# VISPA — A Server-Client-Based Graphical Development Environment for Physics Analyses

The VISPA project provides a novel way in setting up a physics analysis. It presents a graphical development environment inside a standard web browser using a server-client based approach. This approach avoids common requirements such as additional software on client side. Central access to data and computing power on the server is granted via the world wide web.

The unique web approach is a spin-off of the well-established Qt-based VISPA.

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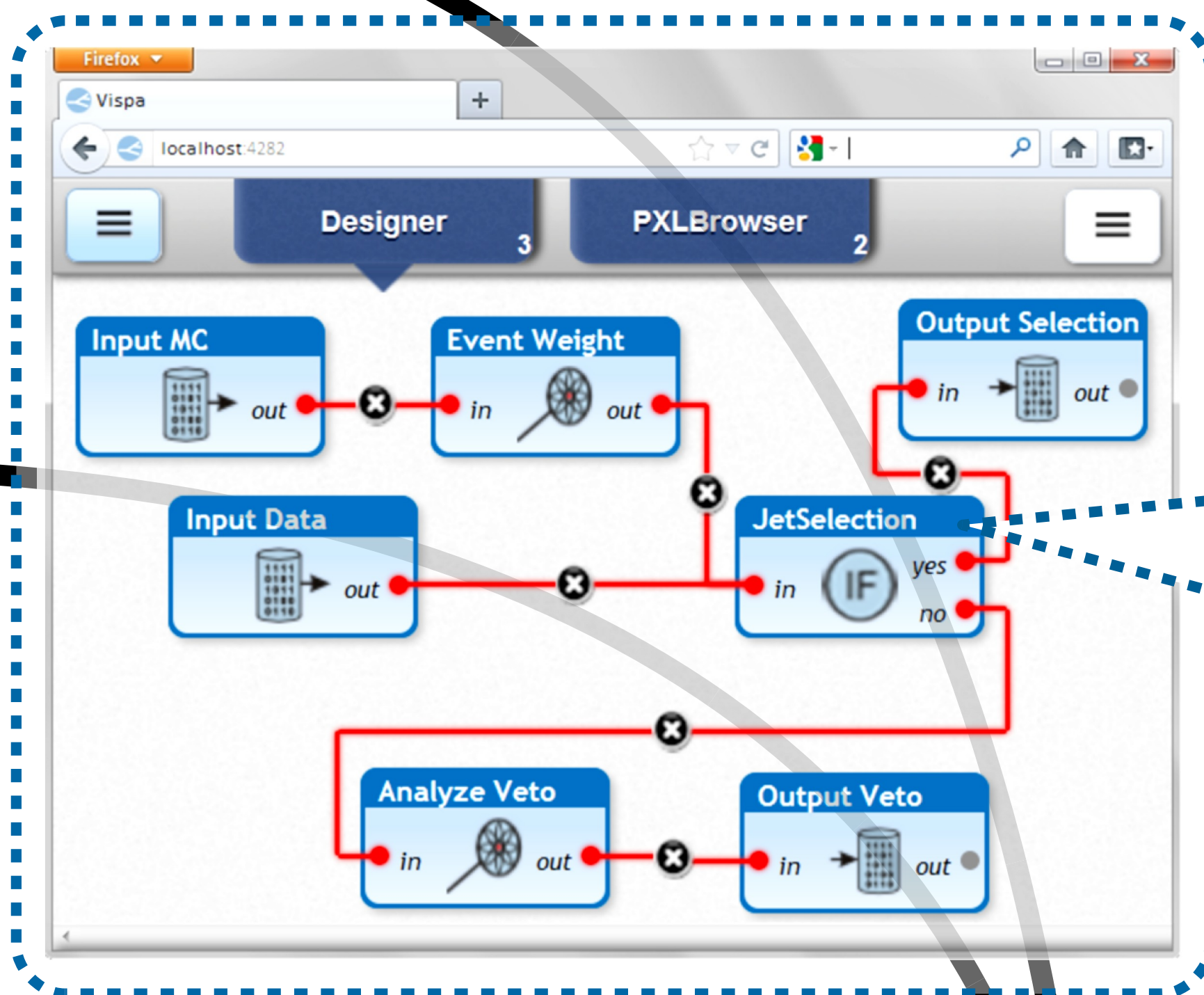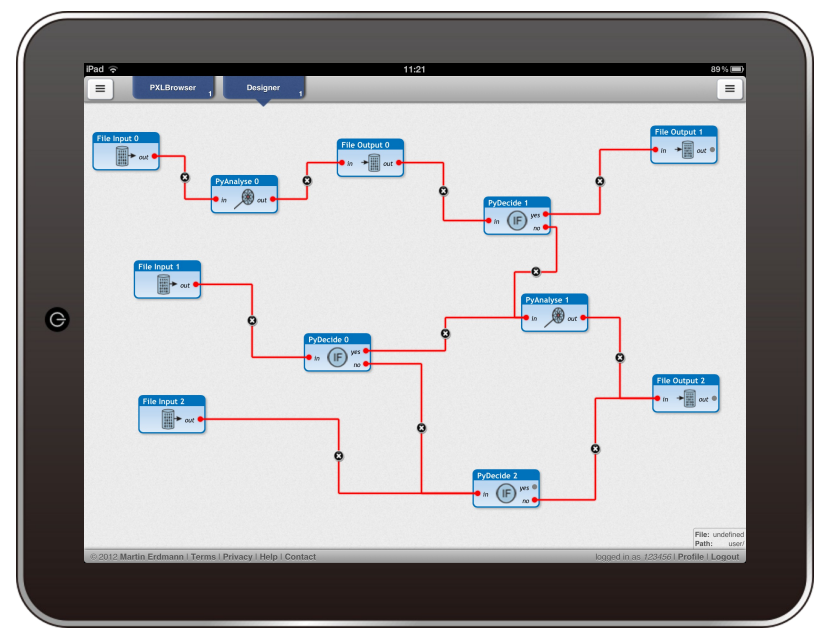
Write your Analysis Code

Users can easily write their code into modules by using Python for prototyping or C++ for computing intensive analysis steps with the PXL toolkit (Physics eXtension Library).

```
17    def decide(self, event):
18       for particle in event.getParticles():
19          if particle.getName()=="Jet":
20             if particle.getPt()>50.0:
21                return True
22             else:
23                return False
```

Editing of analysis scripts can be directly performed inside the web browser.

Designing the Analysis

The logic of a specific analysis can be implemented visually by connecting your modules. This supports fast comprehension, an easy exchange and re-useability of analyses.

AJAX

Access your Analysis from Anywhere

Client and server communicate via AJAX with each other. With the front-end inside the web browser, the full computing power and installed software on the server can be accessed with mobile devices like tablet computers or smart phones.

Virtual File System

A virtual file system grants central access to stored data and analyses on the server. In addition, it is possible to share data, module code, or complete analyses for collaboration.

AJAX

Extensions

The project includes an easy-to-use extension framework. Additional experiment specific functionality can be added by the user. The default extensions are:

- Analysis Designer – design analysis flow
- PXL Browser – output inspection & verification
- Code Editor – edit code inside the web browser
- File Browser – manage your files, upload & download

XML RPC

Analysis Execution

The analysis itself is stored on the server. It can be executed on designated computers or clusters.

Output is written into the virtual file system and can be accessed with the web browser.
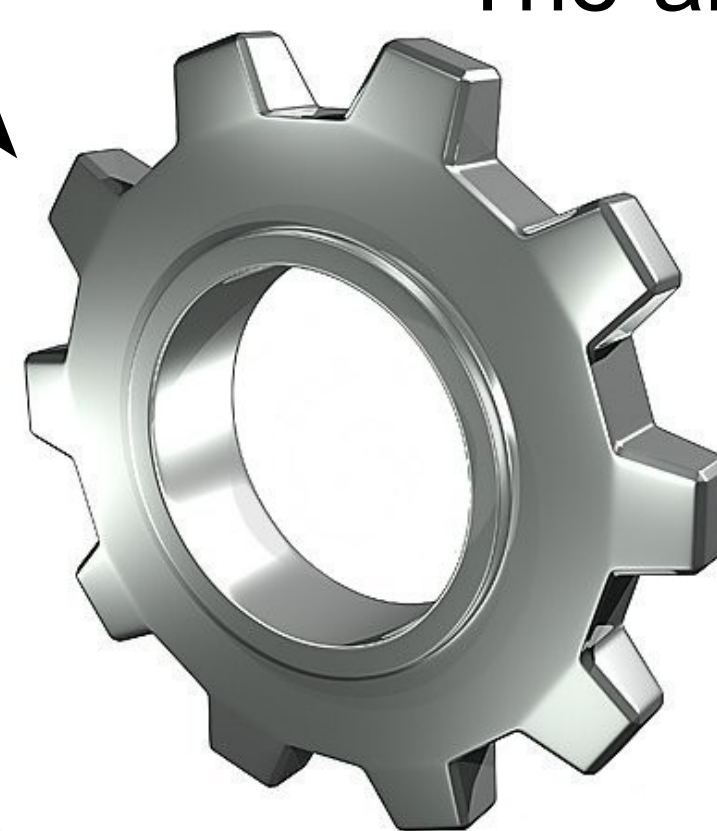
Distributed Objects

User-specific objects are distributed via RPC (Remote Procedure Call) on the server or in connected networks. RPC Servers are running under the rights of the associated logged-in user which are managed in a SQL database.

Discover VISPA now!

vispa.physik.rwth-aachen.de/demo