Performance Benchmarking of Executable Domain-Specific Languages

Intervenants

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Context & objectives

In light of obtaining software engineer degree , I am doing my end-of-study internship in the *LS2N* laboratory in the *NaoMod* team. The internship subject is part of a research work in the context of the *RODIC* project that aims to provide the operator of a factory with a Model-Based Software Engineering (MBSE) framework to reconfigure *RMS* (Reconfigurable Manufacturing Systems).

Dev — Annotate the xDSLs

Test — Test scenarios

Analyze — Analyze the obtained results

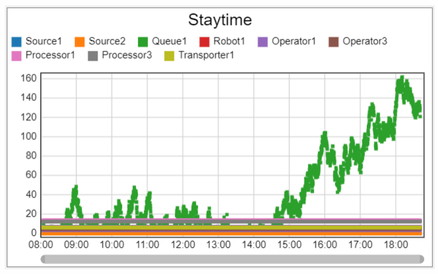
Tools

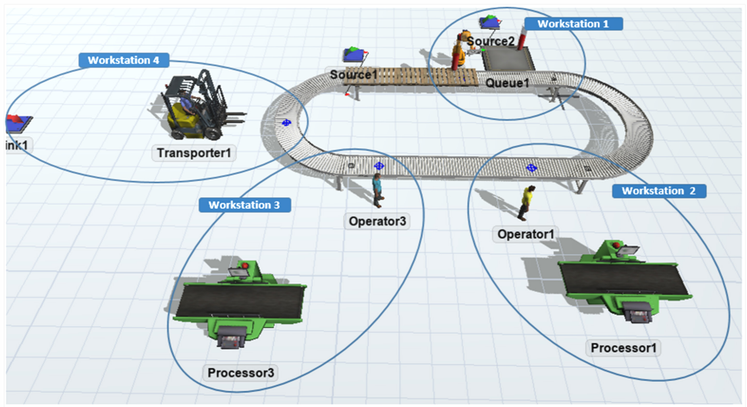
Xtext · eclipse Gemoc Studio · emf ECLIPSE MODELING FRAMEWORK · Acceleo · FlexSim problem solved. · Sirius

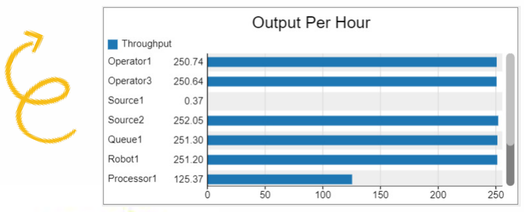
Methods & Approach

Analyze

I need to simulate the industrial systems without a need for experts



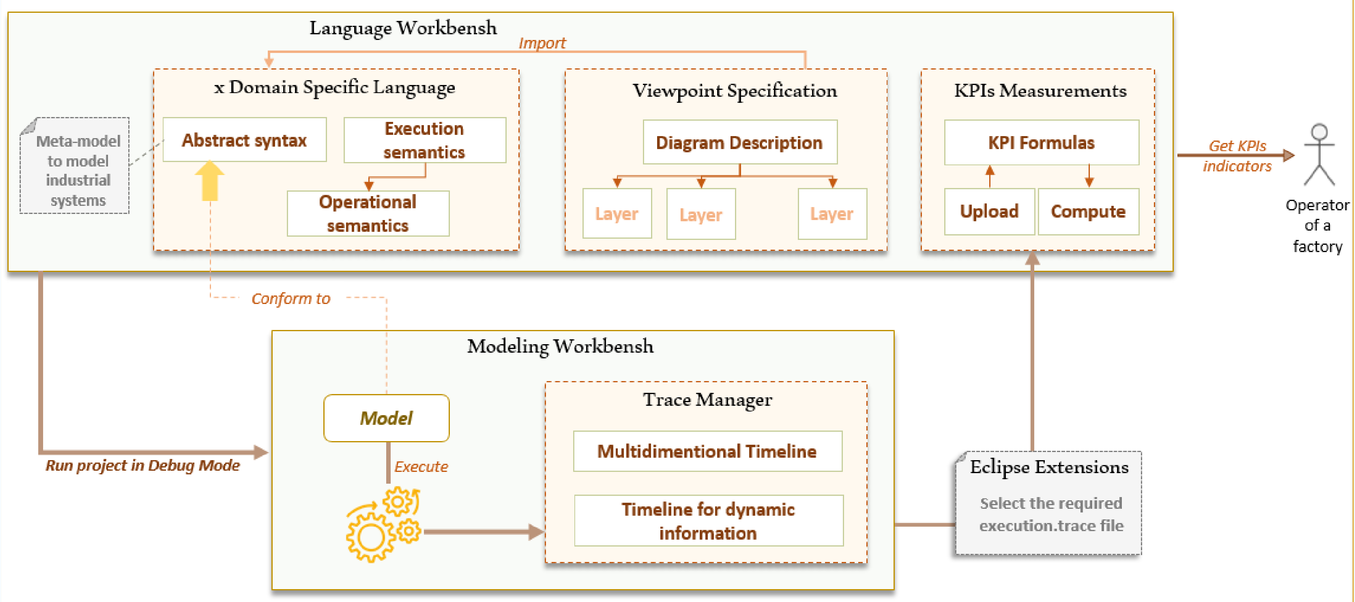




What would be the Mean Operating Time of the station?

Design

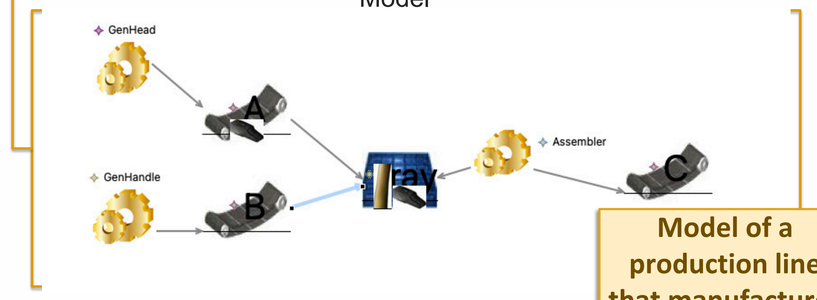
Overall Architecture Diagram



Results

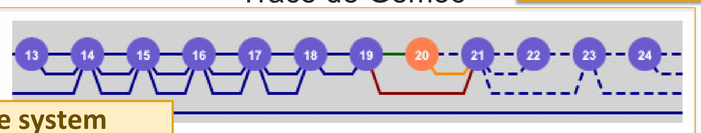
Development

A meta-model of a production system



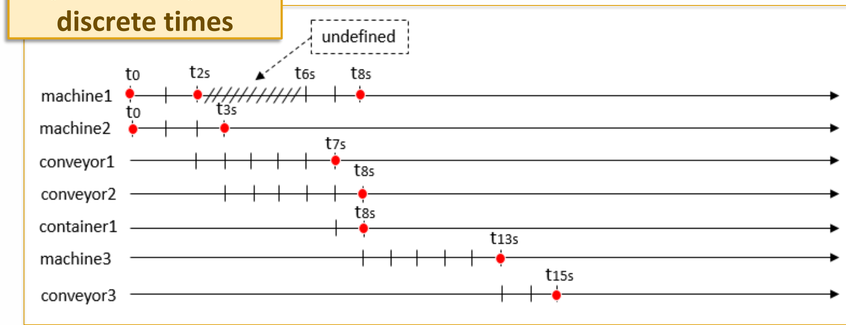
Model of a production line that manufactures hammers

Trace de Gemoc

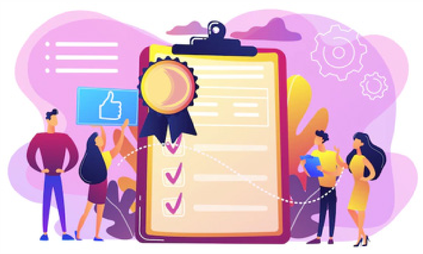


The system execution trace captured at specific discrete times

Discrete event semantics



Conclusion & Perspectives



Conclusion

- ✓Understand the issue
- ✓Analyze the situation
- ✓Conceive approaches
- ✓Collect performance indicators
- ✓Establish a state of the art
- ✓Build a executable modeling language
- ✓Write semantic operations with the Kermeta3 framework
- ✓Provide a graphical animation with Sirius project
- ✓Build a first simulation
- ✓Analyze execution trace

Perspectives

- ✓Calculate KPIs
- ✓Execute test scenarios
- ✓Store the results obtained

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