SyLaGen:
# From Academic Tool Engineering Requirements to a new Model-based Development Approach

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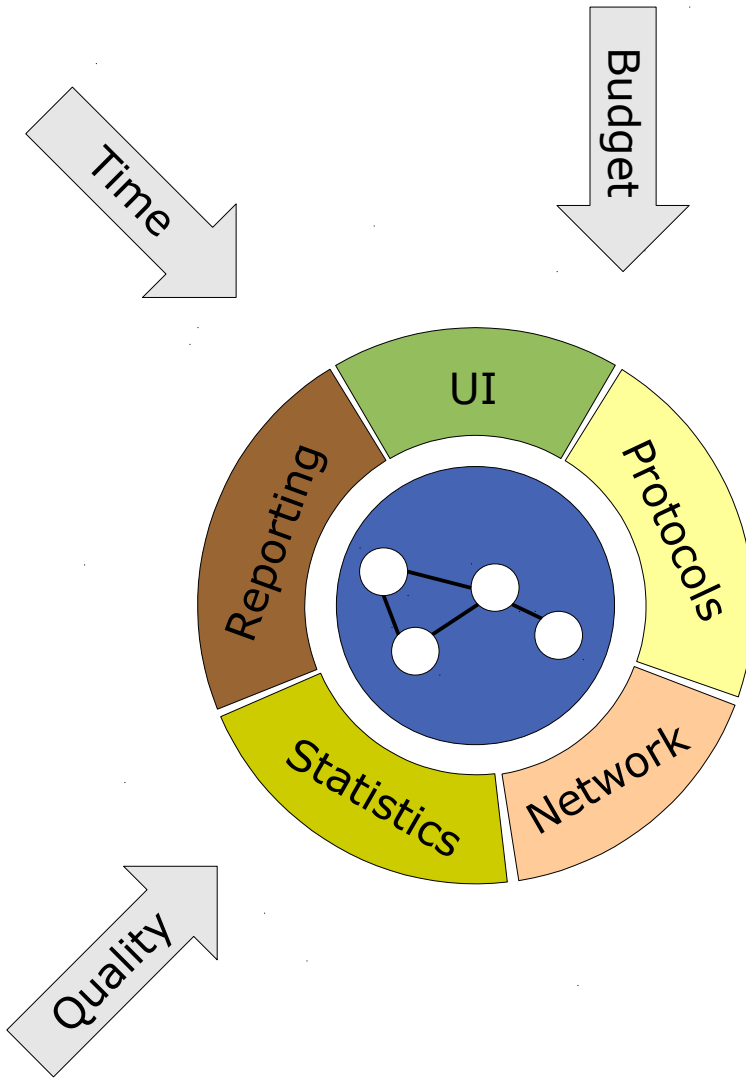
Our Tools

- We have "Academic Tools"!
- Causes
  - Teaching and experiments
  - Projects
- Motivation
  - Tools as result
  - Tools as instrument
- Status
  - Complete (rare)
  - Experimental (often)
- Challenges
  - Degree of completion
  - Priority of features
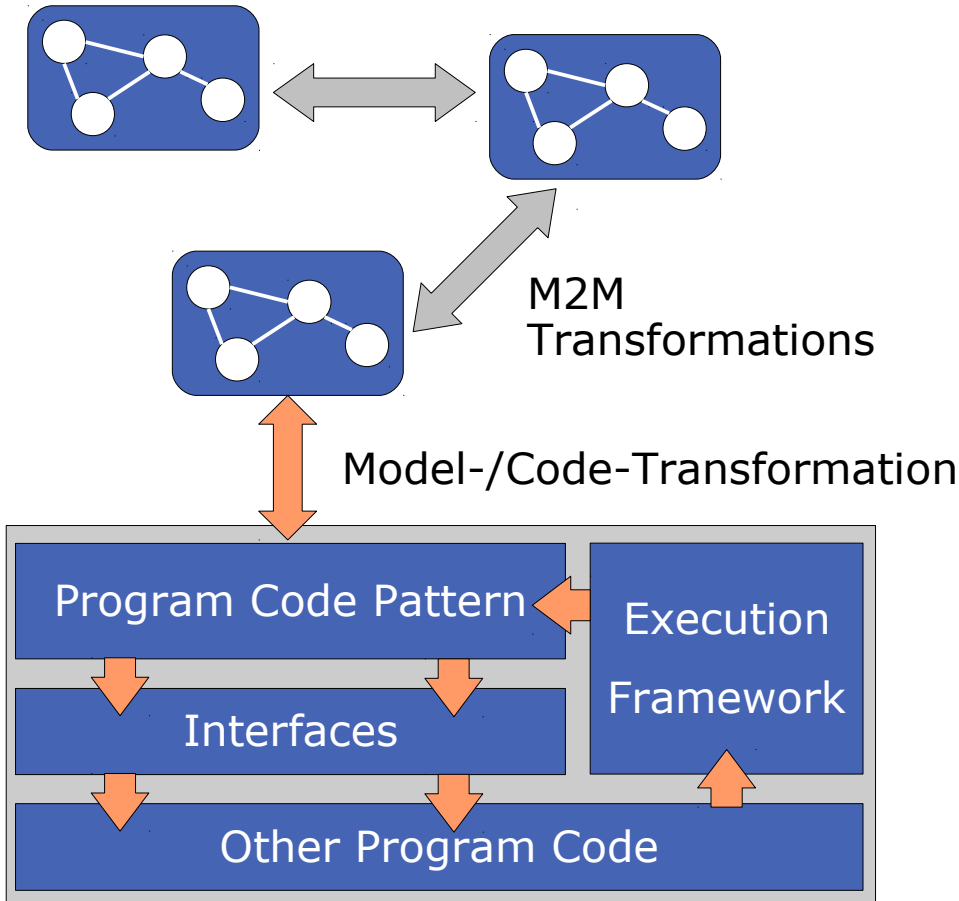 - Documentation, validation, …
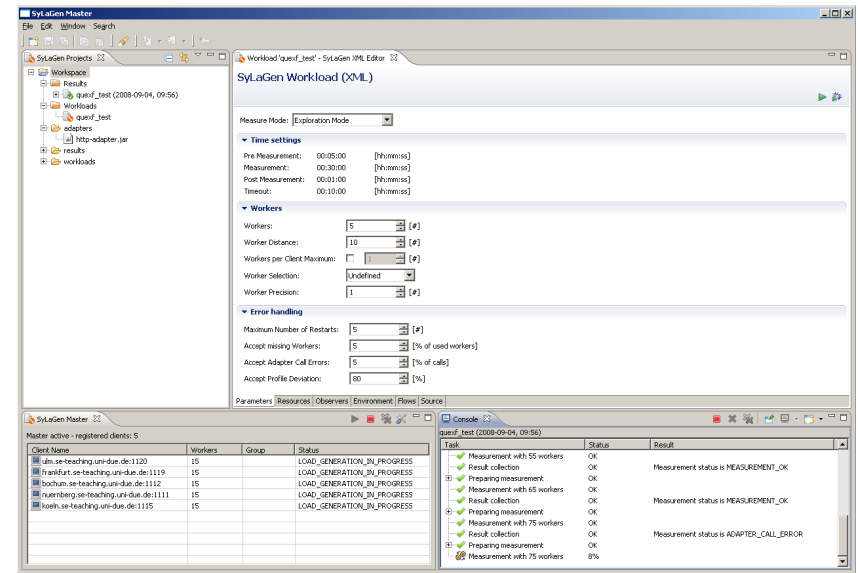
- SyLaGen
  - Load generation for performance tests
  - Projects and teaching
  - Result in initial project, instrument in other projects
  - Functionality complete
    - Models for load generation
  - UI and Documentation incomplete

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Main Challenge: Quality

Time

Budget

Quality

UI

Protocols

Reporting

Network

Statistics

- Our focus: Software quality and modelling
  - For industry projects
  - For teaching
- Application to our tools
  - Time constraints
  - Fast changes
  - Complexity
    - Hardly any repeating structures
- Contradiction in SyLaGen
  - Multiple technologies
  - Different structures
  - Well-defined core

Our Solution: Model-based Development

M2M
Transformations

Model-/Code-Transformation

Program Code Pattern

Execution
Framework

Interfaces

Other Program Code

- Core of SyLaGen (formally) based on models
  - Models not only documentation
  - No parallel maintenance
- Complexity
  - Integration in other code
  - Prevents standard solutions
- Our Approach
  - Model specifications in program code patterns
  - Multiple abstraction levels in one representation
  - Lean approach
  - "Embedded Models"

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