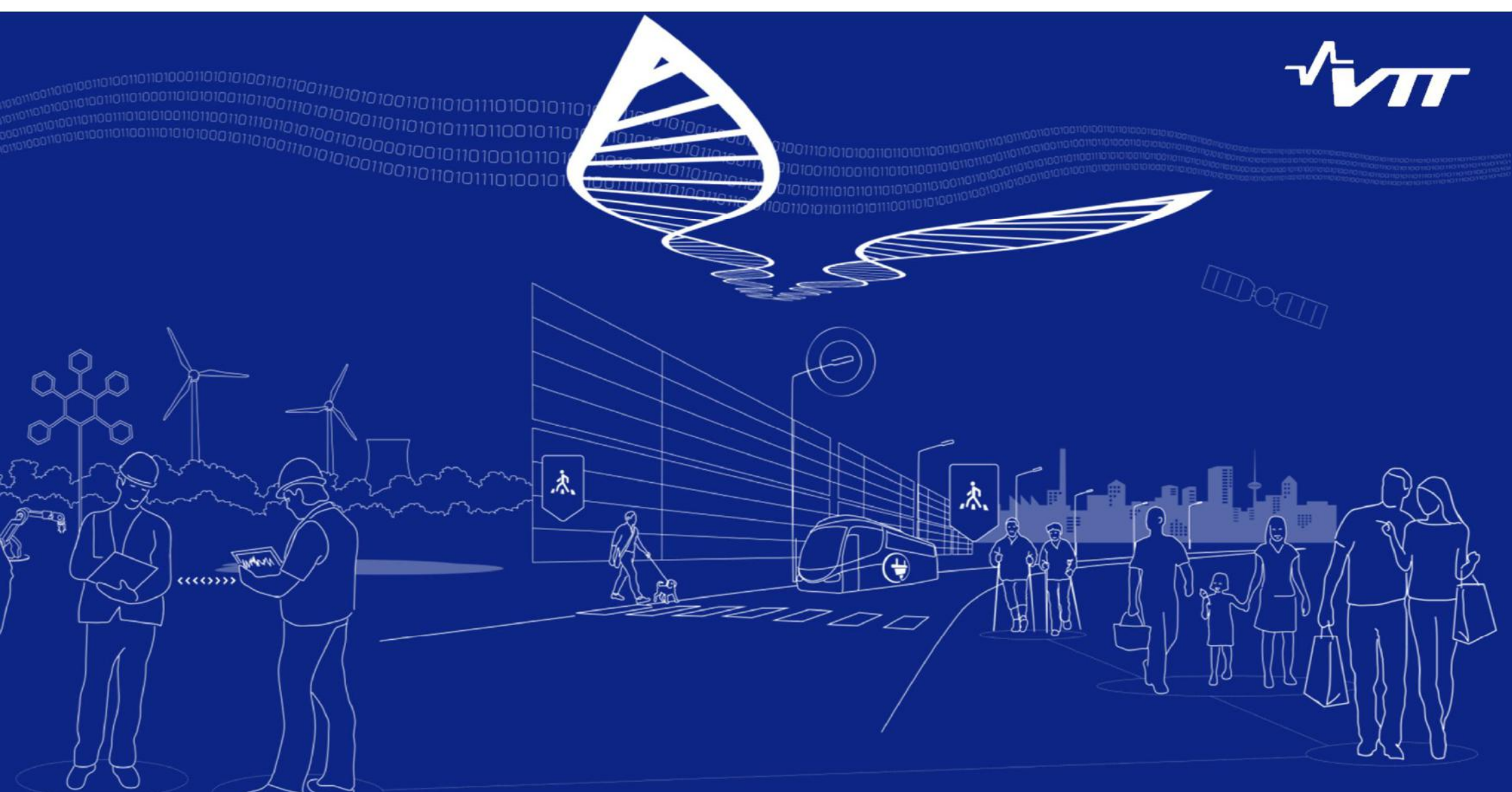




VTT Technical Research Centre of Finland Ltd

Tommi Karhela

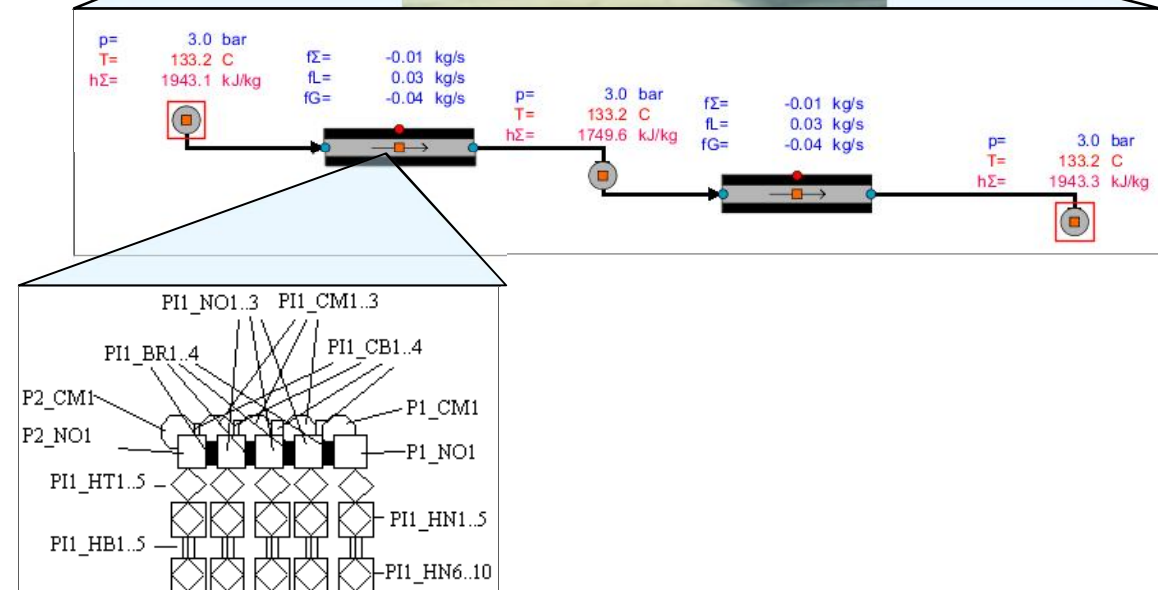
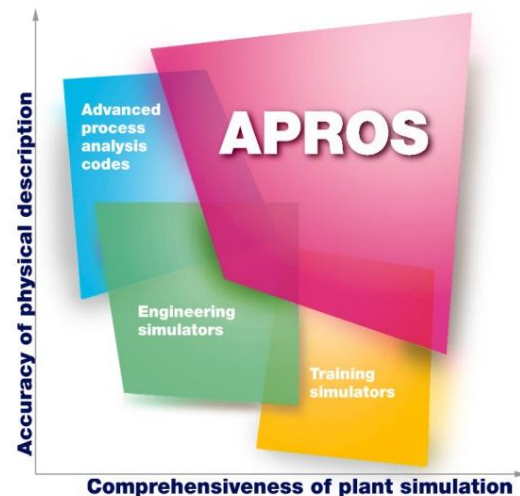


Apros



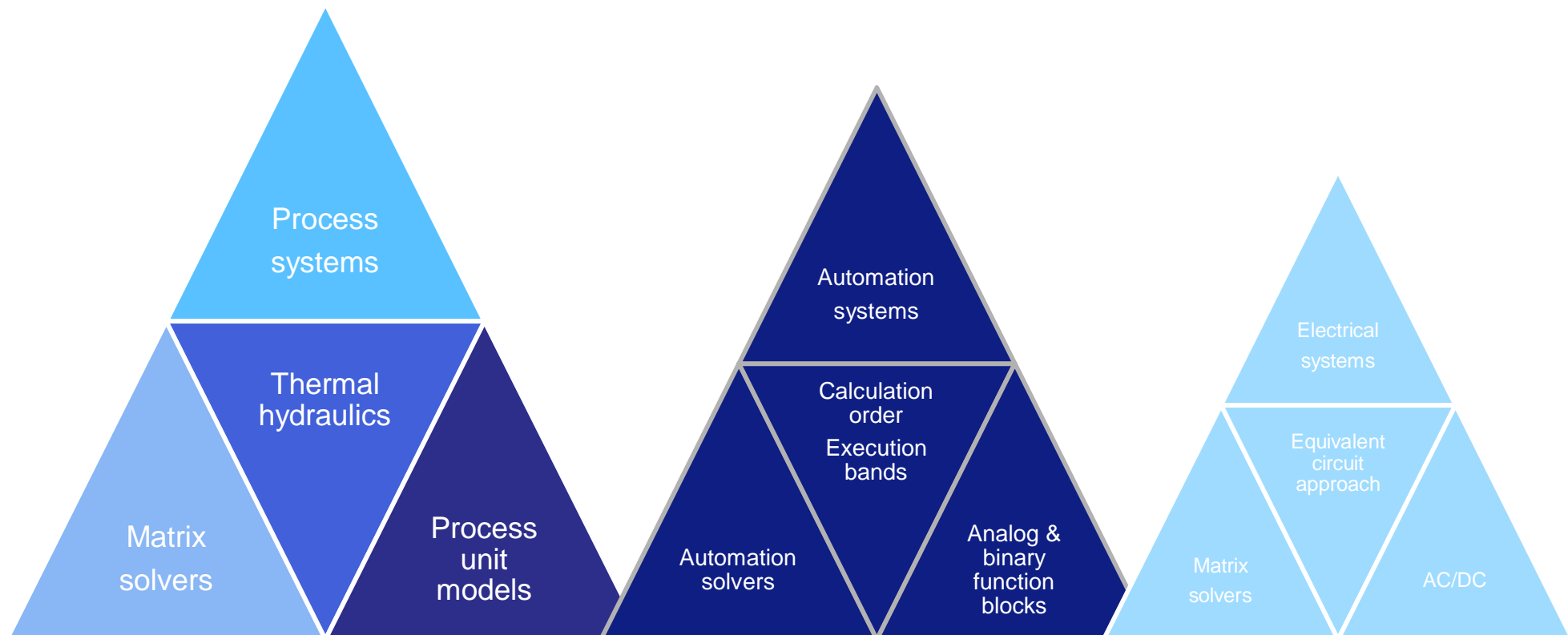
Apros - Advanced Process Simulator

- § Apros (www.apros.fi) is a software for 1D modelling and dynamic simulation of industrial processes, including automation and electrical systems
- § Developed since 1986 by Fortum and VTT
- § Offers **combined fidelity and comprehensiveness**





Main domains in Apros modelling & simulation





Various uses of Apro simulation

R&D

Evaluation of
new process
concepts

Integrated Process
& Control design

Development of
new control strategies

Engineering

Safety analysis

Automation
testing

Control room
design
evaluation

Automation
engineering

Operation

Performance
analysis

Operator
training

Trouble-
shooting

Optimisation



Selected References



Forsmark Kraftgrupp AB



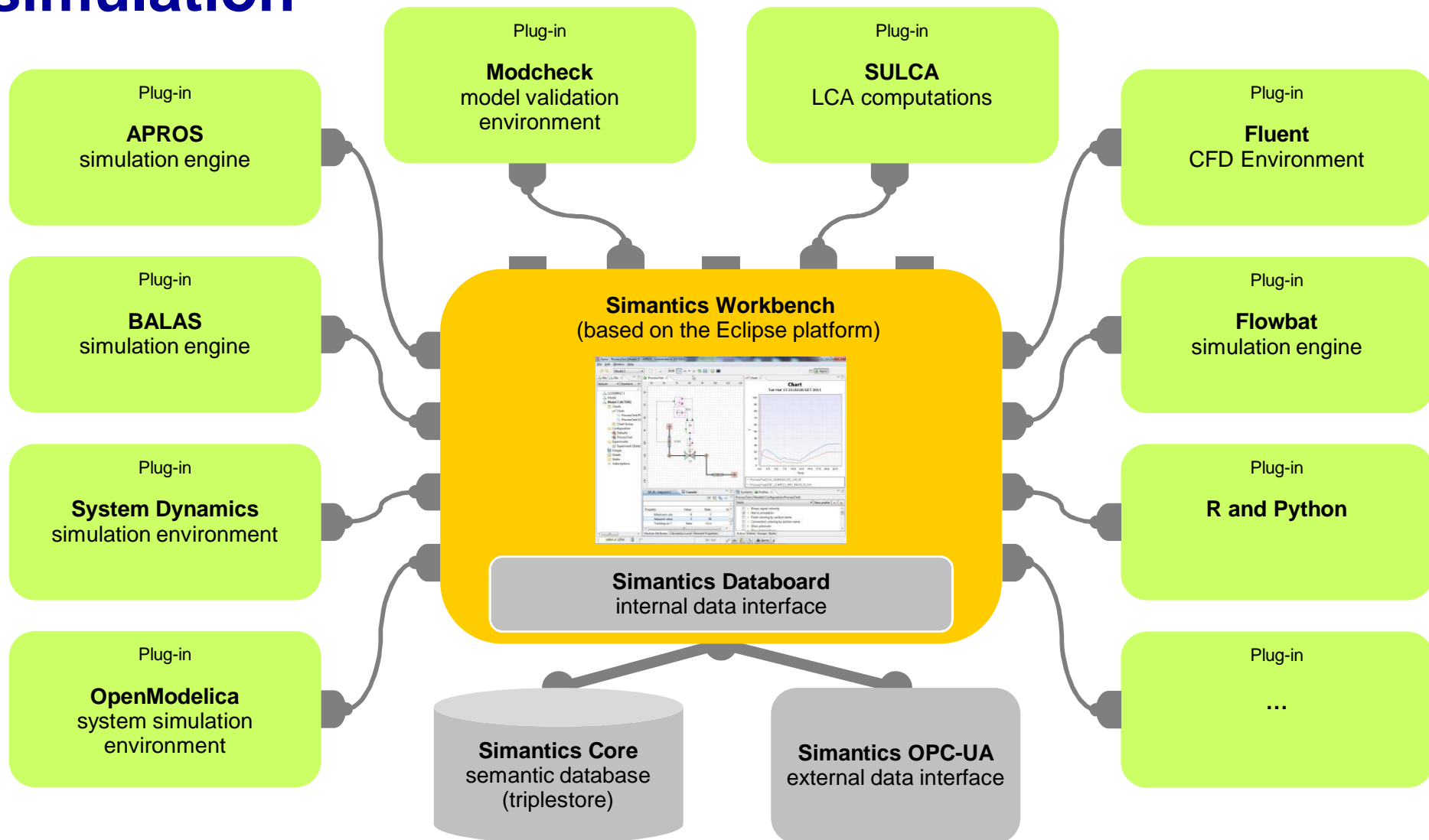
THERMAL POWER RESEARCH INSTITUTE





Simantics

Plug-in architecture for modelling and simulation



Simantics focus areas

flexibility, connectivity and maintainability



Flexibility, connectivity

**Co-use of different
simulators and
expandability of the
computation**

**Simulation and control
system integration**

**Simulation and
design systems (CAD)
integration**

**Team features and
simulation information
management**

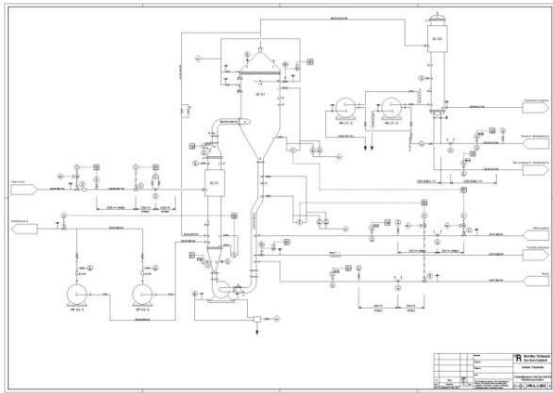
Maintainability

Process simulation

Simulation and process design integration



Design Engineers



Simulation Engineers



Process design

Automation design

3D design

Common user interface environment

Apros Process Simulation

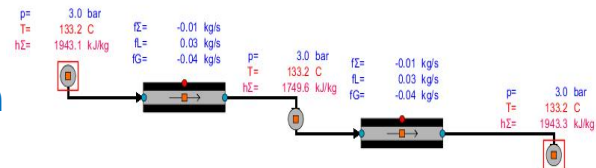
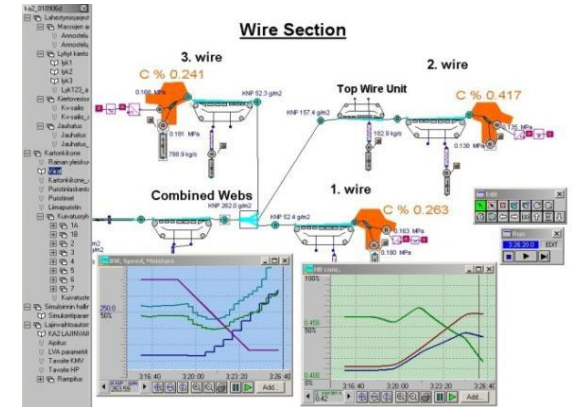
Other simulators: Balas, DEVS, sd, Fluent, Modelica, company specific

Plant design systems: SmartPlant Foundation, Comos, ...

Simantics

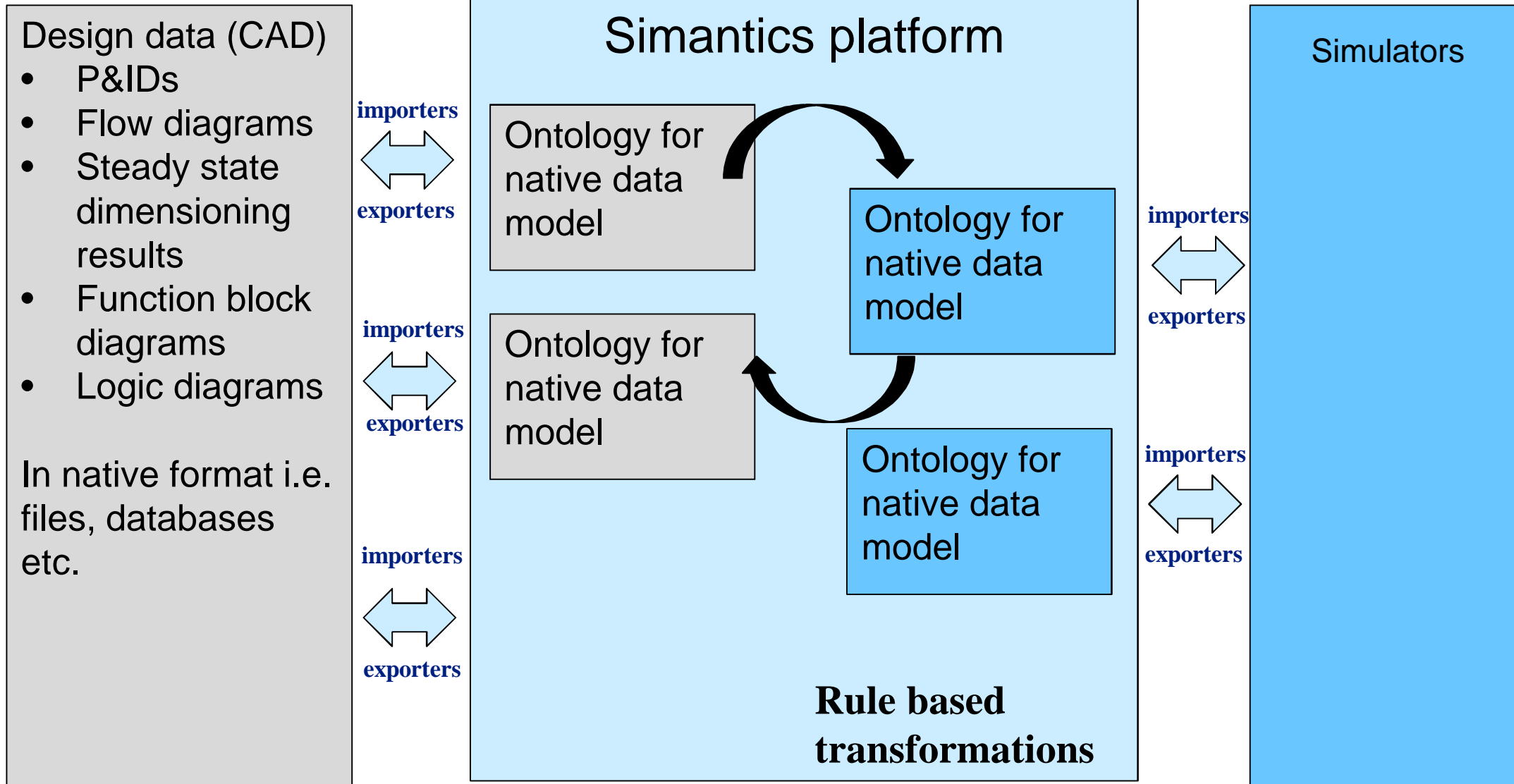
Engineering Information Management

Simulation Information Management

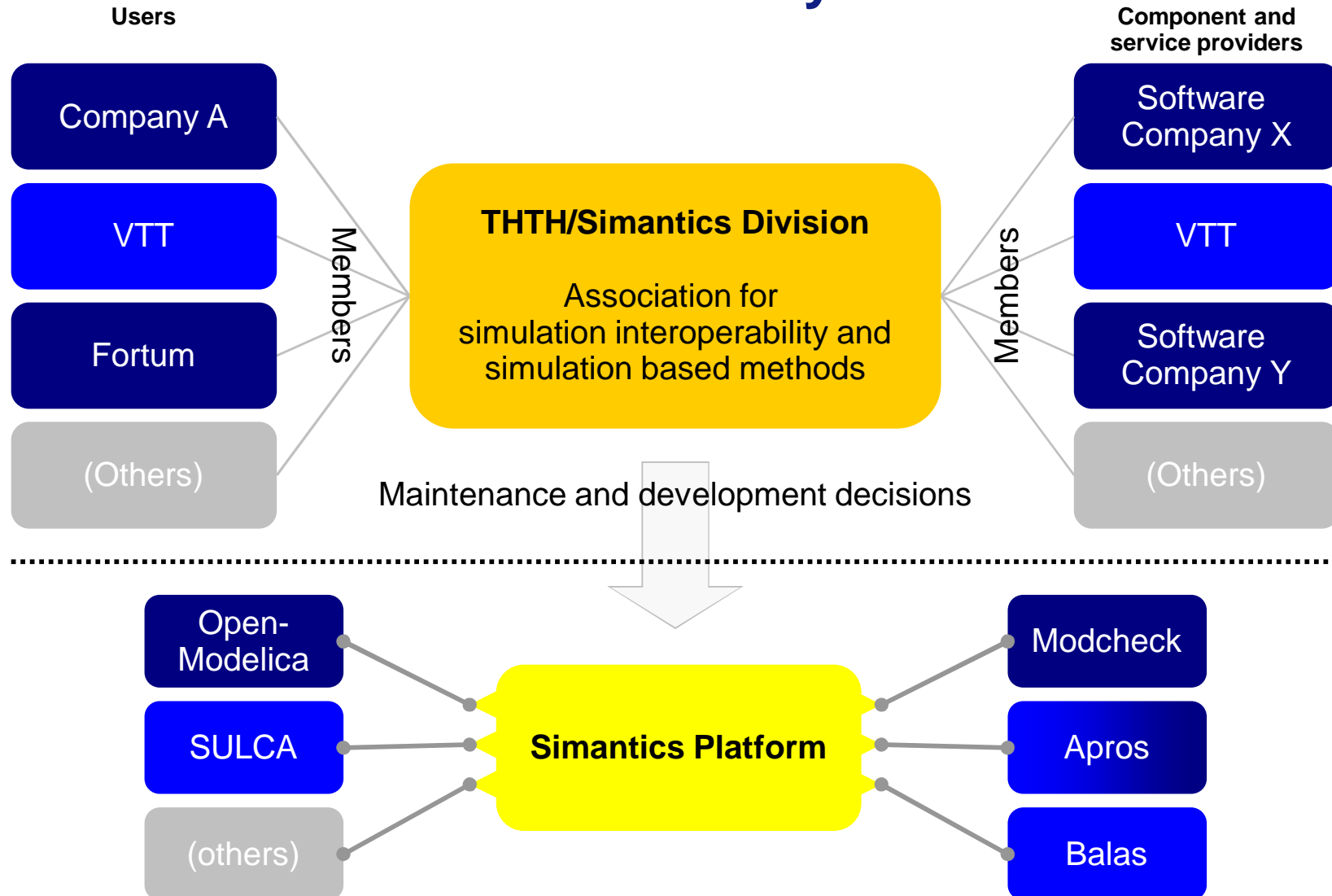




Transformation of CAD data into Simulation Models

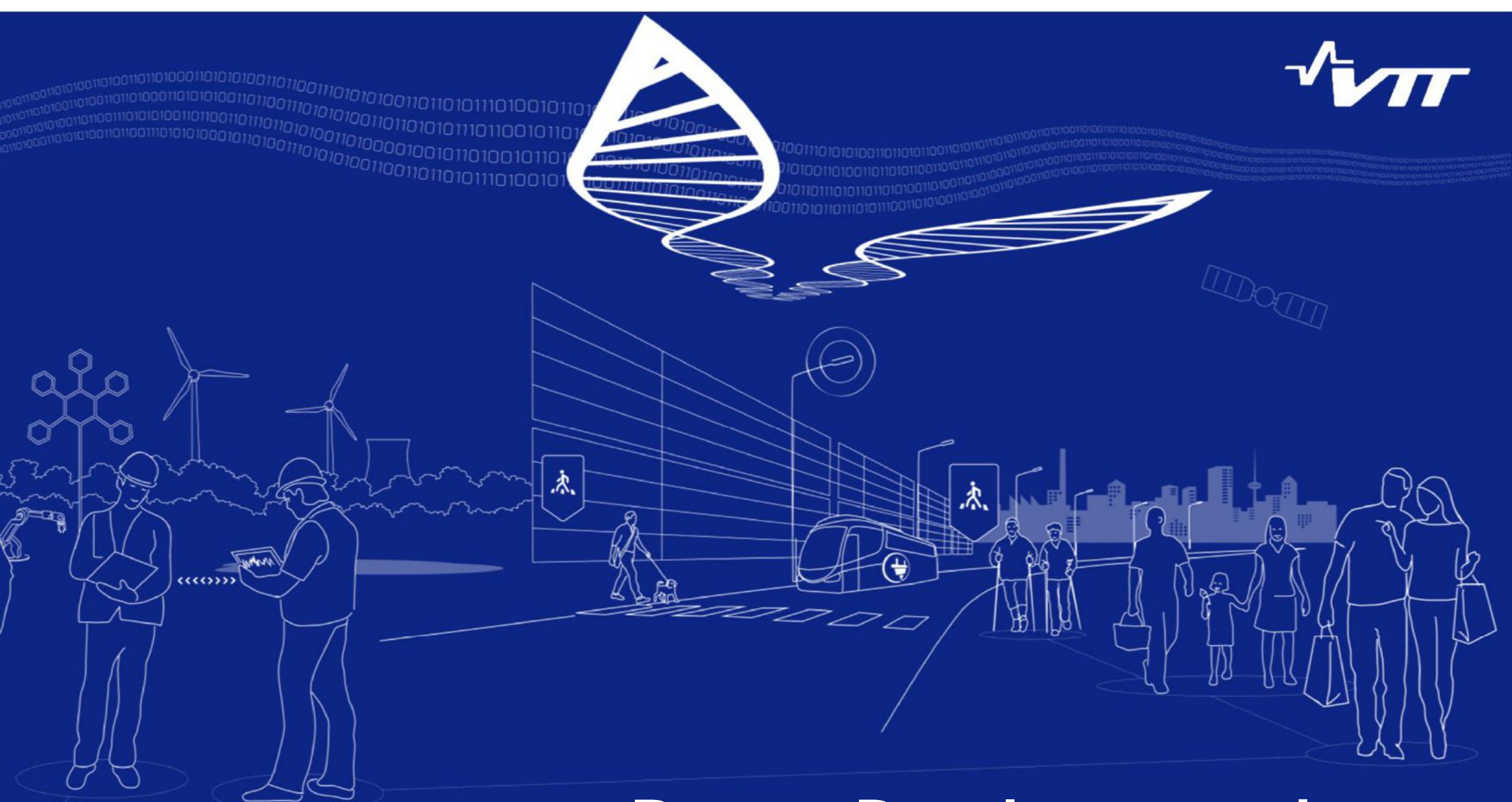


Simantics Ecosystem



Current members of Simantics

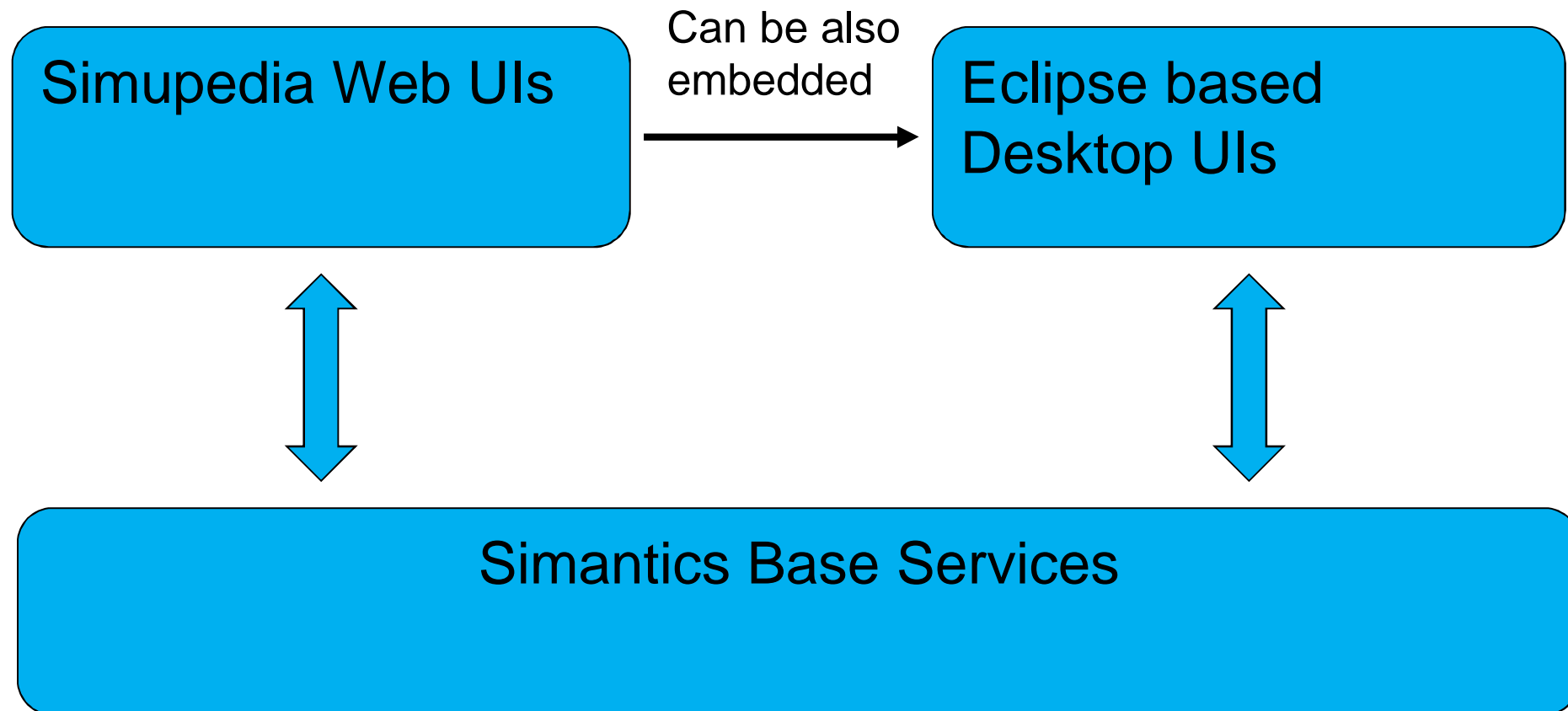




Recent Developments in Simantics

Recent directions to apply Simantics technology

Web User Interfaces for Simulation Models



Web User Interfaces for Simulation Models

case example of FMUs

