

Graphical representation of police's investigations data: Geography Part

Subject: Computer Perception and Virtual Reality
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During crime investigation often occurs the lawful interception. Lawful interception is the way in which network communication data are obtained by the lawful enforcement agencies and analyzed to acquire more information about a crime or used as an evidence for a justice process. The aim of the thesis was to acquire knowledge about the lawful interception system in Switzerland to further develop a graphical representation of the data acquired by police during investigations.

Introduction

During the first phase of the thesis a research process has been made about how and where to acquire information about the lawful interception system in Switzerland. Initially we encountered some difficulties in looking for information concerning the lawful interception because of the confidentiality of information and also due to our less knowledge about this complex system. After some researches we've discovered that there is a department of the federal police, the post and telecommunication surveillance service that is the responsible in Switzerland for the lawful interception. As a start point we have taken the website of the post and telecommunication surveillance service in which the useful standards for lawful interception in Switzerland are published and disponible to everyone.

Learning Standards

To develop an application that displays in a graphical way information acquired by the lawful interception, we first need to know what kind of data and which formats are disponible in the lawful interception system, to discover it we've started a learn process of the standards founded on the post and telecommunication surveillance service. There are principally two standards, the first define the administrative process behind the lawful interception process. The second

standard describes the technical information on the architecture of the system. We have focused our research the technical aspect of lawful interception to see which data will be disponible and in which form. During the research we have also learned the form «statement of compliance», a form by each phone or Internet service provider, in accordance with the post and telecommunication surveillance service, to declare which information will be disponible in his lawful interception system.

Implementation

We have started to develop a web application to manage the data that will be available for each Internet service provider or telephony service provider. This application allows generating data to be used in the graphical representation. As an example it will be possible to generate an XML file concerning a collection of data about different calls made by a target such as a mobile phone. For mobile phone for example, it is possible to collect information about different localization of a suspect using the location of different antennas used to establish the communication and also the time when the communication was made. To develop the web application we used the Node.JS environment. Node.JS is a Javascript library that let develop at server and client side with Javascript. For the database we used a No-SQL database called MongoDB that use JSON formatted documents. To easily develop the web application with a Model View Controller pattern, a framework called SailsJS was used.



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