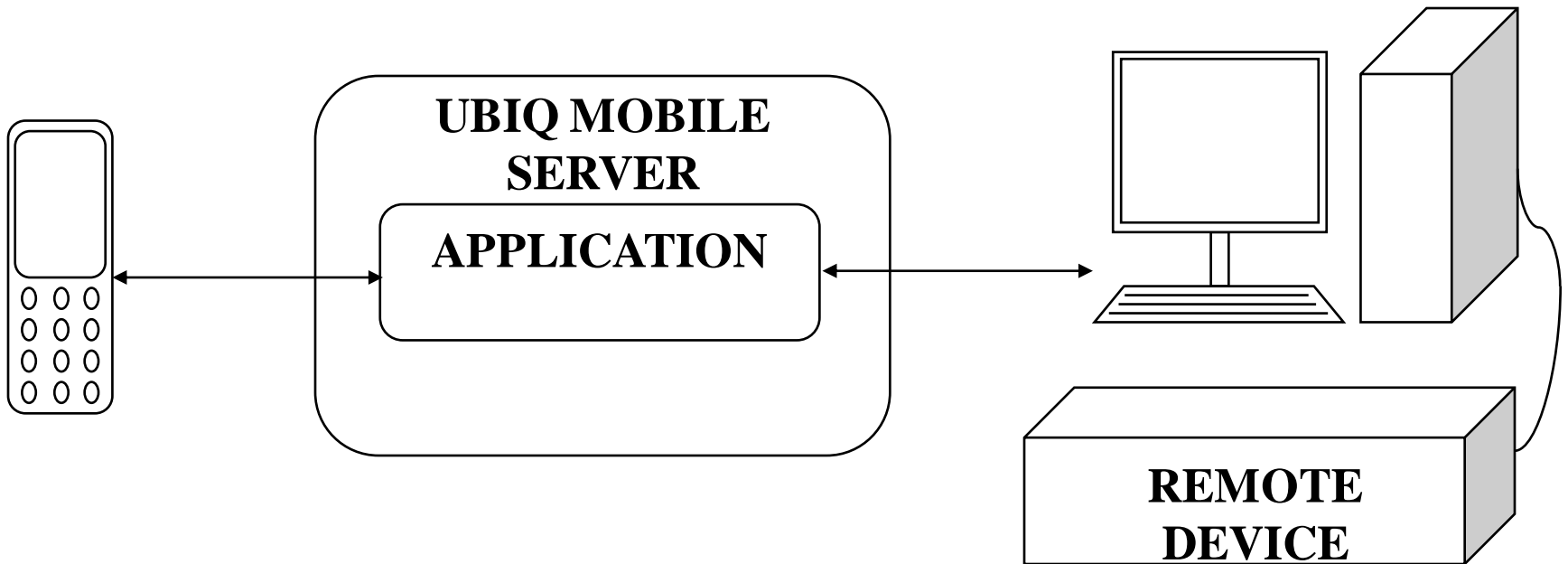
REMOTE DEVICE

Common features

- Information exchange in both directions
- Remote system persistent mode
- Ability for the user to connect to the system from mobile device at any time
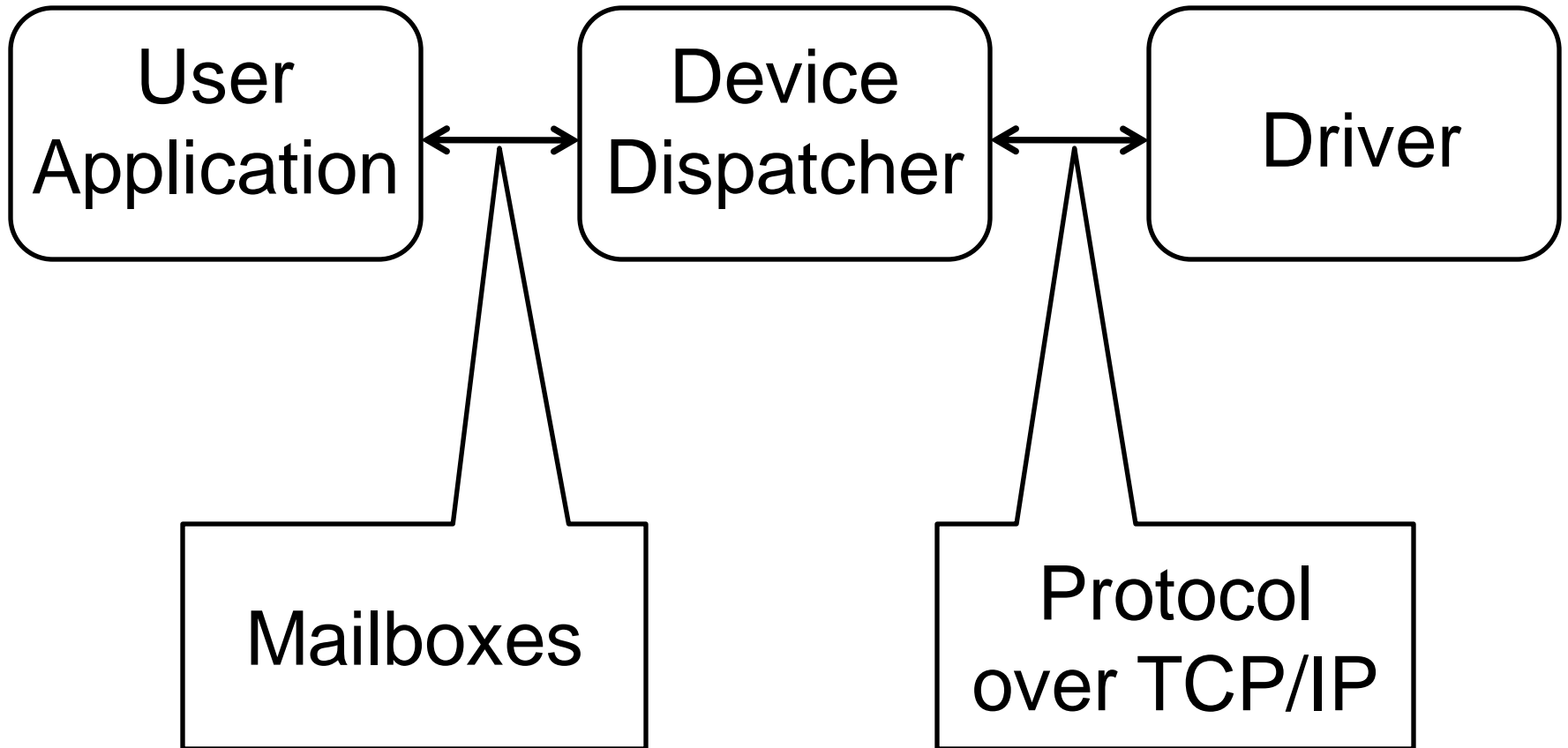- Support of alert signals

Functions of webcam service

- Acquiring static images from the webcam and displaying them on the screen of mobile device

- Setting value of interval

- Ability to stop/resume image transfer

UBIQ MOBILE CLIENT

DRIVER

UBIQ MOBILE SERVER

USER APPLICATION

USER APPLICATION

USER APPLICATION

DEVICE DISPATCHER

REMOTE DEVICE TABLE

TCP/IP

TCP/IP

REMOTE DEVICE

MOBILE DEVICES

USERS' COMPUTERS AND DEVICES

...

...

...

Inter-component communication

Command format

LENGTH	DEST	DEVICE ID	COMMAND	CODE	...

HEADER   DATA
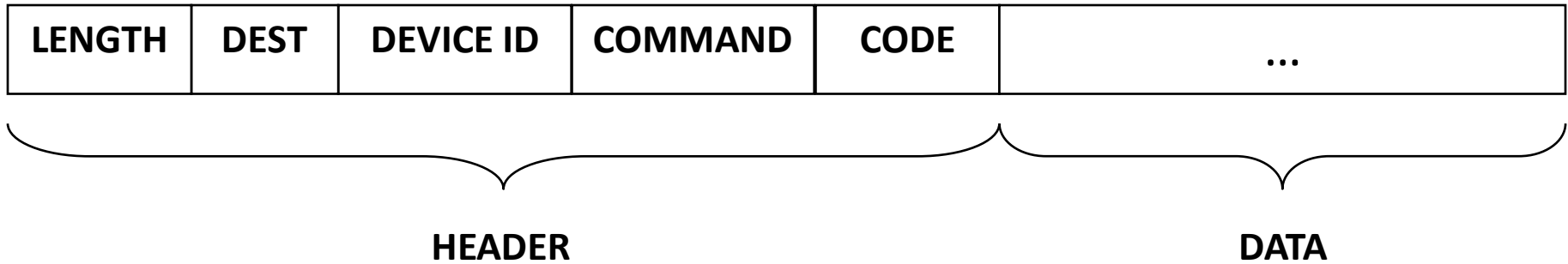
- *Length* - length of the whole command
- *Dest* - recipient (destination) of the command
- *Device ID* - registration code of the device
- *Command* - command code
- *Code* - auxiliary field

Categories of commands

- *General commands*
  - Registration Request
  - Data Request
  - Error messages

- *Device-dependent commands*
  - Set Interval
  - Get Image
  - Send Image

Current status

- α- version of demo webcam service

- Adding new functionality

Further plans

- Support "multiple devices – multiple users" working mode
- Universal class library for all device-independent components
- Structural pattern

Thank You!