A configurable real-time data processing infrastructure mastering autonomous quality adaptation

QualiMaster Vision: make high volume real-time data processing a highly opportunistic process that flexibly exploits data sources, reconfigurable hardware and families of approximate algorithms in a configurable, demand-driven and adaptive way.

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Expected Outcome

A configurable and adaptive data processing software infrastructure, which:
- provides a platform for executing and adapting data processing pipelines
- exploits general-purpose and reconfigurable hardware
- provides configured pipeline instances for financial risk assessment and systemic risk analysis

Intermediate Results
- QualiMaster Basic Infrastructure (Dec. 2014)
- Core Building Blocks for the QualiMaster Infrastructure (Jul. 2015)
- Interim QualiMaster Technology & Infrastructure (Dec. 2015)
- Advanced Building Blocks for the QualiMaster Infrastructure (Jul. 2016)
- Final QualiMaster Technology & Infrastructure (Dec. 2016)

Target Groups
With its application for real-time financial and systemic risk monitoring QualiMaster targets regulatory bodies such as the ECB as well as institutional financial clients such as Hedge funds, Banks and asset managers.

Novel methods for reactive, proactive and reflective adaptation of data processing pipelines (including cross-pipeline settings)
Models and tools for the definition and configuration of data processing pipelines and their adaptivity space
Families of scalable algorithms for real-time stream processing with well-defined quality parameters exhibiting different quality/efficiency tradeoffs
Techniques and tools for optimized translation of data stream processing algorithms into reconfigurable hardware.