VISUALISATION OF REAL-TIME FRONT-END SOFTWARE ARCHITECTURE (FESA) DEVELOPMENTS AT CERN
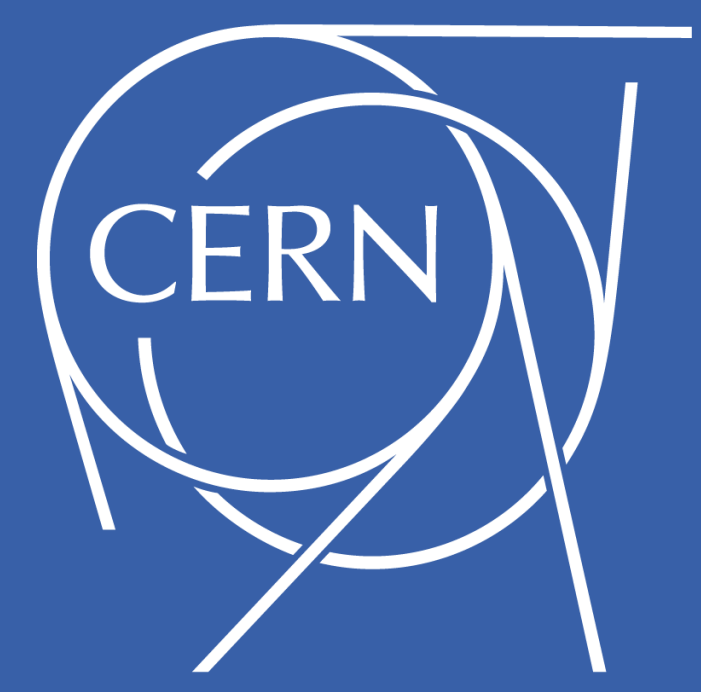
A. Topaloudis* | CERN
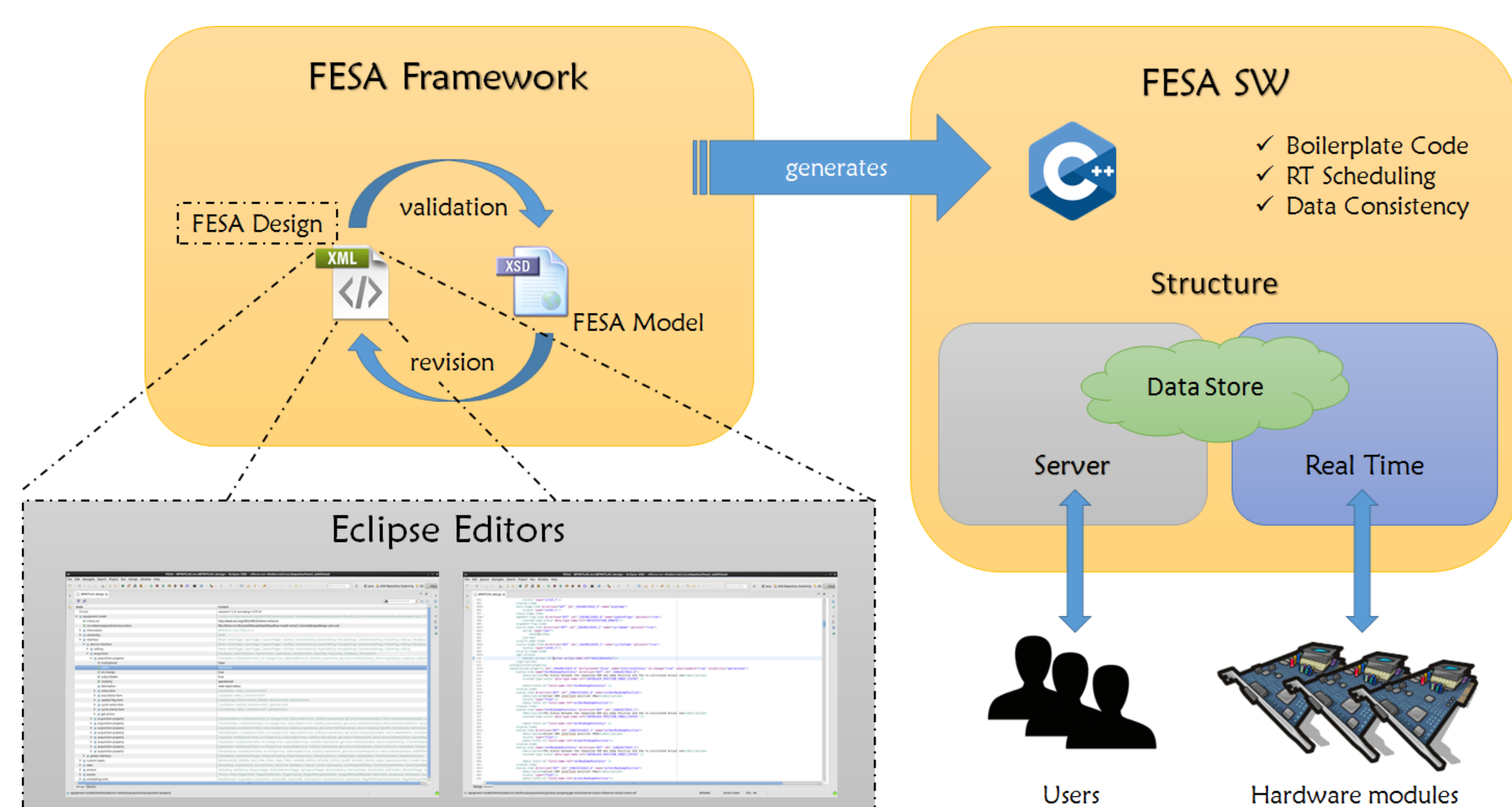C. Rachex | Polytech Grenoble

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Introduction

This poster presents a structured graphical representation of the software developed with the FESA framework. In addition, it demonstrates a GUI that facilitates editing to make the resulting graph cleaner and more user-friendly.

FESA

- A framework for real-time software development.
- Integrated in Eclipse IDE.
- Software design is stored in an XML document.
- Generated C++ boilerplate code.
- Resulting software is structured in three major segments:
  - *Server* – software API.
  - *Real-Time* – hardware access.
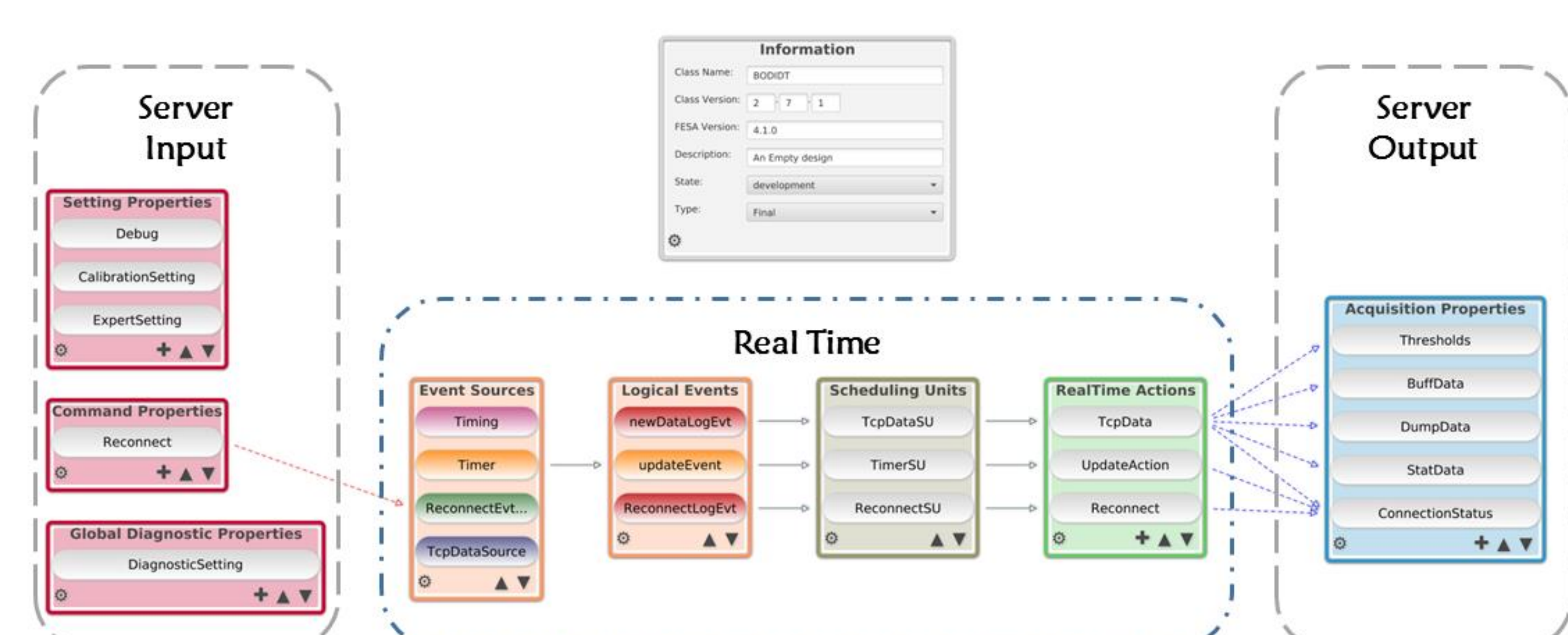 - *Data Store* – shared, internal data model.

Software development with the FESA framework

Graphical Representation of a FESA Design
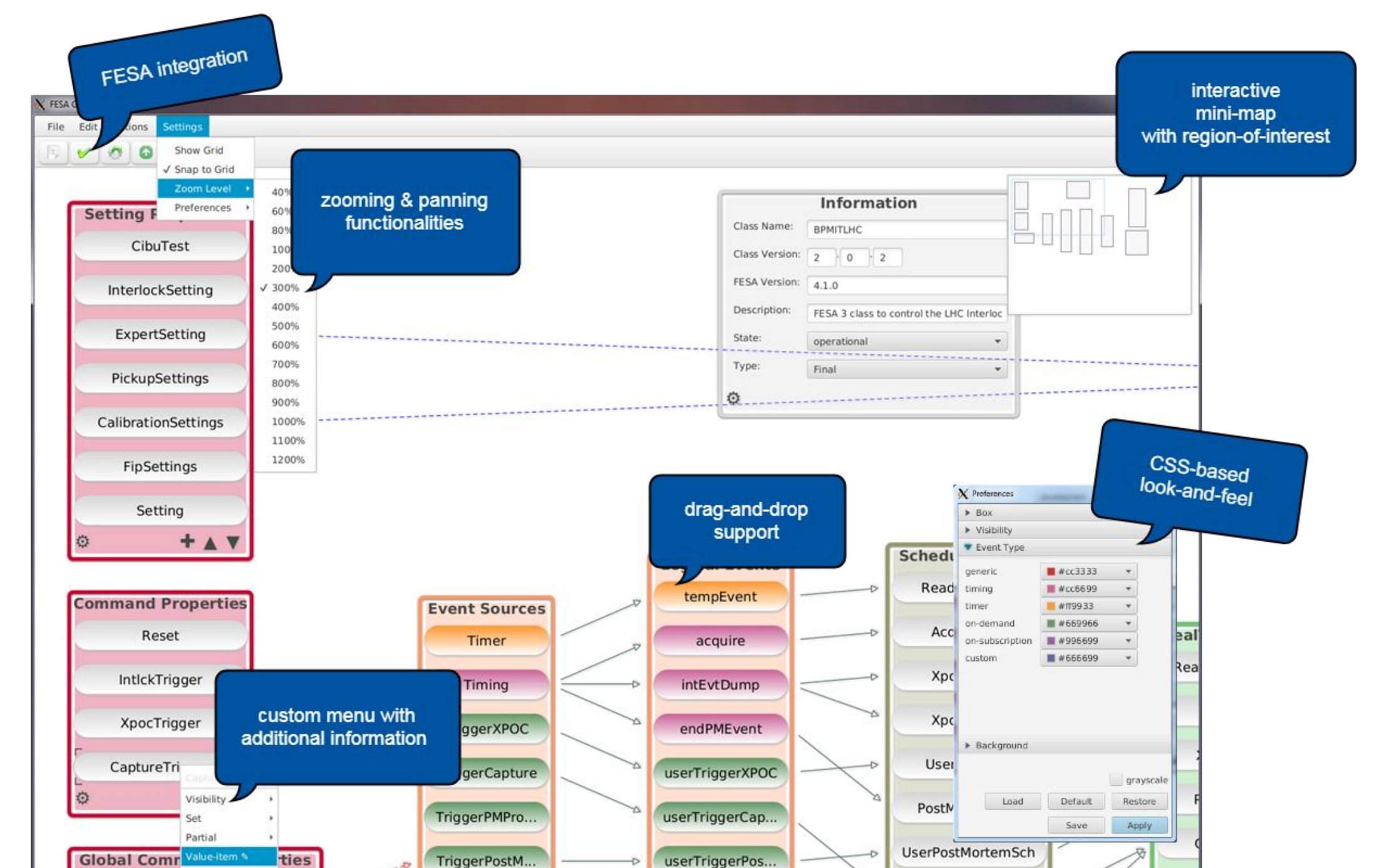
Visualising a FESA-design in a graph benefits from:
- a *structured fragmentation* grouping the elements from the different parts.
- a clean, yet descriptive *overview*, hiding internal details, while emphasising its public API.
- quick *error detection* as the association between the logical groups are visible in the form of arrows.
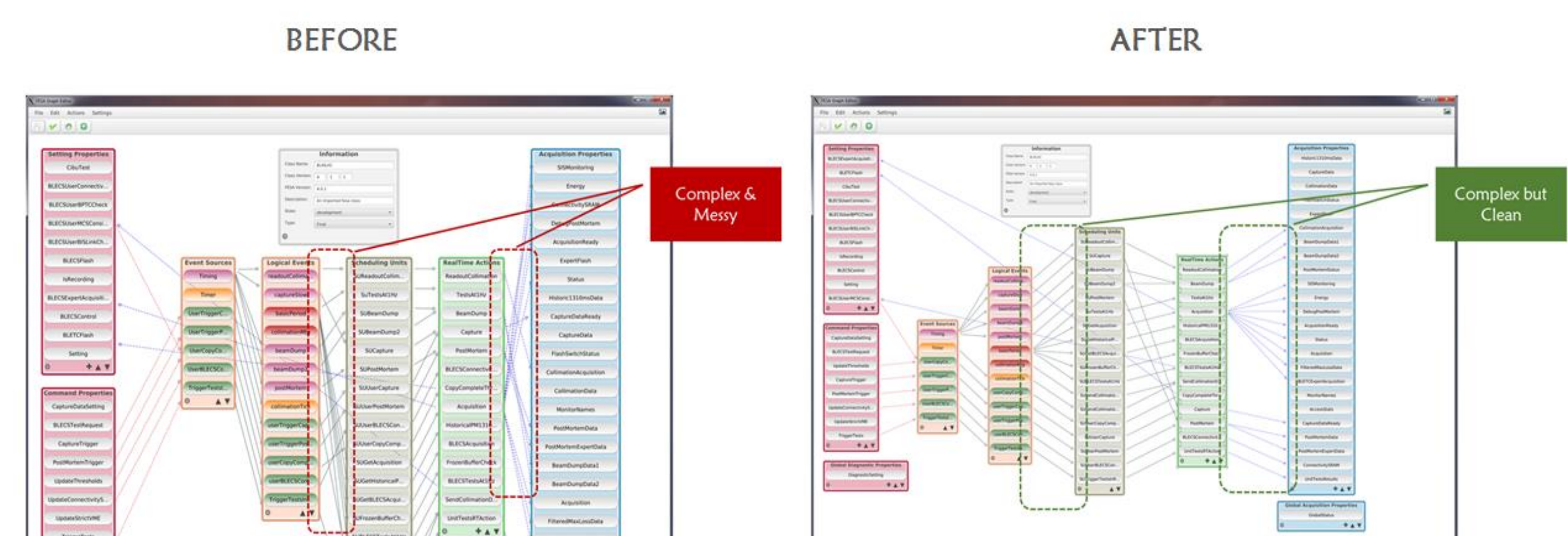

Structured graphical fragmentation of a FESA design

FESA Graph Editor

FESA Graph Editor is an interactive, stand-alone, JavaFX application that eases the transformation of a FESA-design document to its graphical depiction.

FESA Graph Editor features

Graph customisation for a cleaner software overview

DATA STORE SUMMARY

The *Data Store* is summarised in classified <u>tables</u> for better readability and it can be made <u>visible on demand</u>, when the internal details of the design are required.

Data Store summary in classified tables

Conclusion

- A structured, pictorial fragmentation of a FESA-design benefits from the effortless overview of the software.
- A graphical application with in-built editor allows the graph customisation, resulting in a cleaner illustration.
- The integration of the framework into the application is highly promising for producing a complete visual layout tool.