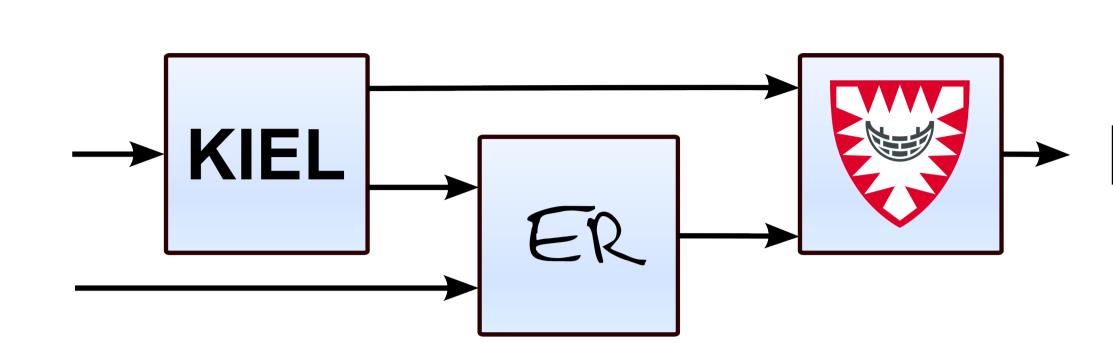


## Institut für Informatik

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Faculty of Engineering

Department of Computer Science

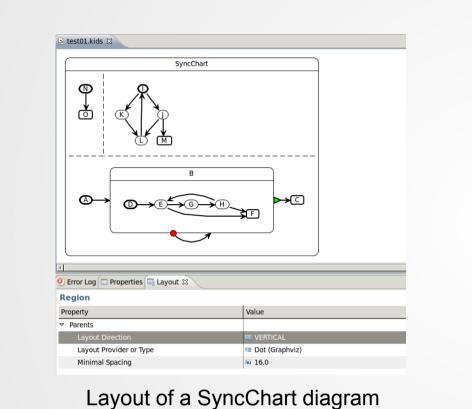


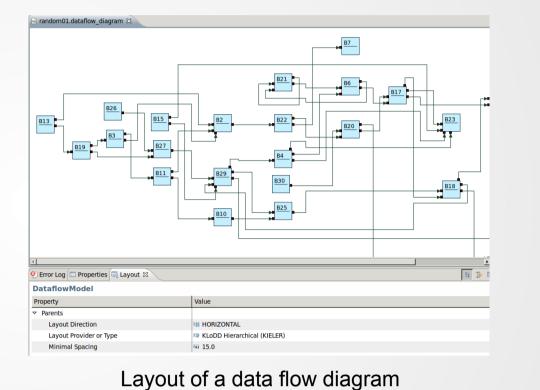
# Kiel Integrated Environment for Layout

Edipse Rich Client

### **Automatic Layout**

KIML – KIELER Infrastructure for Meta Layout [2]



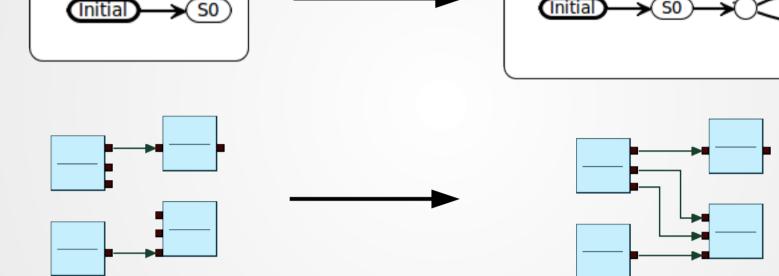


- Automatic layout of GMF diagrams
- Generic interface for layout algorithms
- Flexible configuration of layout options by the user

#### **Textual Editing**

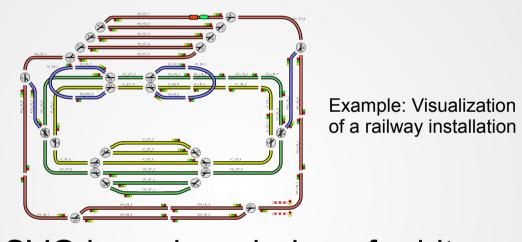
- Synchronization of graphical models with textual representations
- Connect textual editors created with Xtext to **GMF** editors
- Transformation of the Esterel language to SyncCharts

# **Structure Based Editing** KSBasE - KIELER Structure Based Editing SyncChart

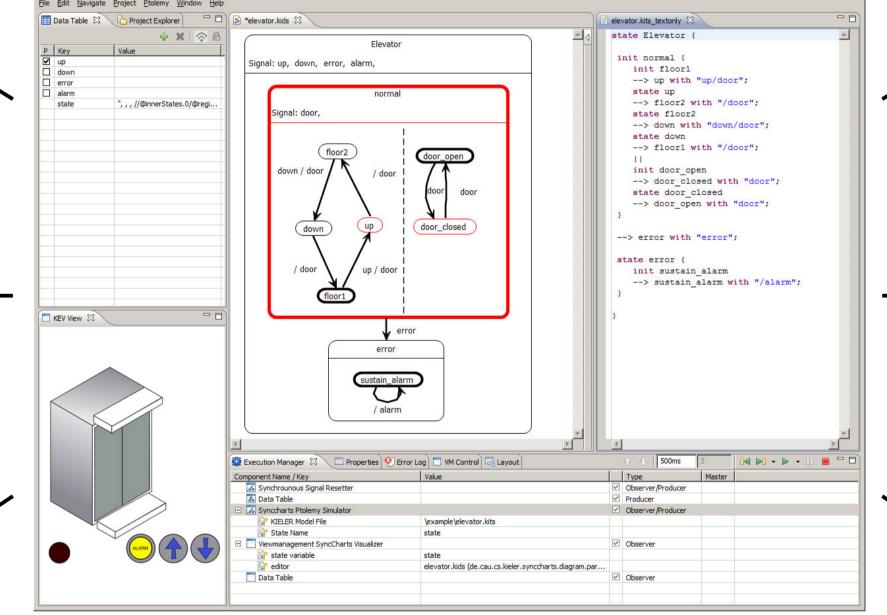


- Improve editing of graphical models by using model transformations for arbitrary operations
- Generic interface for GMF diagram editors

### **Environment Visualization**

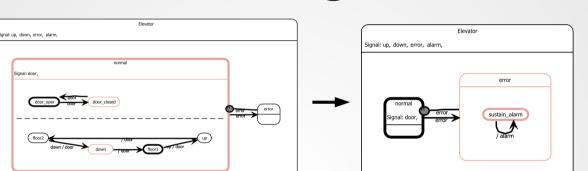


- SVG based rendering of arbitrary environments for simulation
- Specification of animations
- GUI for testing and demonstration of behavioral models



KIELER: Enhancing graphical modeling in Eclipse by integrating into existing frameworks such as EMF, GMF, and TMF [1]

#### **View Management**

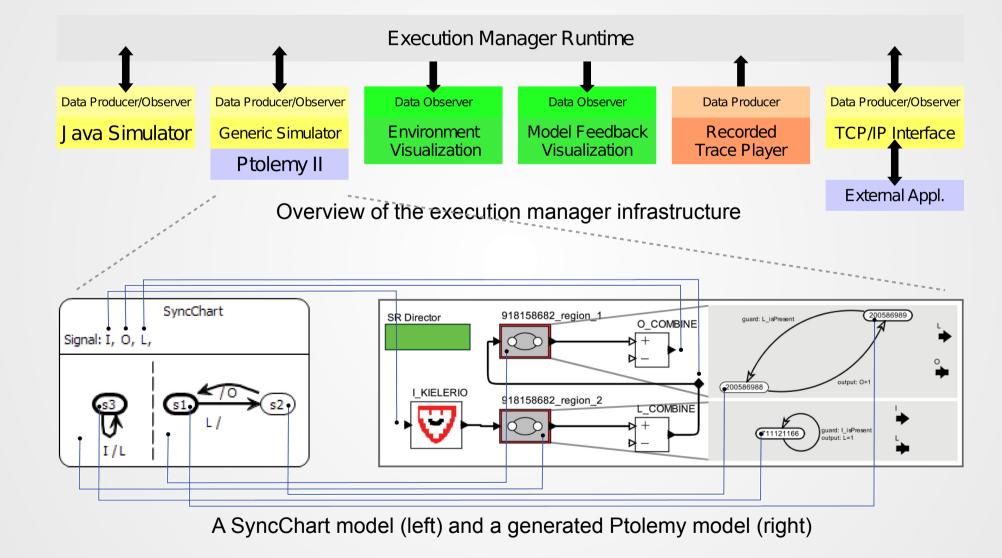


Focus and context: the active states of a SyncChart are fully shown, while other states are collapsed

- Dynamically create and layout graphical views of the model
- Arbitrary conditions can trigger different visual effects

#### **Model Execution**

KIEM – KIELER Execution Manager



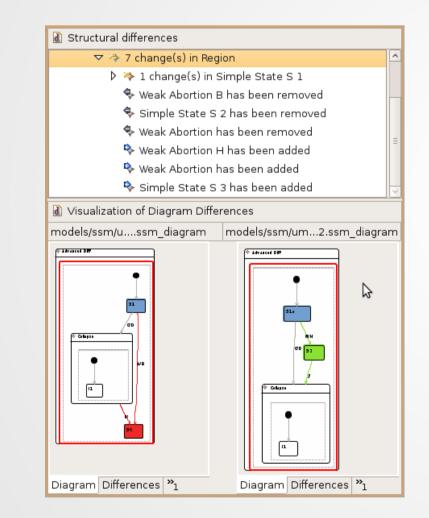
The semantic domain of Ptolemy is used as a possible simulation backend for KIEM.

#### **Code Generation**

- Generate code with **Xpand**
- Connect executable code to KIEM
- Examples:
- SyncCharts in C [4]
- Dataflow to Lustre

### **Model Comparison**

KiViK – KIELER Visual Komparison [3]



- Visualizes differences in two versions of a model graphically
- Integrates into standard Eclipse GMF and comparison mechanisms
  - Employs EMF Compare project as differencing engine
  - Employs automatic layout and automatic zooming and scrolling for navigation

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#### **Further Information:**

http://www.informatik.uni-kiel.de/rtsys/kieler

[1] Hauke Fuhrmann and Reinhard von Hanxleden. On the pragmatics of model-based design. Technical Report 0913, Christian-Albrechts-Universität zu Kiel, Department of Computer Science, May 2009.

[2] Miro Spönemann, Hauke Fuhrmann, Reinhard von Hanxleden, and Petra Mutzel. Port constraints in hierarchical layout of data flow diagrams. In Proceedings of the 17th International Symposium on Graph Drawing (GD'09), LNCS, Chicago, September 2009.

[3] Arne Schipper, Hauke Fuhrmann, and Reinhard von Hanxleden. Visual comparison of graphical models. In Proceedings of the Fourth IEEE International Workshop UML and AADL, held in conjunction with the 14th International Conference on Engineering of Complex Computer Systems (ICECCS'09), Potsdam, Germany, 2009.

[4] Reinhard von Hanxleden. SyncCharts in C—a proposal for light-weight, deterministic concurrency. In *Proceedings* of the International Conference on Embedded Software (EMSOFT'09), Grenoble, France, October 2009.