Master thesis

Topic: **Resource Management for Secure Cloud**

The work of this thesis will investigate state-of-art techniques and technologies for resource management on cloud, with a specific focus on the integrated orchestration of storage and computational resources. A software framework will be developed to realise user-defined security policies. This framework further facilitates interoperability and data exchange between multiple systems, i.e. an Openstack-based cloud, a storage system and an ID management system. The experiments will be conducted on the DigiMed Secure Cloud hosted at LRZ. Your tasks incorporate:

- Study the background on cloud computing;
- Explore virtualisation including containerisation;
- Know the basics of Openstack, including usage of the interfaces of web UI and command lines;
- Batch scripting, Ansible scripting and coding;
- Implement federated authentication services;
- Enable user-defined security policies with machine-learning assisted decisions.

The thesis is to be completed within a timeframe up to 6 months. The thesis needs to be written in English.

Requirements:
- Bachelor degree in computer science;
- Familiar with one of the programming languages: Python, Golang or C/C++;
- Knowledge of Unix systems, e.g. batch scripting, Linux command lines;
- Knowledge of cloud computing is a plus.

Organisatorisches:

Aufgabensteller:
Prof. Dr. D. Kranzlmüller

Anzahl Bearbeiter: 1

Betreuer:

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Dr. Peter Zinterhof