

System and device programming

Academic year 2015-2016

Course Project

Project objective

Development of a client-server solution for the remote control of one or more Windows machines.

The system must be composed of two parts: a server, developed in C++, a client developed in the students preferred language.

Server side

The server has to offer a socket waiting on a predefined port, to which the remote client is able to connect. It is sufficient to handle one client at the time. Communication security is not requested.

The server:

- must determine the list of running applications that have a graphic interface (using the system call EnumWindows) and their related processes
- for each running application it has to find the corresponding icon
- must determine which of the listed applications is currently on focus
- must be able to send the the application on focus a keystroke, composed of zero or more modifiers (CTRL / ALT / SHIFT) followed by the corresponding keycode (a / b / c / ... / 1 / 2 / 3 / ... / backspace / delete / esc / ...)

At the beginning the server must send to client the list of running applications and afterwards, communicate important events (change in focus, application shutdown, application startup).

The server could be an application with or without a minimal graphical interface (potentially hosted in the tray area).

Client side

The client is an application provided of a graphical interface running on a different machine than the server. After connecting to the server, the client:

- retrieves the list of running applications containing the process full name and the corresponding icon
- receives a notification when the list or the focus change
- shows a summary of the activity in progress on the server, displaying the active applications, the corresponding icon, (highlighting the one on focus) and the percentage of time (since the connection) in which each of the application was on focus
- allows to send a keystroke to the application on focus
- **Optionally**, the client can connect to multiple servers, showing the corresponding statistics and offering the possibility to send a keystroke to all the server running the same application.