

Master's thesis topic

### Developing a Backup-Scheduler System

Software Defined Networking (SDN) is a new networking paradigm depends on decoupling the data and control planes in a network, which gives network administrators more capabilities in managing and enhancing the traffic engineering process. In other words, SDN supports network virtualization technique that helps in maximizing the network provisioning level of the used hardware. Moreover, the SDN ability to communicate directly with software applications helps in achieving a specific Quality of Service (QoS) level for network users.

Within running projects in the department, there is a need for developing an application to organize and schedule backup operations between data centers using an SDN cloud network. This application should provide the following abilities:

- Save QoS requirements of each user (in a database).
- Save QoS values of network's elements (in a database).
- Send a request and receive a list of possible network paths.
- Choose a path (for a specific time interval) that satisfies the user's QoS requirements.
- Provide the network status in any required time.

This topic is offered as a master's thesis with the following requirements:

- Programming ability (any programming language with GUI).
- Basic database knowledge (MySQL could be a good option).

The supervision could be in English or German.

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