M.Sc.-Thesis: Communication overhead analysis of Privacy-Preserving Protocols for Smart Grids

Telecooperation Lab

TECHNISCHE UNIVERSITÄT DARMSTADT

Motivation

The power grids are becoming smarter. An EU directive aims to have 80% of households equipped with smart meters by 2020 in Europe.

Smart meters are power meters that can send the measured consumption using internet protocol. Such measurements can reveal information about the user's private life, e.g., which movie is running on one's TV.

Protocols have been proposed to preserve users' privacy. In this thesis, we want to analyze privacy-preserving protocols for Smart Grids regarding to their communication overhead.

Goals

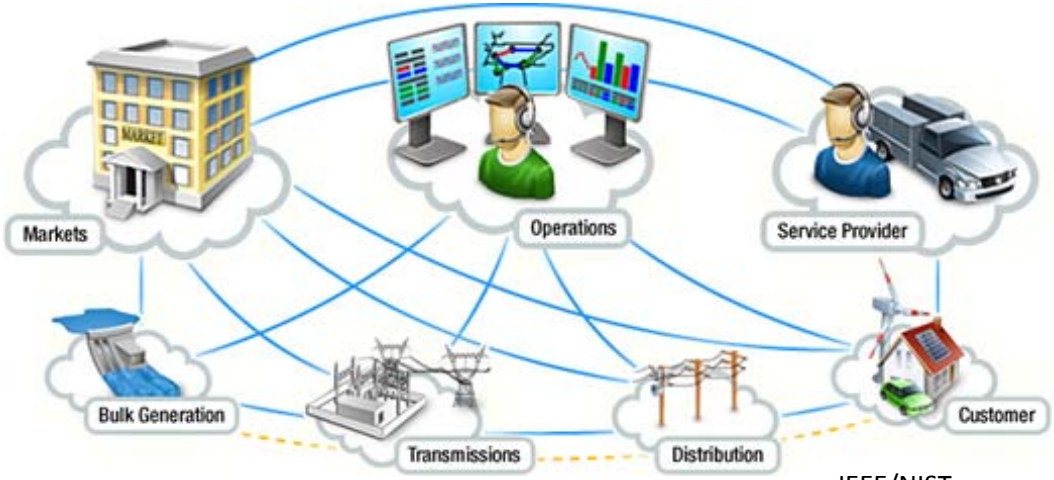
Smart grid operators aim to receive information in real time. Aggregation of consumption information can protect privacy and reduce communication overhead.

The goal of this thesis is to conduct in-depth communication overhead analysis of existing privacy-preserving protocols. You have to collect the time for communication (milliseconds basis) between real smart meters.

Abstract

By 2020, 80% of households in Europe will come under Smart Grid infrastructure. Smart Grids use network communication to improve the efficiency of the power grid and generate new services like e-car power stations.

You have to conduct an in-depth communication overhead analysis of existing privacy-preserving protocols for Smart Grids.



IEEE/NIST

Type

Analysis	■■■■□
Empiricism	■■□□□
Implementation	■■■■■
Literature Research	■■■□□

Vision

Privacy-preserving protocols with low communication overhead are desirable for Smart Grid scenarios.

The literature contains many proposed protocols with their theoretical evaluation.

This work will make a fundamental contribution implementing and comparing the protocols regarding to their communication overhead.

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