

TASS – Trigger and Acquisition System Simulator

an interactive graphical tool for DAQ and Trigger design

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TASS is a simulation program with graphical and interactive interface.

It reproduces in a realistic way the commercial Nim, Camac and Vme modules.

Both the front panel appearance and the electrical and logical behaviour are simulated.

As in real world, the user can :

- push buttons and move switches
- turn knobs
- set Camac/Vme registers
- ... and so on

The program has been developed having in mind what the user does in the real world, e.g. it provides a sketch of control room layout where the user can place the racks and crates for all the electronics of experiment and also, for instance, the standard tools as scope, waveform generator, voltmeter and so on.

The user builds her/his virtual trigger system choosing from the library the modules she/he needs, places them in the crates, makes the cable connections and runs the simulation.

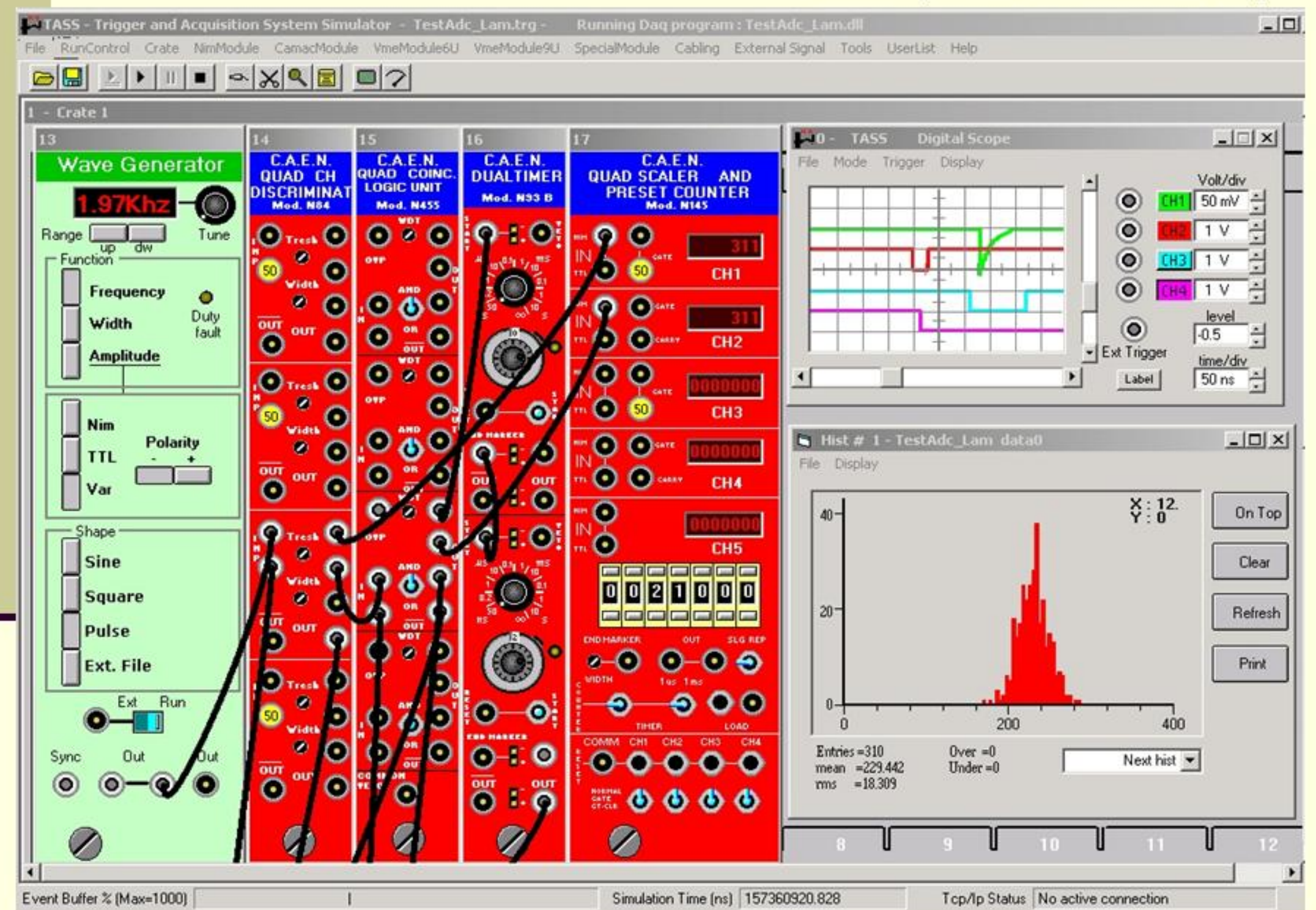
Any parameter can be set interactively and input signals, provided by waveforms generators, can be used to stimulate the system. The resulting output can be shown on a virtual digital scope and saved on data files.

On the other hand, the transfer of know how among the members responsible for trigger systems can become very difficult if based on pencil and paper and thousands of lines of program code.

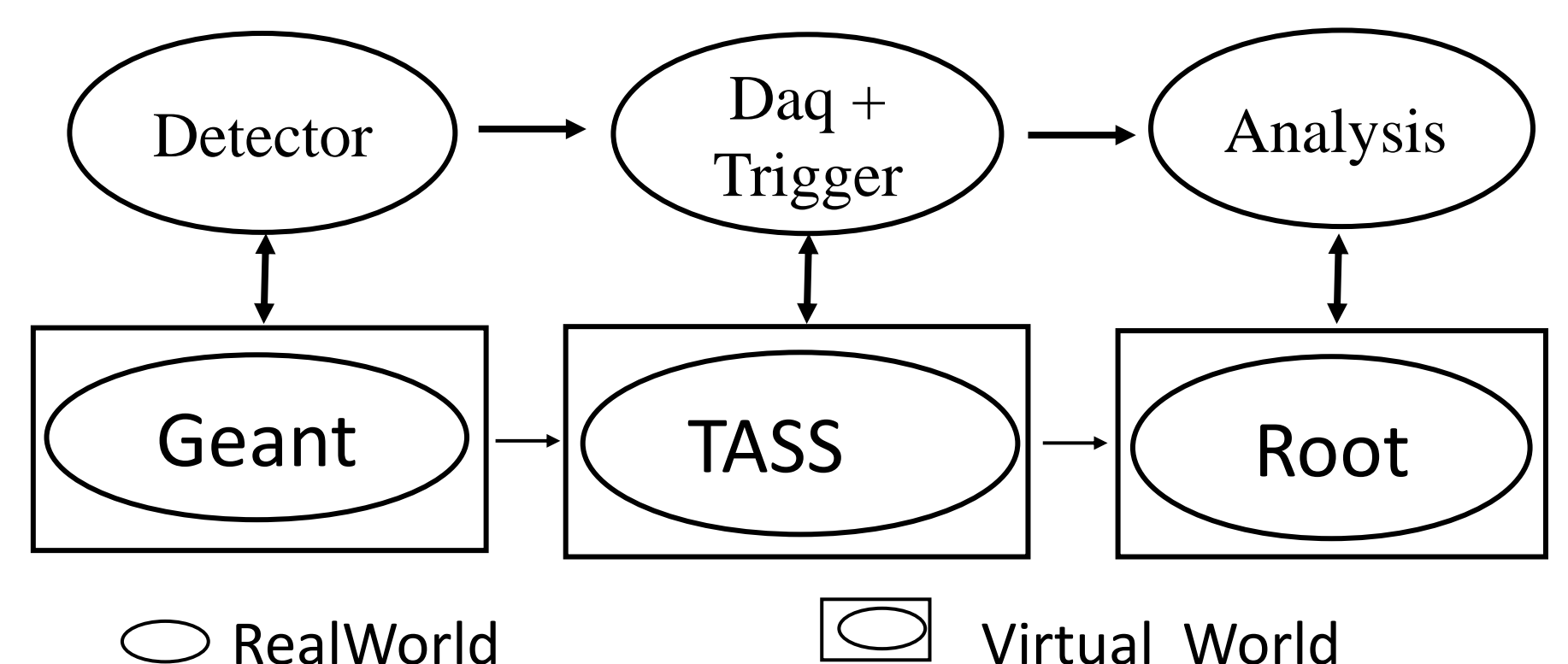
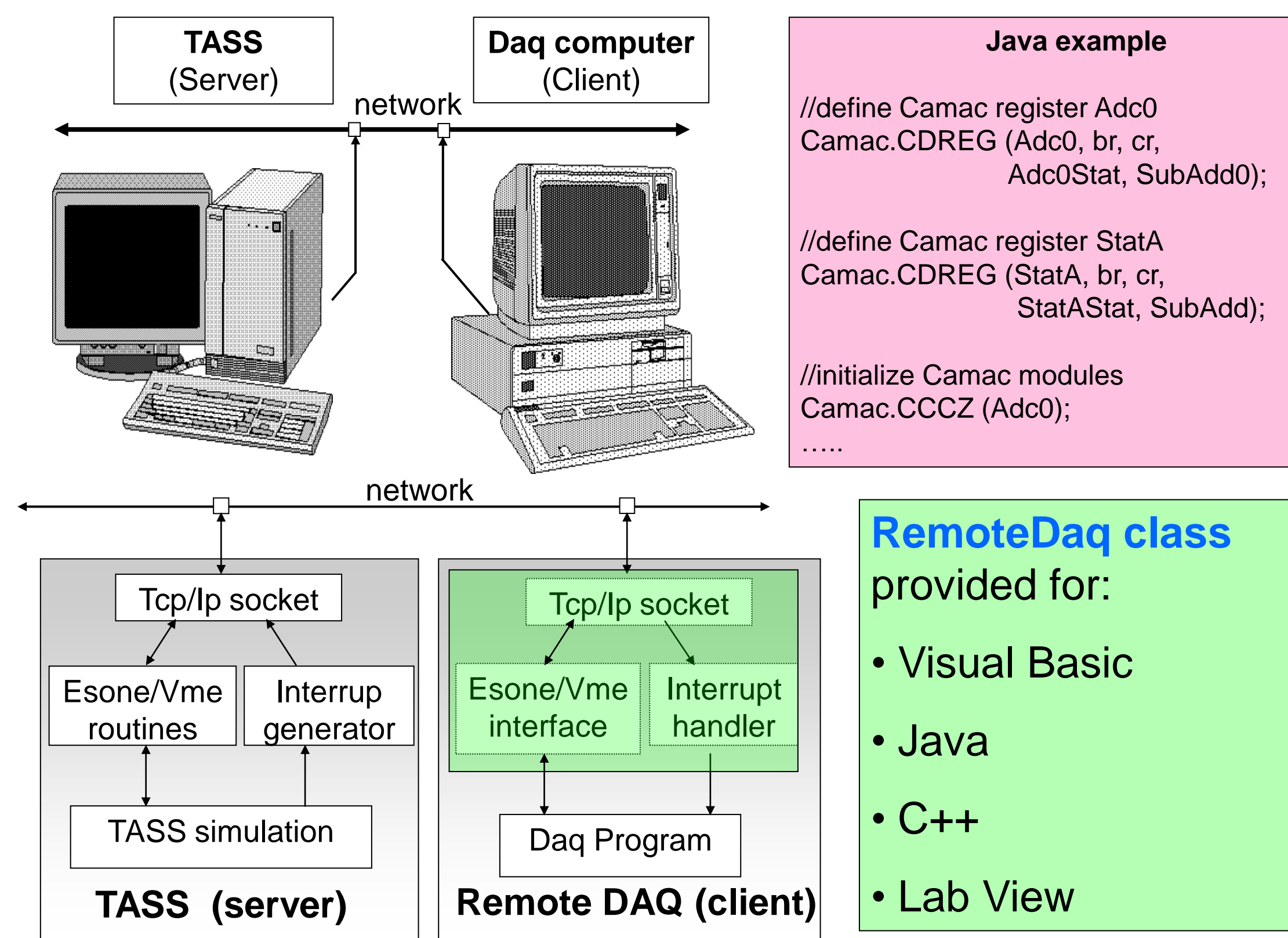
Therefore an interactive graphical tool becomes an essential part of the trigger design process.

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Example of a small setup



Full integration with the real Daq program



The above figure shows the main stream of an experiment.

The upper part represents the hardware components, the corresponding software tools are drawn below. TASS aims to be the “**bridge**” joining the existing packages for physics simulation (i.e. Geant) and the analysis program (i.e. Root).