

Final Event
24-25th of May 2022

Virtual demon

Simulation and Cloud platform



Powerful Advanced **N**-Level Digital Architecture
for models of electrified vehicles and their components

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PANDA Cloud platform

- HPC provider: **Rescale** – on-demand computers with industry software
- Persistent storage: **AWS** (using multiple products)
- Accessing files and automation: **PANDA Explorer**

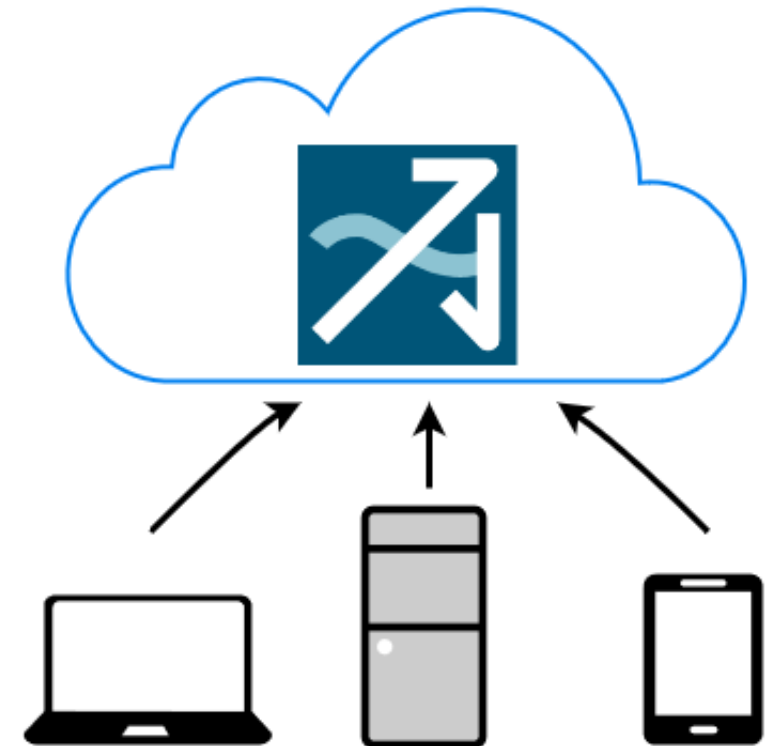


Benefits of Cloud



What is the Cloud platform useful for?

- Can access industry tools from any computer, anywhere in the world
- Performance is guaranteed — bleeding edge technology
- Licensing is centralized and made easy
- Work is shared with colleagues, no emails necessary



Some limitations



- While using the Cloud is convenient, it comes with some limitations when you're on a budget:
 - Every time you start a new computer, it's empty!
 - Settings and configurations don't carry over to new sessions!
 - It can still be expensive!
- This is where PANDA Explorer comes in, providing persistent storage and automating tasks that need to be performed on virtual machine start-up.



Access to PANDA Library



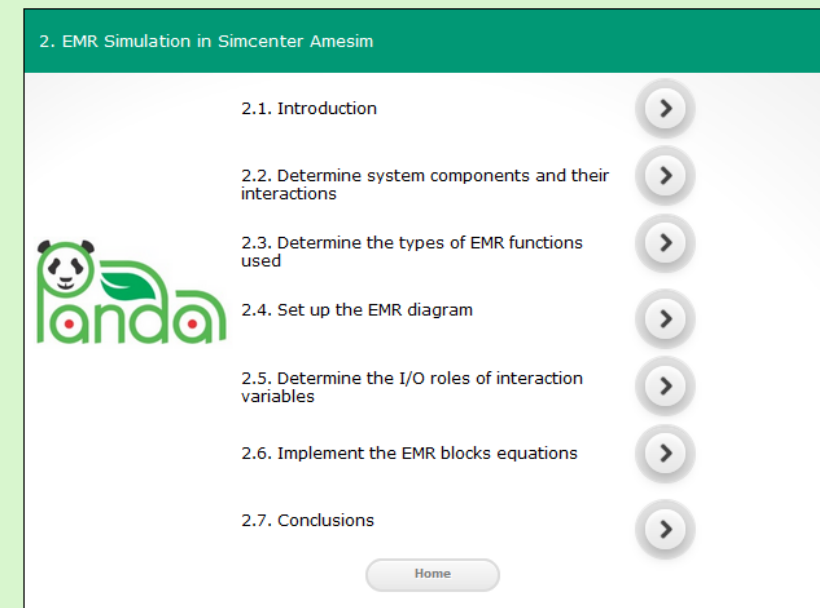
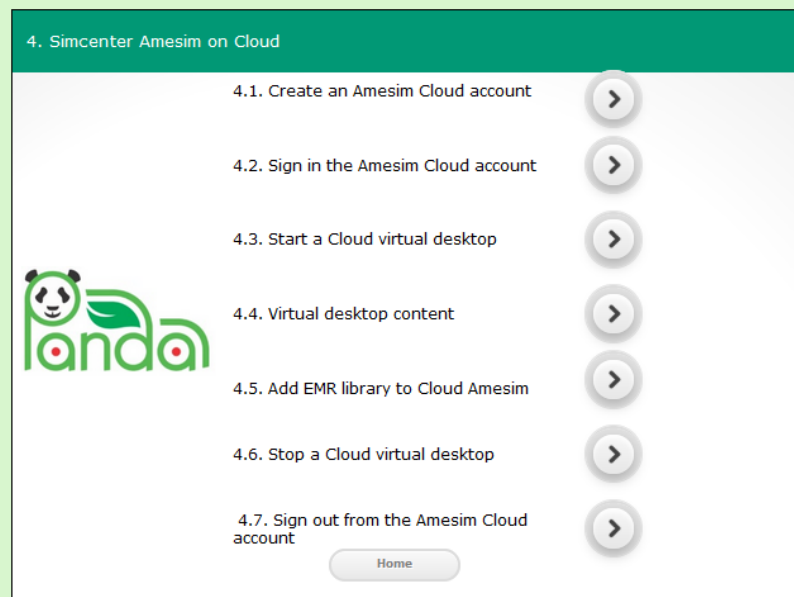
Through PANDA Explorer, users can download from a library of:

- Complete electric vehicles (BEV, PHEV, FCEV)
- Components of varying complexity that connect directly to each other
- Additionally, users can contribute and easily upload their own models.

The screenshot displays the PANDA Explorer web interface. At the top right, there are buttons for 'Log Out', 'Users Console', 'Go to Rescale.com', and 'EMR to Amesim'. Below these is a 'review' section with a description field. The main form area includes a 'Project name' field with the value 'EV_Tazzari_Zero_EMR_HiL_results.ame', a 'Project upload path' field with the value 'Shared Projects\EV_Tazzari_Zero_EMR', and a 'Characters left: 250' indicator. There are four tabs: 'Main Files', 'Input', 'Documentation', and 'Miscellaneous'. The 'Main Files' tab is active, showing a list of files with 'EV_Tazzari_Zero_EMR_HiL_results' selected. At the bottom, there are 'Back' and 'Next' buttons, and a status bar indicating 'No transfers are active.'.

PANDA eLearning

- In order to teach every project member about the PANDA platform and the tools, a collection of tutorials is accessible from PANDA Explorer.
- Contains videos about every topic related to the work SISW performed during PANDA.



HIL in PANDA



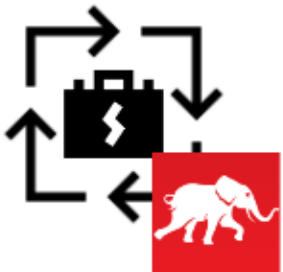
Virtual testing



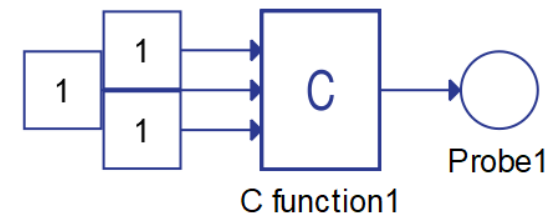
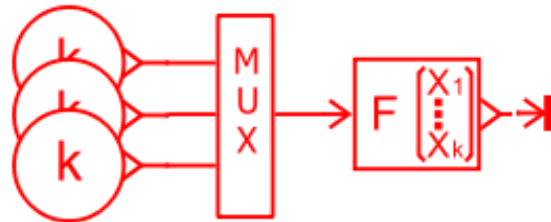
Real-time testing



HiL testing



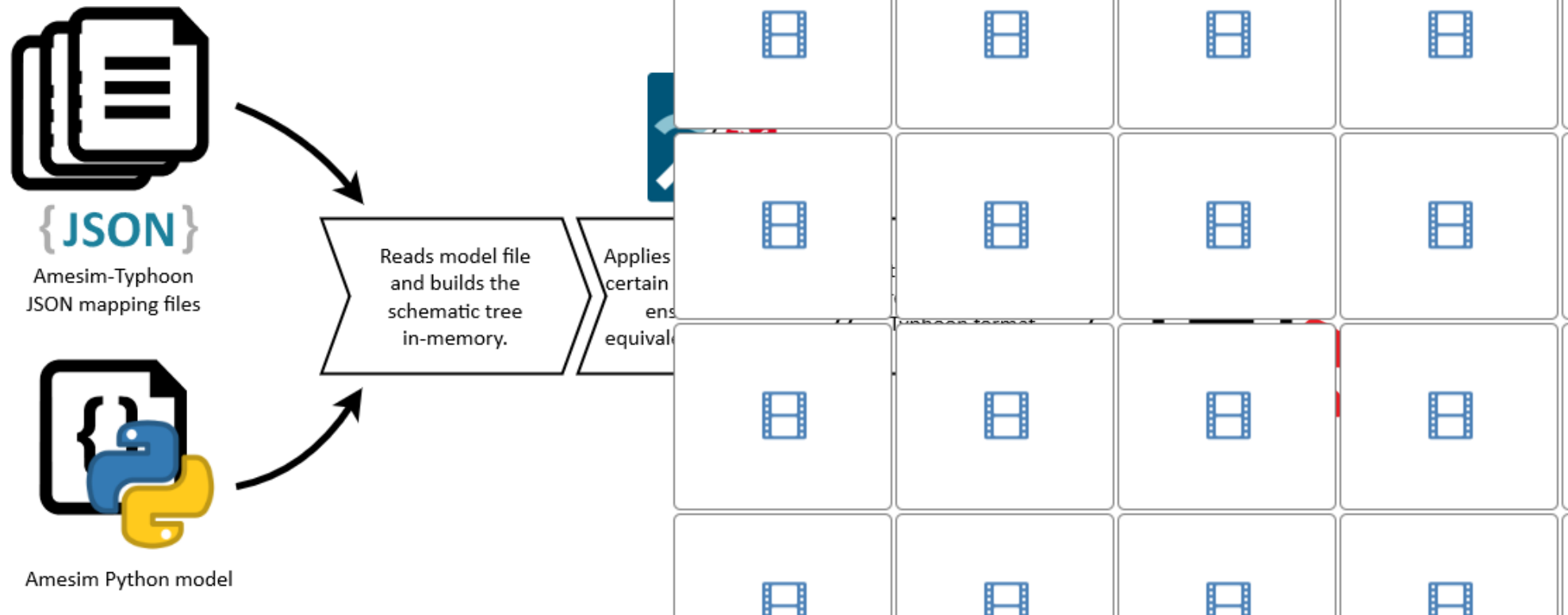
- Models are first developed and validated in Amesim.
- After this, they must be loaded into a Typhoon real time simulator.
- Possible through FMI but it is opaque — users cannot edit the model inside Typhoon.
- Alternative solution, rebuild the model in Typhoon.



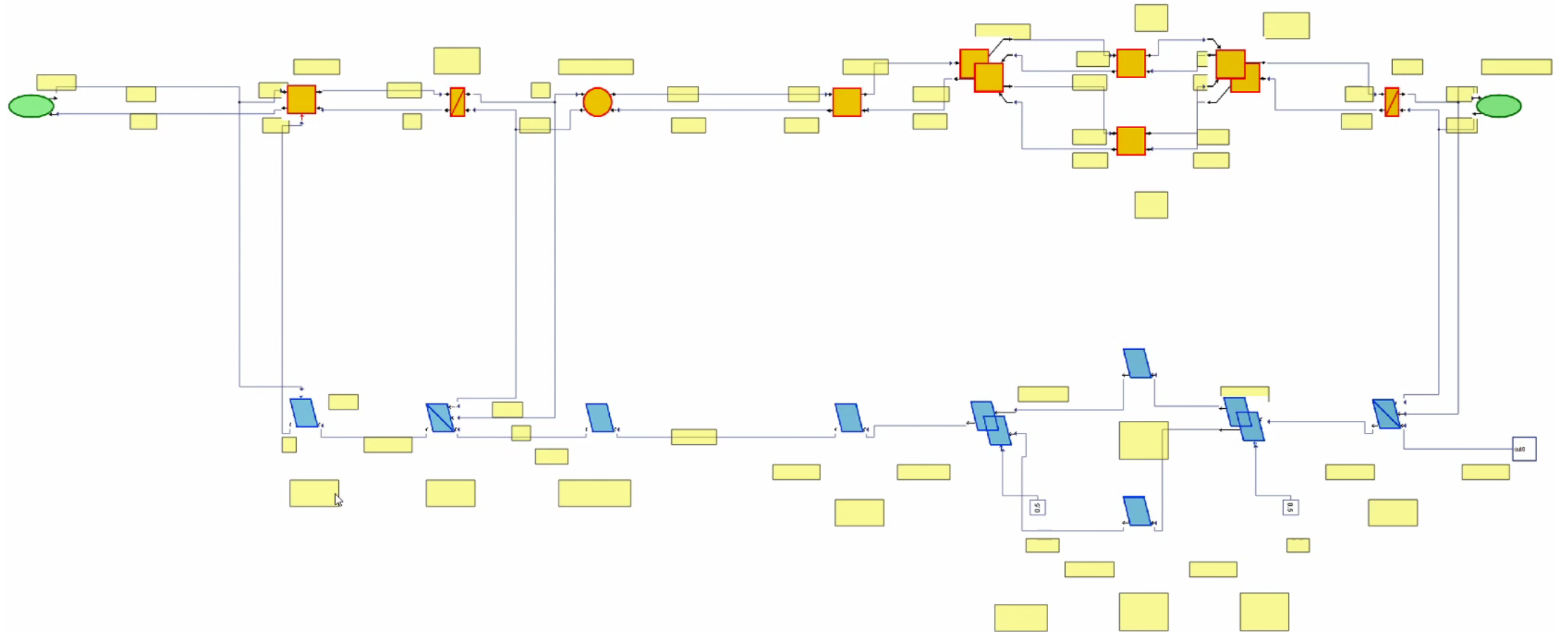
PANDA Model Converter



- After generating an Amesim model script, it is taken by the converter and transformed into a Typhoon model.



Conversion example





Thanks for your attention!

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