Integrated Observation and Modeling Techniques to Support Adaptation and Evolution of Software Systems

Motivation and Objectives
- Monitoring of Distributed Cloud-based Applications
- Creating and Maintaining Run-time Models
- Continuous Model-based Analysis of
  - Privacy Policy Violations
  - Application Performance

Model-driven Monitoring

Run-time Model based Privacy Checks

Checking Algorithm

<table>
<thead>
<tr>
<th>Algorithm 1</th>
<th>Policy Checking Algorithm</th>
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<tbody>
<tr>
<td>1.</td>
<td>Rule: (P, V) \rightarrow (P', V')</td>
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<td>2.</td>
<td>- Rule: (P, V) \rightarrow (P', V')</td>
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<td>3.</td>
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<td>4.</td>
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Performance Scalability Evaluation

Bridging the Gap
Mapping monitoring data to the application model

3D Visualization
Explore run-time architecture

CoCoME Scenario

Run-time Model Update
Performance and Scalability

Case Study CoCoME
http://www.cocome.org

Principal Investigators
Prof. Dr. Wilhelm Hasselbring, Prof. Dr. Klaus Pohl, Prof. Dr. Ralf Reussner

Additional Team Members
Reiner Jung, Dr. Andreas Metzger, Eric Schmieders, Dr. Robert Heinrich