The number of installed sensors to acquire data, for example electricity meters in smart grids, is increasing rapidly. The huge amount of collected data needs to be analyzed and monitored by transmission-system operators. This task is supported by visual analytics techniques, but traditional multi-dimensional data visualization techniques do not scale very well for high-dimensional data.

**Problem Statement / Motivation**

The main contribution of this thesis is a framework to efficiently examine and compare such high-dimensional data. The key idea is to divide the data by the semantics of the underlying dimensions into groups. Domain experts are familiar with the meta-information of the data and are able to structure these groups into a hierarchy. Various statistical properties are calculated from the subdivided data. These are then visualized by the proposed system using appropriate means. The hierarchy and the visualizations of the calculated statistical values are displayed in a tabular layout. The rows contain the subdivided data and the columns visualize their statistics.

**Visualizations of statistical properties of data chunks**

- **Central tendencies**
  - shown as a line on the horizontal position of its scale
  - shown as a line on its vertical position

- **Dispersions**
  - shown as an area around its corresponding central tendency
  - show an area graph

- **Frequency distributions**
  - visualized by a histogram
  - shown as a heat map

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**Main Contribution**

The main contribution of this thesis is a framework to efficiently examine and compare such high-dimensional data. The key idea is to divide the data by the semantics of the underlying dimensions into groups. Domain experts are familiar with the meta-information of the data and are able to structure these groups into a hierarchy. Various statistical properties are calculated from the subdivided data. These are then visualized by the proposed system using appropriate means. The hierarchy and the visualizations of the calculated statistical values are displayed in a tabular layout. The rows contain the subdivided data and the columns visualize their statistics.