

## Internships and Masters Theses

May 2012

The [AIT Austrian Institute of Technology GmbH](#), Department Safety & Security offers as part of industrial and research projects various internships and Masters Theses in the area of **IT Security**.

### 1. Overall description and Context of the Work

The Cloud – everyone is talking about or have already migrated their data and services to it. This includes enterprises that operate critical infrastructures, such as energy and building surveillance companies. Consequently, securing Cloud infrastructures is of paramount importance. There are a number of protection mechanisms that can be used to make Cloud infrastructures more secure, such as firewalls and intrusion detection systems. A fundamental technology applied to the Cloud is virtualisation, which allows the migration of services within a data centre or to remote geographical locations, if necessary. This ability to migrate services is critical to ensure the resilience of services, e.g., to device failures and power outages, but it isn't clear what effect virtualisation has on security mechanisms.

### 2. Problem Description

This project will investigate the impact of virtual service migration on important security mechanisms for Cloud infrastructures. As an example, it is not clear what effect migration has on the state of the art techniques that detect intrusions which are based on identifying anomalies in network traffic. Such techniques are necessary to identify, for example, Distributed Denial of Service (DDoS) attacks. A result of this project will be an analysis of the state of the art in this domain, including recommendations about the most suitable techniques to apply.

### 3. Required Skills

In-depth knowledge of IT Security. Skills as necessary with respect to the scope of the project, e.g., basic knowledge of IP networks and virtualisation technologies. Being comfortable with programming is desirable.

## Location

### 2444 Seibersdorf or 1220 Tech Gate Vienna

We offer: Free AIT company bus that makes access to Seibersdorf from Vienna easy.  
Company supported canteen lunch.

## Contact

### DI Thomas Bleier, MSc

Thematic Coordinator IT Security  
Business Unit Information Management & eHealth  
Safety & Security Department  
T +43 (664) 8251279 | F +43(0) 50550-2813  
thomas.bleier@ait.ac.at