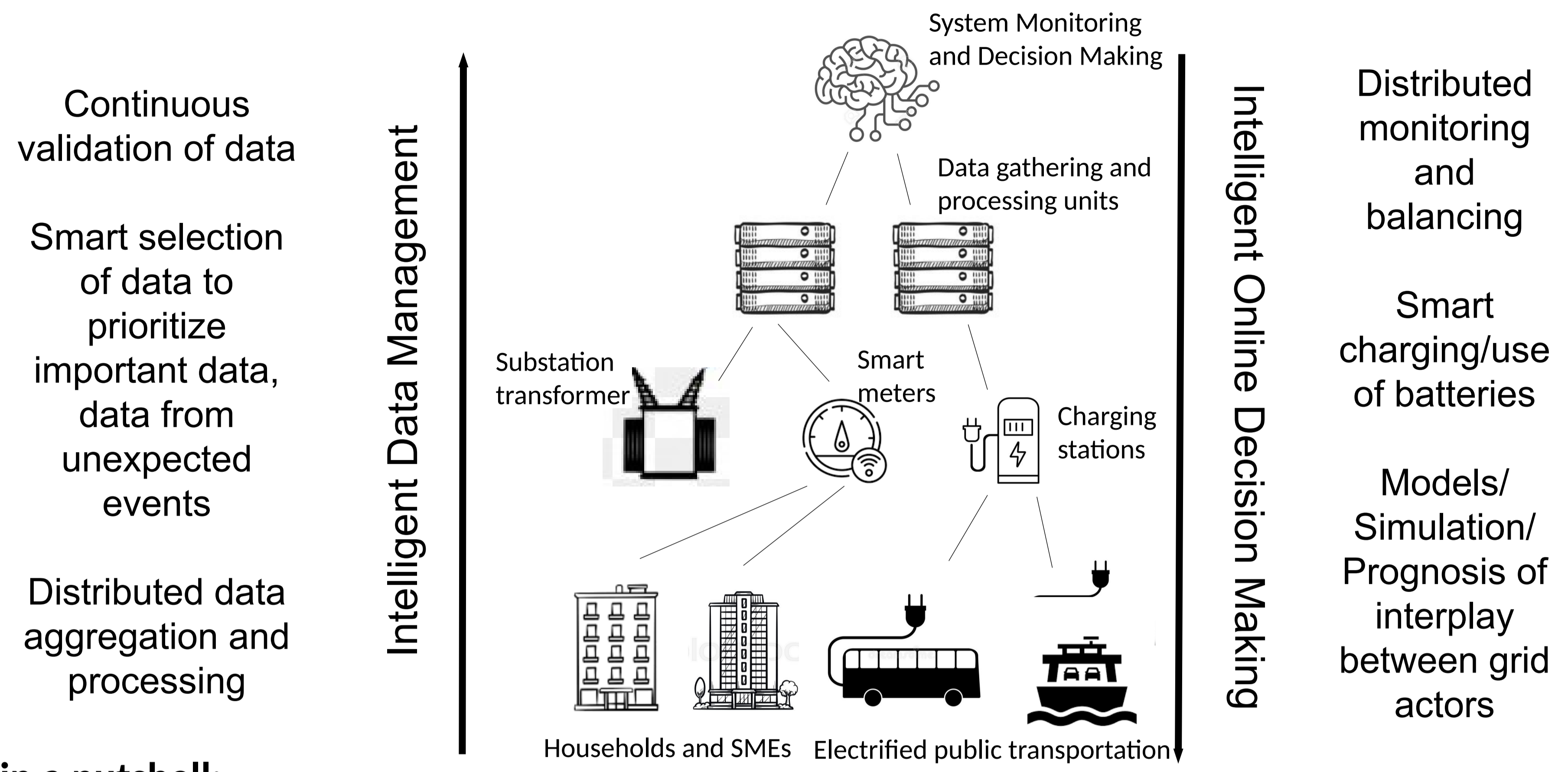


Optimization as a Service for Intelligent Energy Management

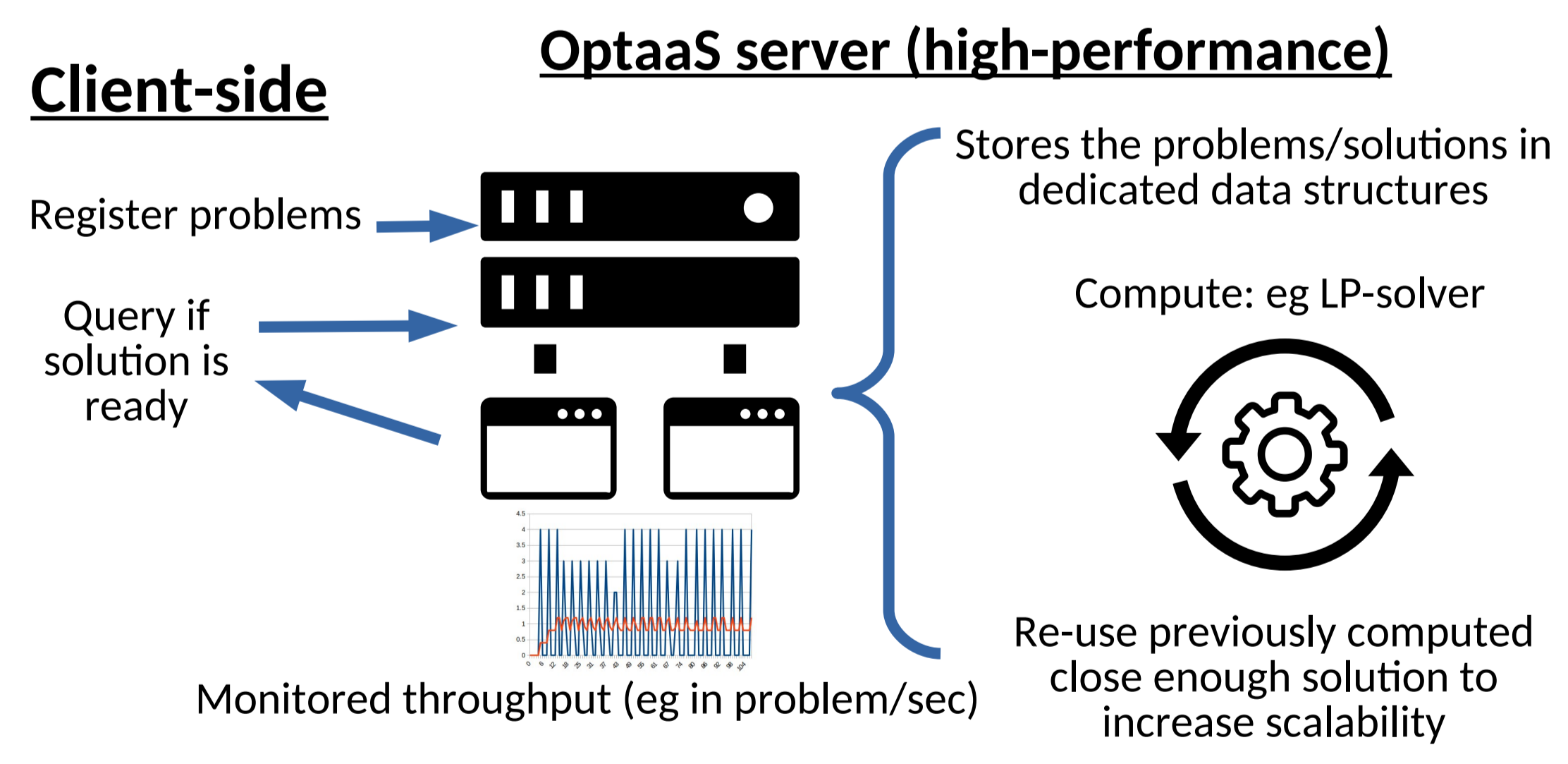
TANDEM: InTelligent Energy DATA MaNagement and Online DEcision Making



OptaaS in a nutshell:

- **Context:** Energy actors need advanced computing systems capable of: (1) handling high rate / high volume data produced by the smart metering infrastructure and intelligent energy pro/consumer and (2) taking continuously decisions to optimize the usage of renewable resources.
- **Challenges:** Make a system capable of scaling while addressing problems with **combinatorial explosion on streams of data from many sources**.
- **Idea:** We propose “**Optimization as a Service (OptaaS)**” – a **flexible optimization system**, where new components can be *plugged-in* – as a key enabler for solving the *computing and data processing challenges* faced by today’s energy actors and in particular **smart grid managers**.

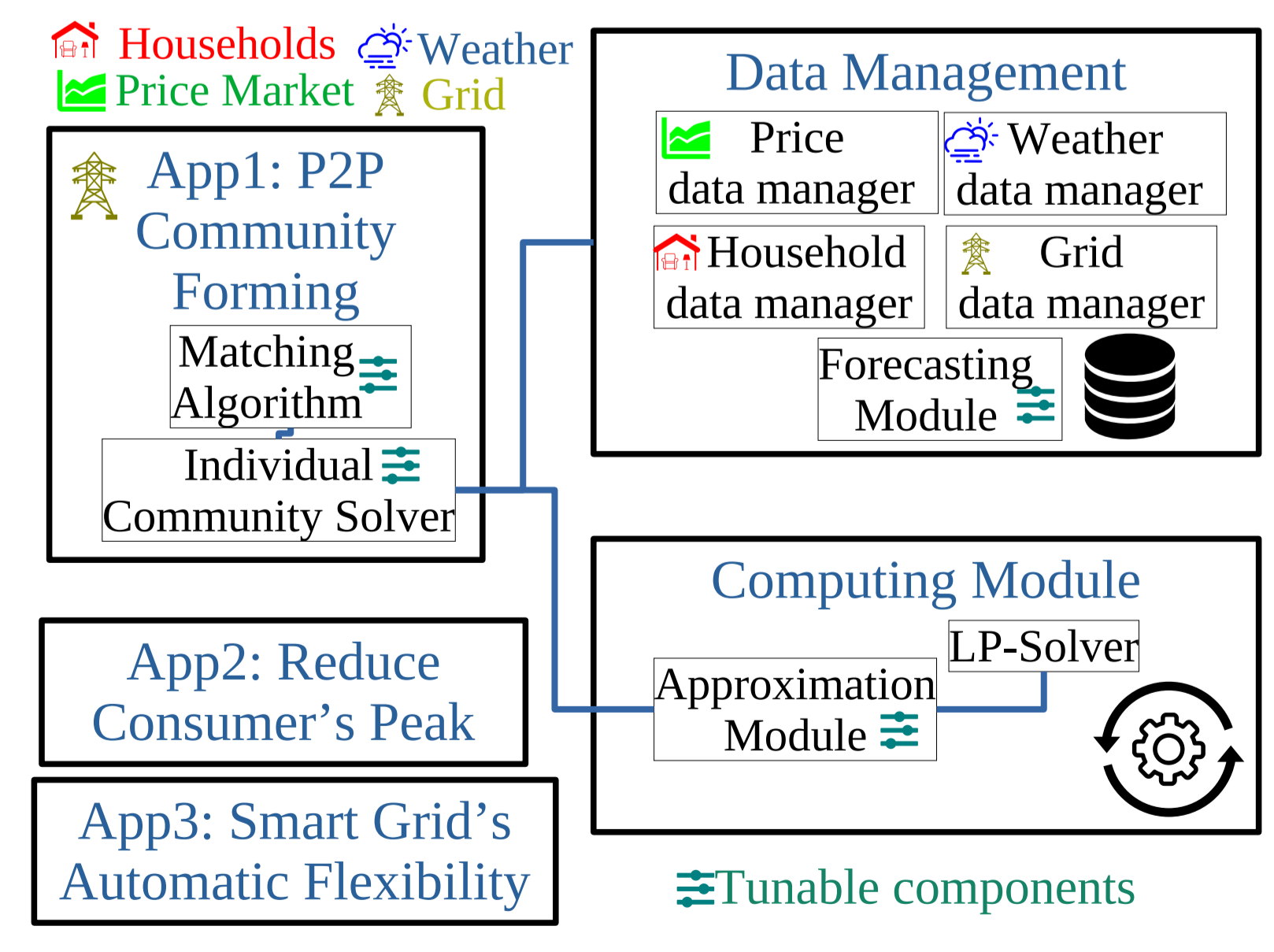
OptaaS: Optimization as a Service



Data and Evaluation

- **Input data:** energy consumption, energy price, energy production, battery level, pv capacity, weather forecast, etc
- **Evaluation:**
 - **Accuracy of the solution** (e.g. if approximation is used)
 - **System performance:** problems/sec. (higher means larger problems or larger datasets), latency per problem (average & tail), etc

Example of applications & architecture modules



Perspectives

- **Work in progress:**
 - Implementation of the proposed architecture
 - A prototype system focusing on the “Community Forming” problem
 - Techniques to re-use similar and already computed results



TANDEM Project
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