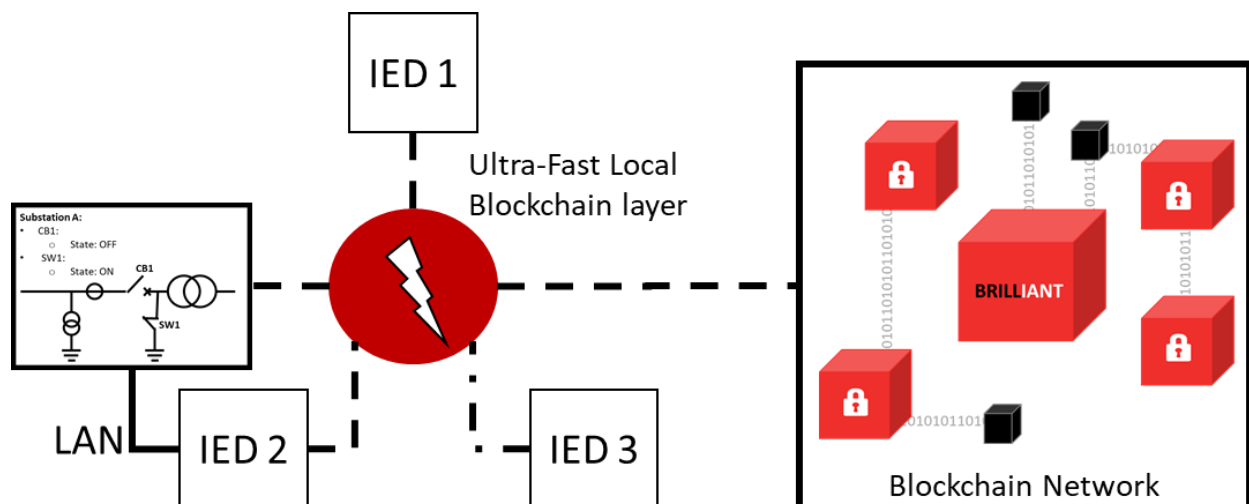


## Master-Thesis:

### Development of an Ultra-Fast Blockchain Service for Power System Control and Protection

#### Context:

The project consist in the development of an intermediary layer to boost the transaction speed in a Blockchain network, inspired on Bitcoin Lightning, in order to enable fast transactions between critical actors in charge of the power system control and protection. The Thesis requires the definition of an architecture and an ultra-fast Blockchain service provider in order to quickly respond to transaction requirements with a small operational time window for actions.



#### Your tasks:

The student is expected to work on a Virtual Box Linux environment where it should be developed a container application based on JavaScript (Node.js), which will be in charge of controlling the Blockchain network behavior under restricted time constraints. Finally, the development has to be tested within a simulated environment.

#### On this project, you expect to find:

- Blockchain technology in new contexts
- Cryptographic algorithms

- Docker containers
- Distributed Computing
- Consensus Algorithms
- JavaScript
- Protection relays and automation algorithms
- Programming and Automation concepts

**Contact:**

**César Cazal, M.Sc.**

cesar.cazal@eonerc.rwth-aachen.de

Tel. +49 24180 49730

ACS | Institute for Automation of Complex Power Systems

E.ON Energy Research Center

RWTH Aachen University

Room 10.06

Mathieustr. 10, 52074 Aachen, Germany

**Thanakorn Penthong, M.Eng.**

thanakorn.penthong@eonerc.rwth-aachen.de

Tel. +49 24180 49723

ACS | Institute for Automation of Complex Power Systems

E.ON Energy Research Center

RWTH Aachen University

Room 10.10

Mathieustr. 10, 52074 Aachen, Germany