MOSQUITO
MOdel driven conStruction of QUeuIng neTWOrks

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http://sealabtools.di.univaq.it/
Problem: Model Driven Performance Engineering

- **GOAL**: Supporting Performance Engineering (PE) of distributed component-based applications in Model Driven Processes;

- **SAP•one** (*Software Architecture Performance Analysis*) and **PRIMA-UML** (*PeRformance IncreMental vAlidation in UML*) are two methodologies supporting PE for component-based systems;

- **MOSQUITO** (*MOdel driven conStruction of QUeuIng neTwOrks*) is a web service *CASE tool* for SAP•one and PRIMA-UML. It allows the automated generation of XML-based performance models (EG, QN) starting from an *EclipseUML*-based system design model.
The Methodologies: SAP·one

**INPUT:**
- UML Design Model representing a Software Architecture (Component and Sequence Diagrams)
- Performance additional info (by PAProfile ⊂ UML SPT)

**OUTPUT:**
- Queuing Network Model (QNM) representing an Architectural Performance Model (Service Center = UML Component)

**GOAL:** It allows to distinguish different architectural alternatives

MOSQUITO – Model driven construction of Queuing neTwOrks

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**The Methodologies: PRIMA-UML**

- **INPUT:**
  - UML System Model (UCD, CD, SD, DD)
  - Performance additional info (by PAprofile ⊂ UML SPT)

- **INTERMEDIATE MODEL:**
  - Execution Graphs: flows of component operation invocations (metaEG) and sw resource consumption (instanceEG)

- **OUTPUT:**
  - Extended Queuing Network Model (Service Center = Hw resource)

- **GOAL:** It allows to distinguish different system (hw/sw) configurations.

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**MOQUITO** - MOdel driven conStruction of QUeuing neTworks
MOSQUITO for SAP•one and PRIMA-UML

- **MOSQUITO** is a Web Service CASE tool.
- Its client-side is a Eclipse plug-in that invokes remote model2model transformations on the server-side located at University of L’Aquila.
PLASTIC and GSP Projects

- Our tool has been used and suitably refined in two projects.

**PLASTIC**

Providing Lightweight and Adaptable Service Technology for pervasive Information and Communication

EU’s [Sixth Framework Programme](#) for Research and Technology Development (RTD)

Gennaio 2006 - Settembre 2008

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**GSP v4**

Global Software Performance (Global Software Development)

[SIEMENS](#) Corporate Research

Princeton, New Jersey, USA.

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Conclusions and Future Works

- Adoption of a Model Management Platform (AMMA);

- Using a DSL (ATL) for model2model transformation specification in place of OO Programming Languages (actually Java);

- Integrating MOSQUITO with other Model Generator Tool for Non Functional Analyses (see http://sealabtools.di.univaq.it for details);

- Integrating analysis results interpretation (what effects on the source design model?).
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