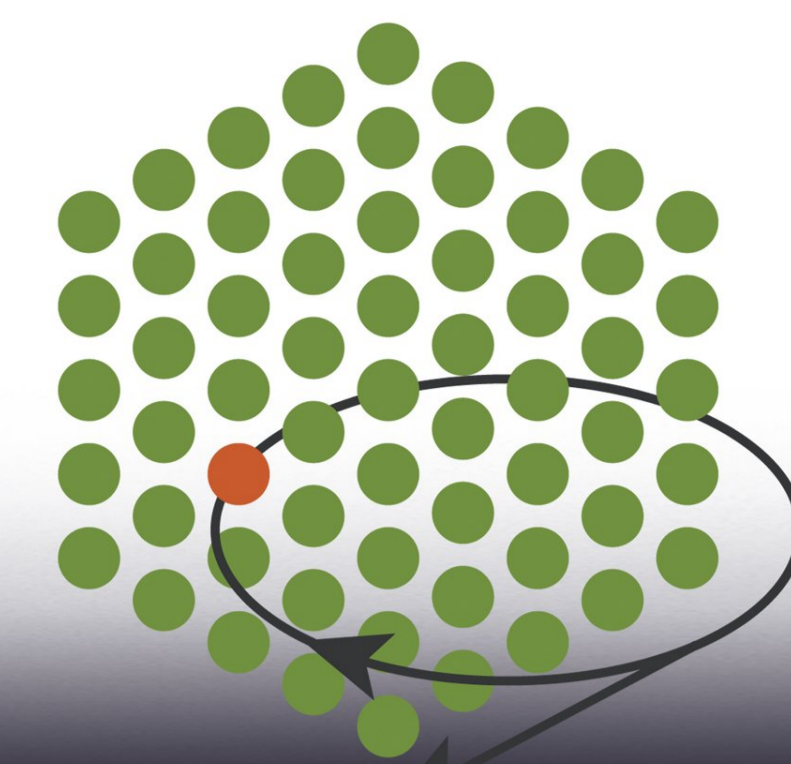




The BIOXHIT Project



www.bioxhit.org

Coordinated by EMBL Hamburg



VCS: a Virtual Collaborative System for BIOXHIT

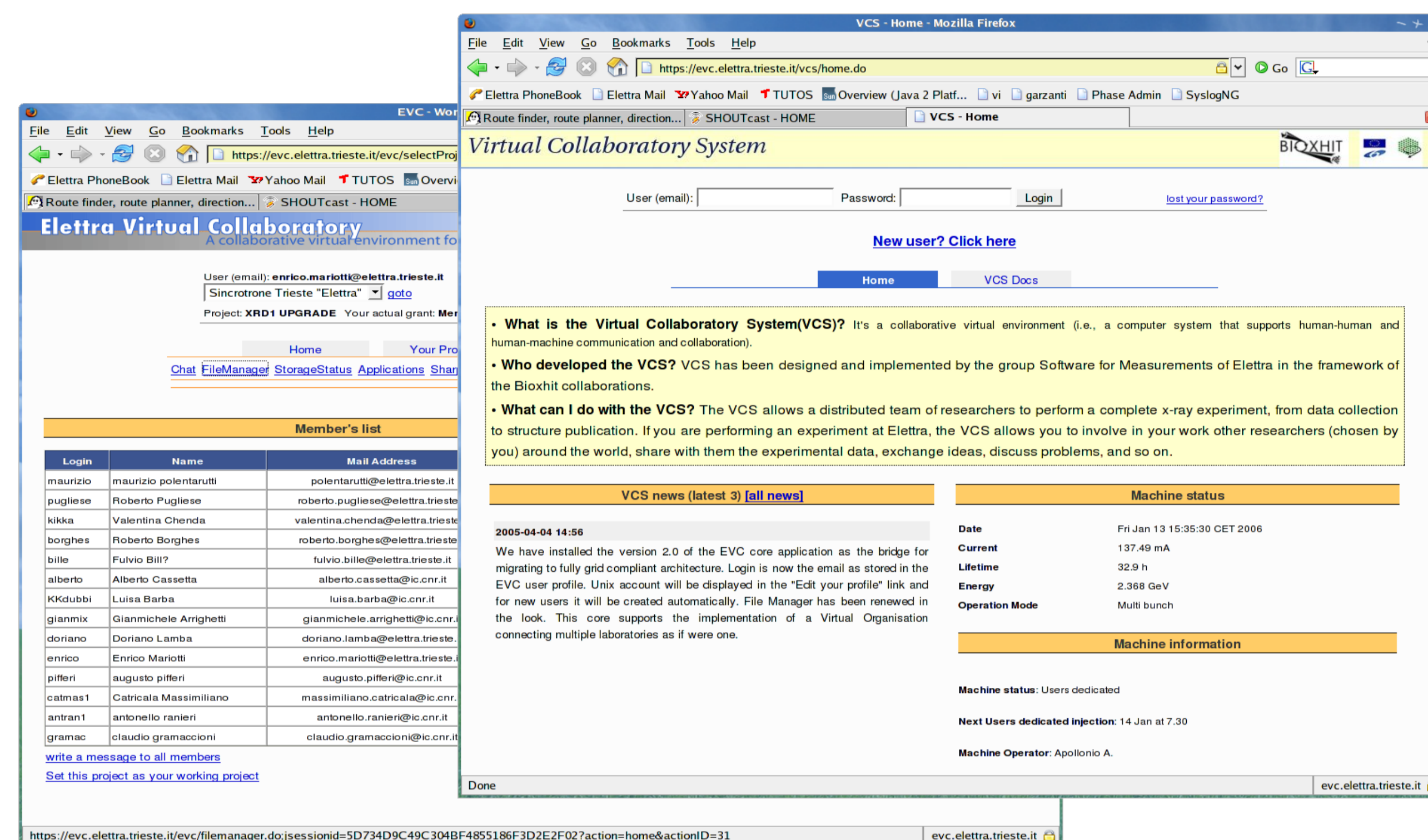
Authors: Fulvio Billè, Roberto Borghes, Valentina Chenda, Alessio Curri, Enrico Mariotti, Roberto Pugliese

One step back...

ELETTRA Virtual Collaboratory (EVC) is an example of virtual laboratory, a system which allows a team of researchers distributed anywhere in the world to perform a complete experiment on the beamlines and experimental stations of ELETTRA. The creation and introduction of effective CSCW systems aims at bringing the following main advantages:

- provide remote access to expensive and hard-to-duplicate equipment
- increase the effectiveness of the experimental activity, since more experts can participate to experiments, give useful hints and solve problems
- facilitate multi- institutional consortia collaborations on large-scale projects.

Experience and know-how acquired during the development of EVC was used in the development of the Virtual Collaboratory System (VCS).

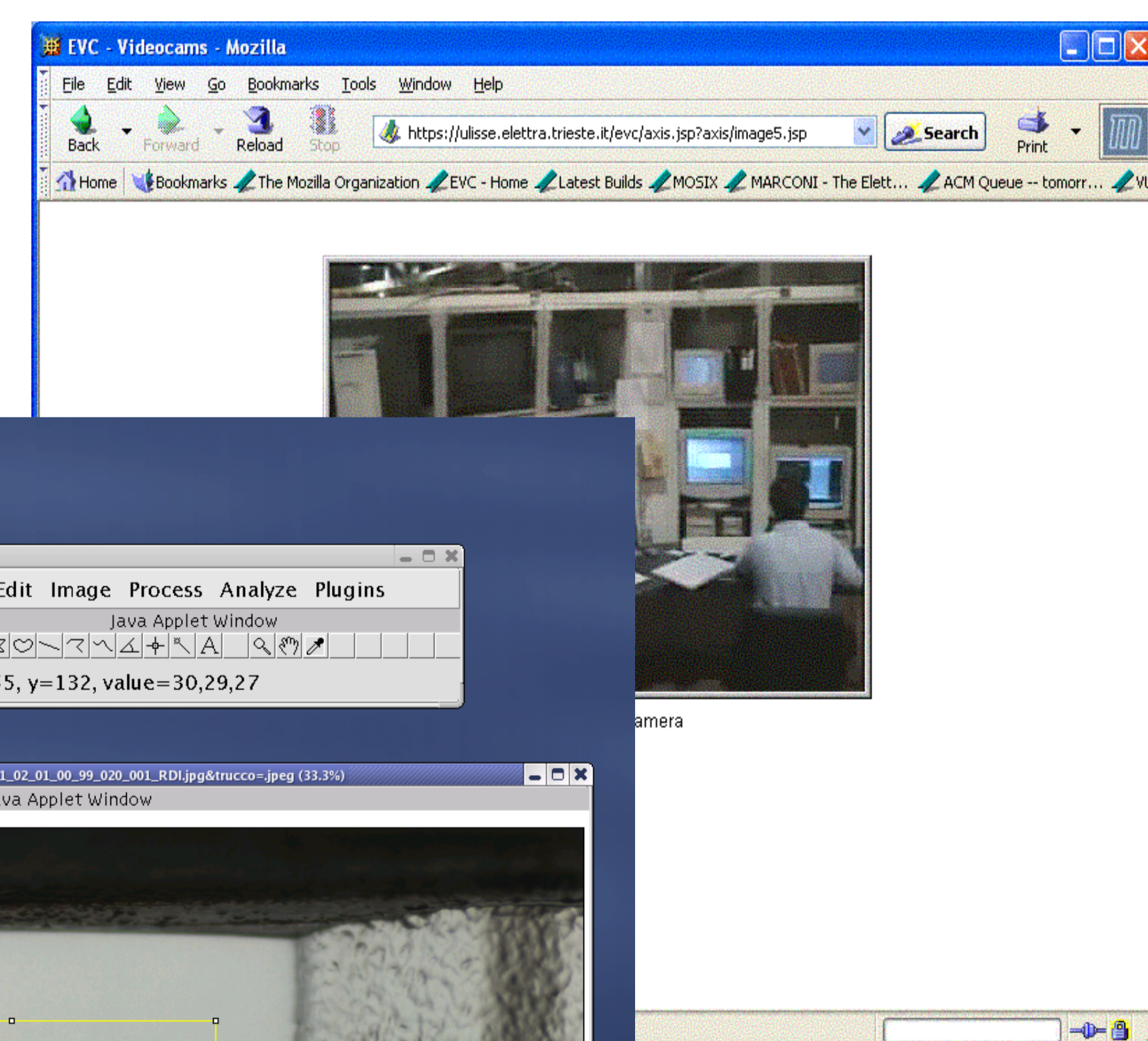
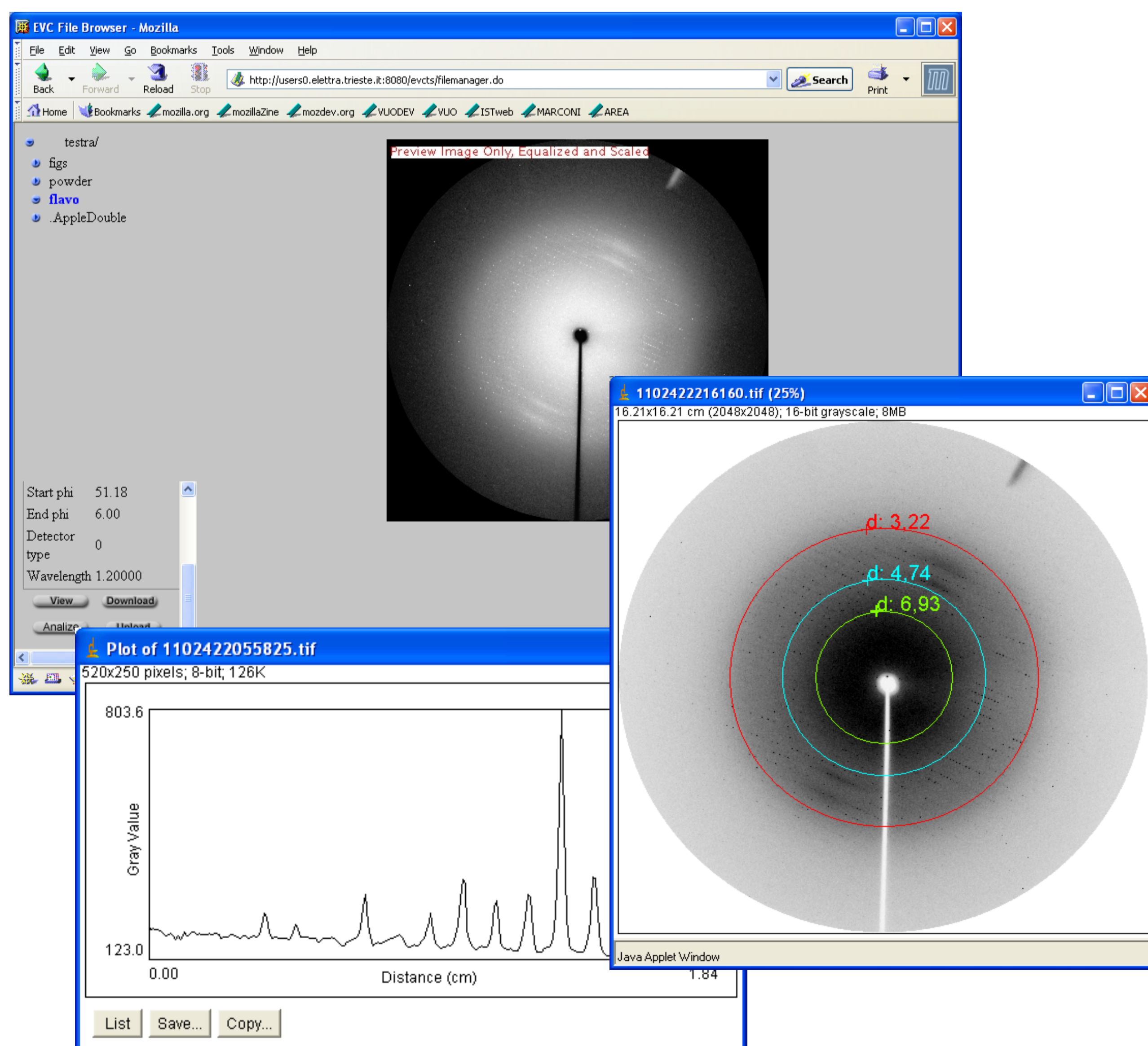


Here we are!

The Virtual Collaboratory System (VCS) is a software infrastructure which will allow the implementation of a widely distributed Virtual Organisation (VO) connecting all the stations and Laboratories involved in the BIOXHIT project. Every institute involved in BIOXHIT should have a VCS Node (AS). The node can support more stations (e.g. crystallisation, data collection, storage etc). Stations can share resources (LN) and tools. The remote collaborator will use his PC equipped with a web browser and if the case with a projector.

- all the communication between the Application Servers located in the distributed laboratories is done via webservices (Axis implementation).
- all the Local Nodes run a Local Node Server. Communication between the AS and the LN is done via webservices (gSOAP implementation).

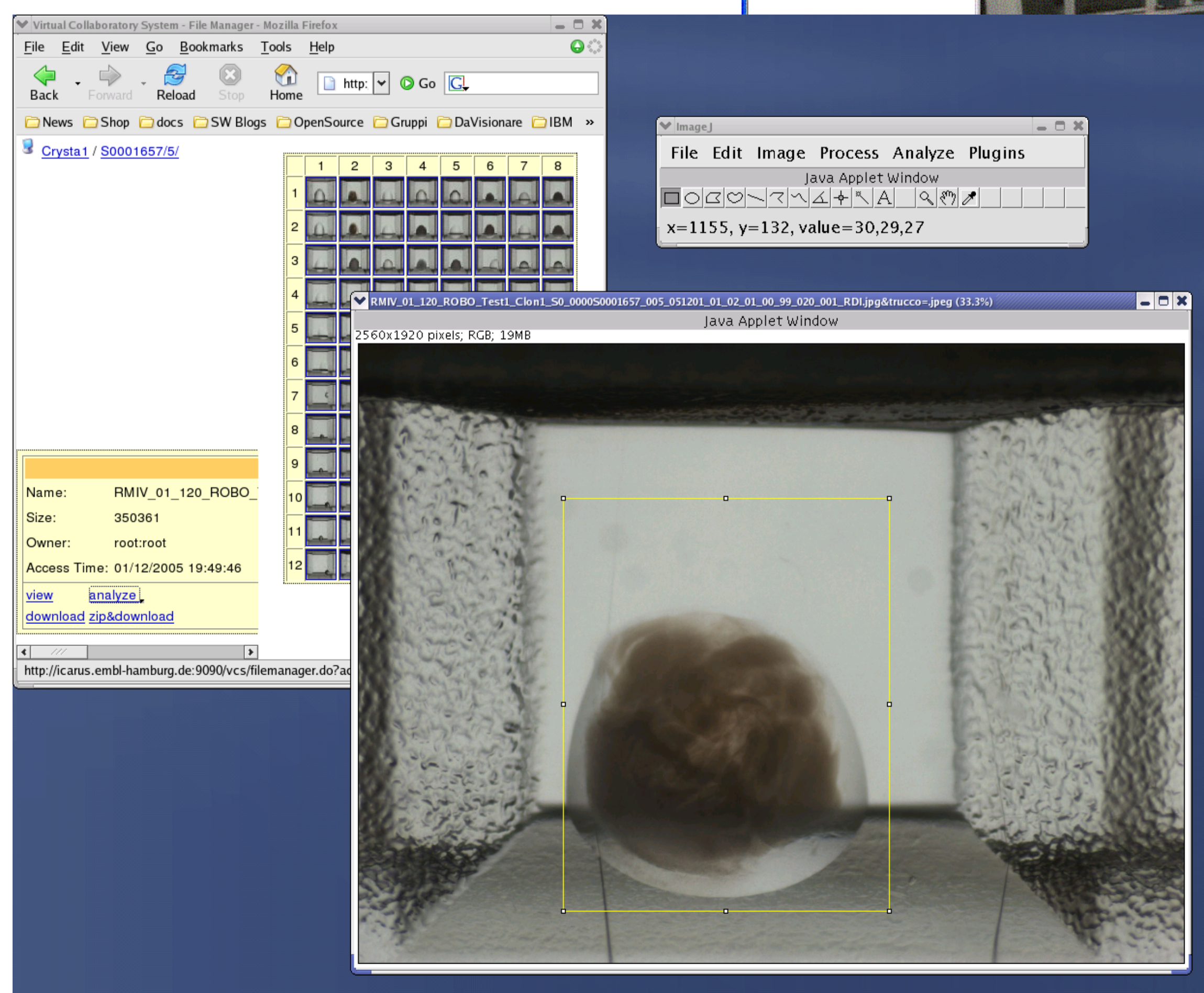
The systems are also equipped by a Management Station which allows easy configuration and maintenance via web browser. Scripts stored in the AS database are transferred to the local nodes, executed and the results returned to the user via the AS. Legacy applications are integrated using VNC if they don't have a web interface, or ssh tunnels and proxy (or redirection) if they already have one. DNA is an example of legacy application and its integration is currently under development.



The future

We have setup a mini VO connecting by now ELETTRA and EMBL-Hamburg. ELETTRA node supports the XRD1 beamline while EMBL-Hamburg node supports the Crystallisation station.

We are now integrating VCS with DNA and VRVS videoconference system and re-factoring VCS using GRID technologies (gridservice platform and a grid portal development environment) to face the new challenges represented by complex problems like high throughput protein crystallography which involve coordinating and sharing computing, applications, data, storage or network resources across dynamic and geographically dispersed organizations.



2nd BIOXHIT Annual Meeting
18th - 19th January 2006
ESRF, Grenoble, France