INCOSE
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MBSE in Telescope Modeling

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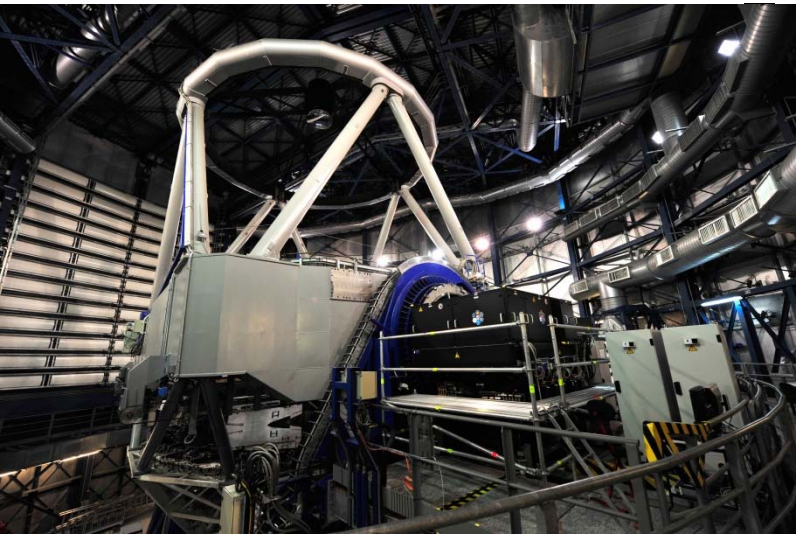
representing the
SE^2 challenge team

Agenda

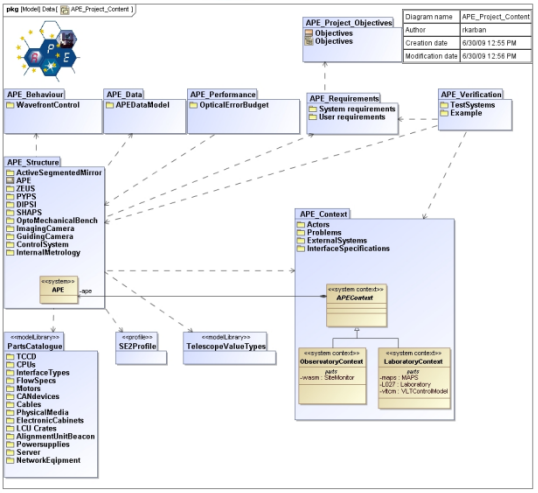
- What is it about?
- What have we achieved?
- Is there a future?
- What is next?
- Live demo of the model

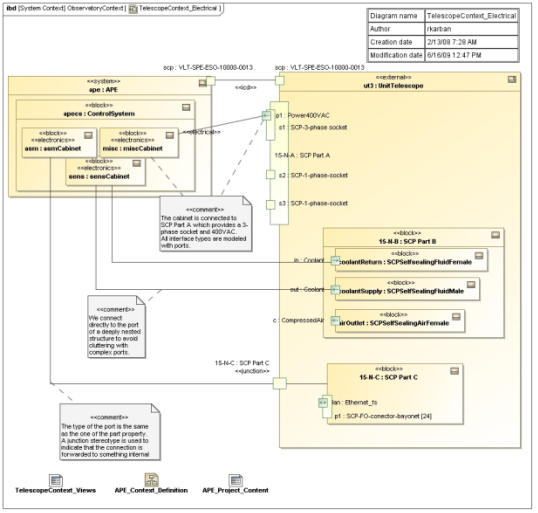
What is it about?



- *System case study*
  - *The APE technology demonstrator for the future Extremely Large Telescope (ELT)*
  - *High-Tech interdisciplinary opto-mechatronical system in operation at the Paranal observatory*
- *Goals*
  - *Create modeling guidelines and conventions for all system aspects, hierarchy levels, and views*
  - *Create a fully fledged SysML model*
  - ***Documented at http://mbse.gfse.de***
- *Team*
  - *Robert Karban (ESO), Tim Weilkiens (oose), Rudolf Hauber (HOOD)*

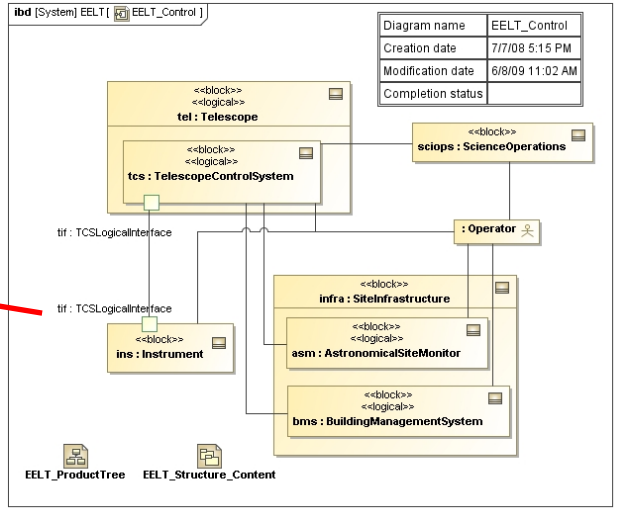
What have we achieved?





- APE Model, Guidelines, and FAQ
  - *Model structure and overview*
  - *Objectives and Requirements*
  - *Context*
  - *System Structure*
  - *Behavior*
  - *Data*
  - *Verification*
  - *Model library and SE Profile*
- Modeling challenges
  - *Identified, solved, and presented (RTF input)*
  - *Notation (e.g. Connection of nested blocks)*
  - *Model (e.g. Grouping of interfaces)*
  - *Tool (e.g.* Configuration and Quality Control)
  - *Methodology (e.g. multi-layer allocation)*
- Plugin for modeling tool

Is there a future?



- 10000 tons of steel and glass
- 20000 actuators, 8000 mirrors
- 60000 I/O points, 700Gflops/s, 17Gbyte/s
- Many distributed control loops
- Use SysML to model the control system

What is next?

- Update guidelines and FAQ
- Create a “Solving SysML problems in a nutshell”
- Elaborate APE model
- Explore parametrics

Live demo of the E-ELT model

- Please standby - setting up the system…