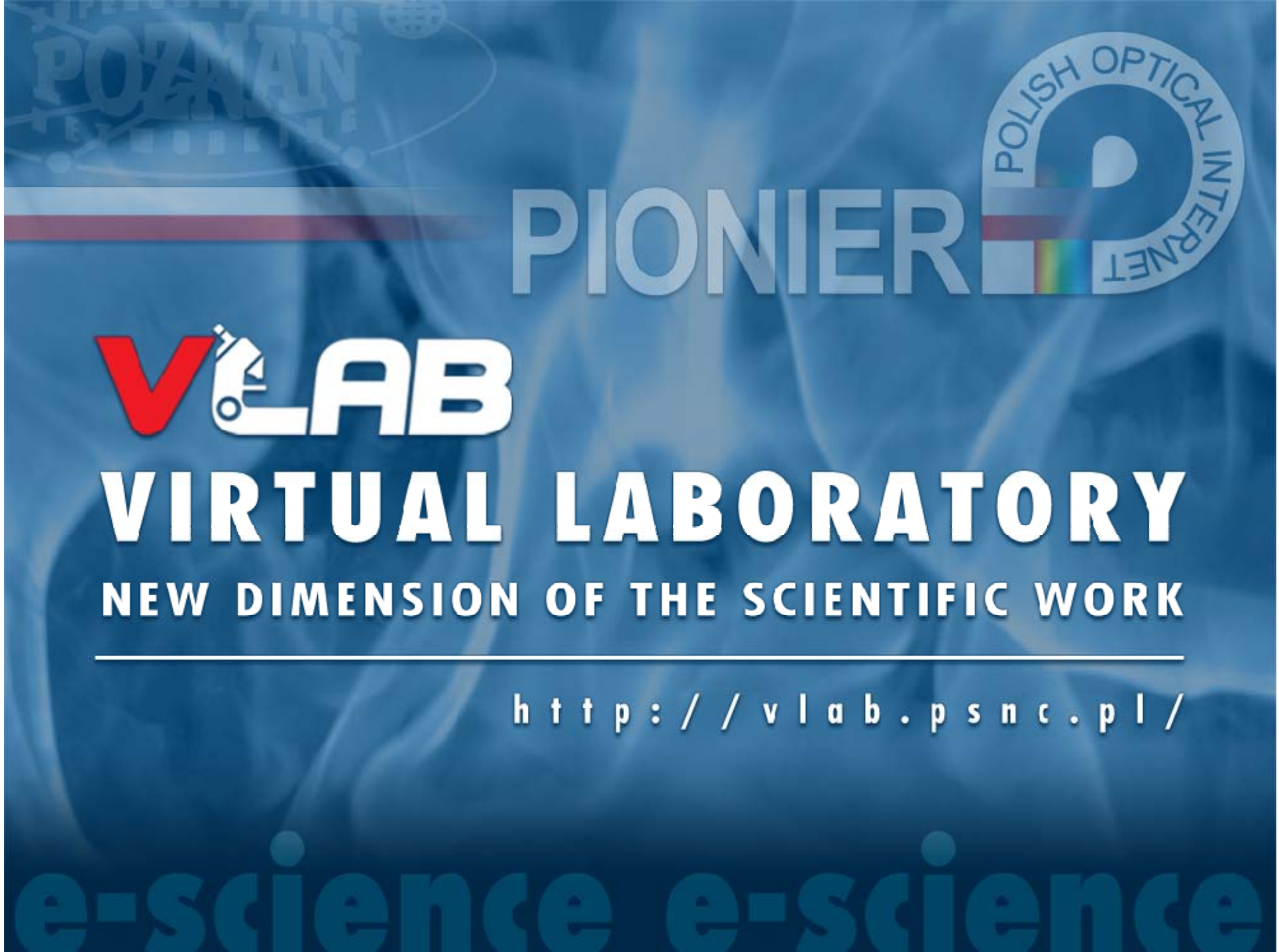
PIONIER
POLISH OPTICAL INTERNET
VLAB
VIRTUAL LABORATORY
NEW DIMENSION OF THE SCIENTIFIC WORK
http://vlab.psnc.pl/
e-science e-science

NEW DIMENSION OF THE SCIENTIFIC WORK

VLAB VIRTUAL LABORATORY

POLISH OPTICAL INTERNET

Virtual Laboratory – closer the eScience

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Poznań Supercomputing and Networking Center

Grid Computing for Complex Problems
Bratislava, Slovakia, November 29th, 2005

Why VLabs?

VERY limited access

Main reason - COSTS

Main GOAL - to make commonly accessible

Added Value

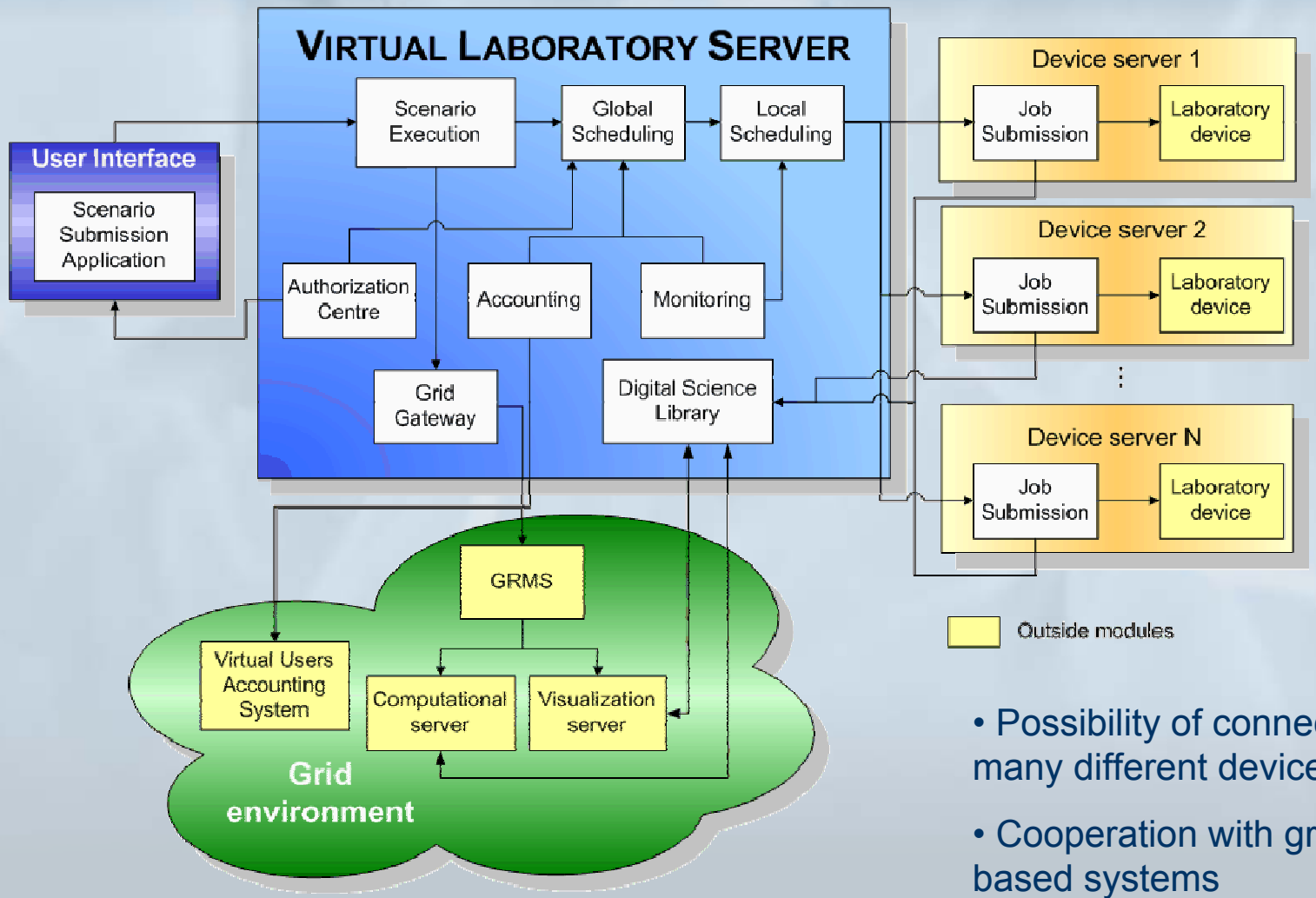
virtual, remote, ...Grid-enabled

Virtual Laboratory overview

The Virtual Laboratory is a distributed environment, providing its users with the following functionality:

- **Remote access** to complex and expensive laboratory research equipment,
- **User-customized Dynamic Measurement Scenarios**,
- Digital Science Library,
- Data storage and management,
- Educational potential,
- Workgroup collaboration tools.

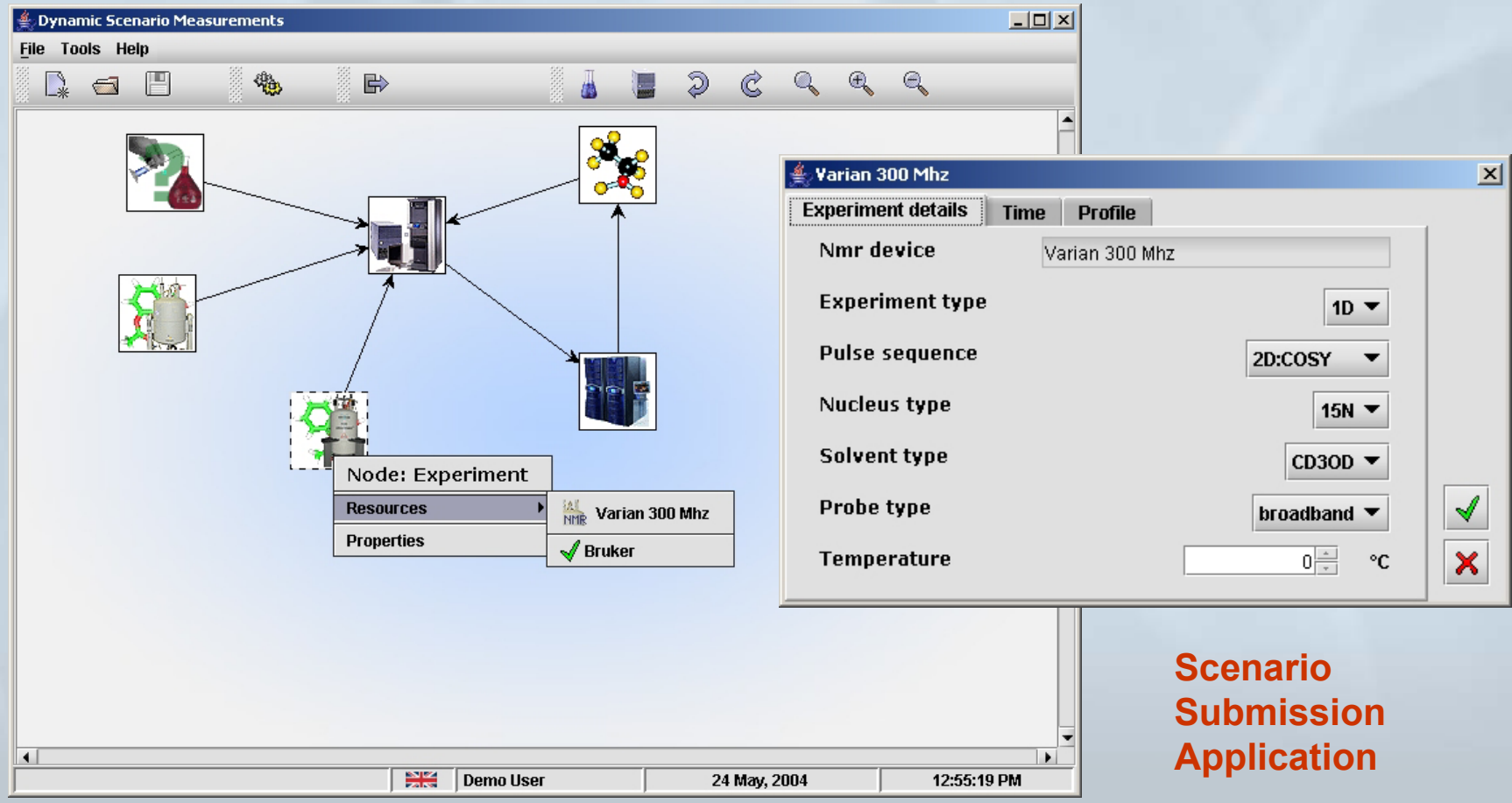
Jobflow in the Virtual Laboratory



- Possibility of connection to many different devices
- Cooperation with grid-based systems

Scenario Submission Application

The user is welcome to create the measurement diagram using the Scenario Submission Application (SSA).

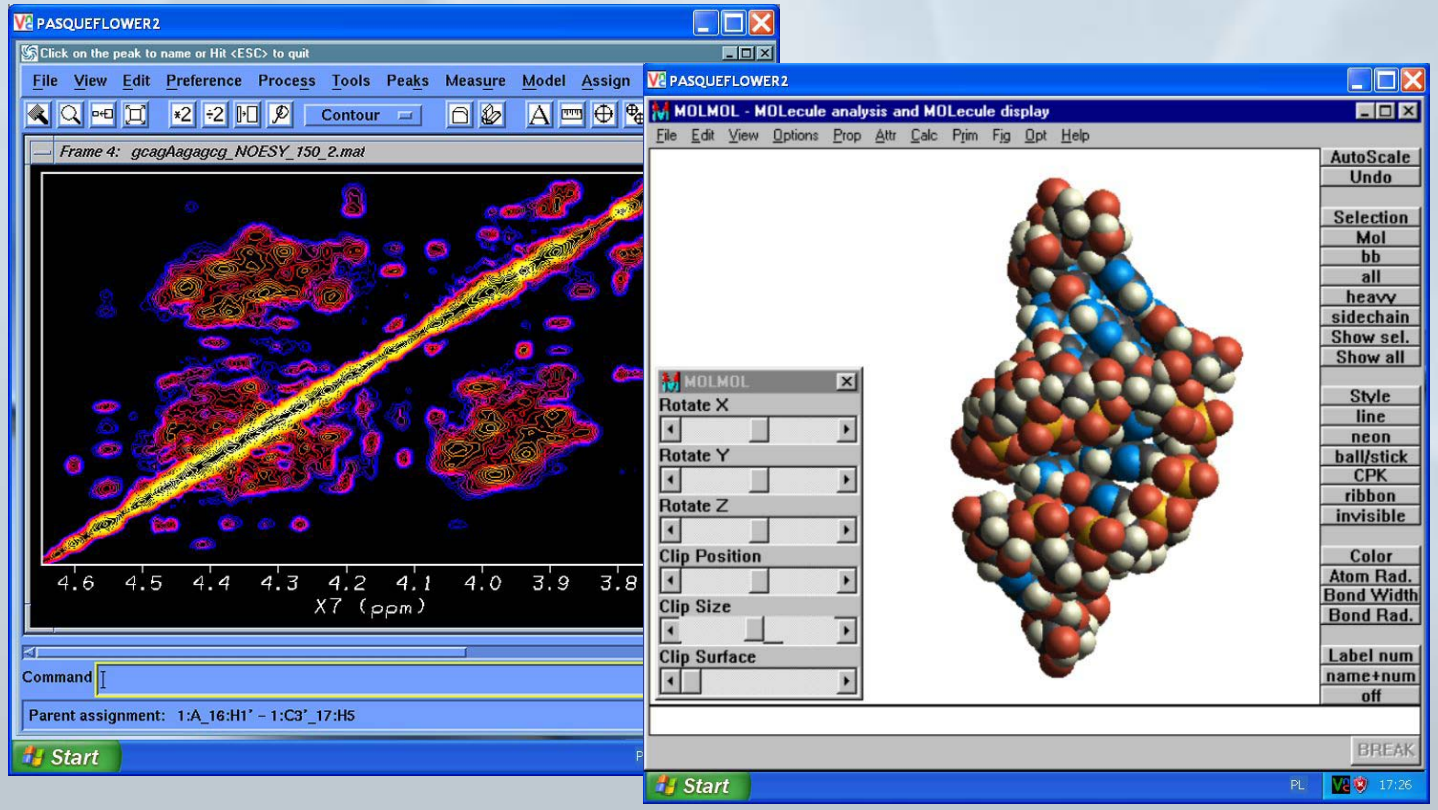


Scenario Submission Application

Visualization

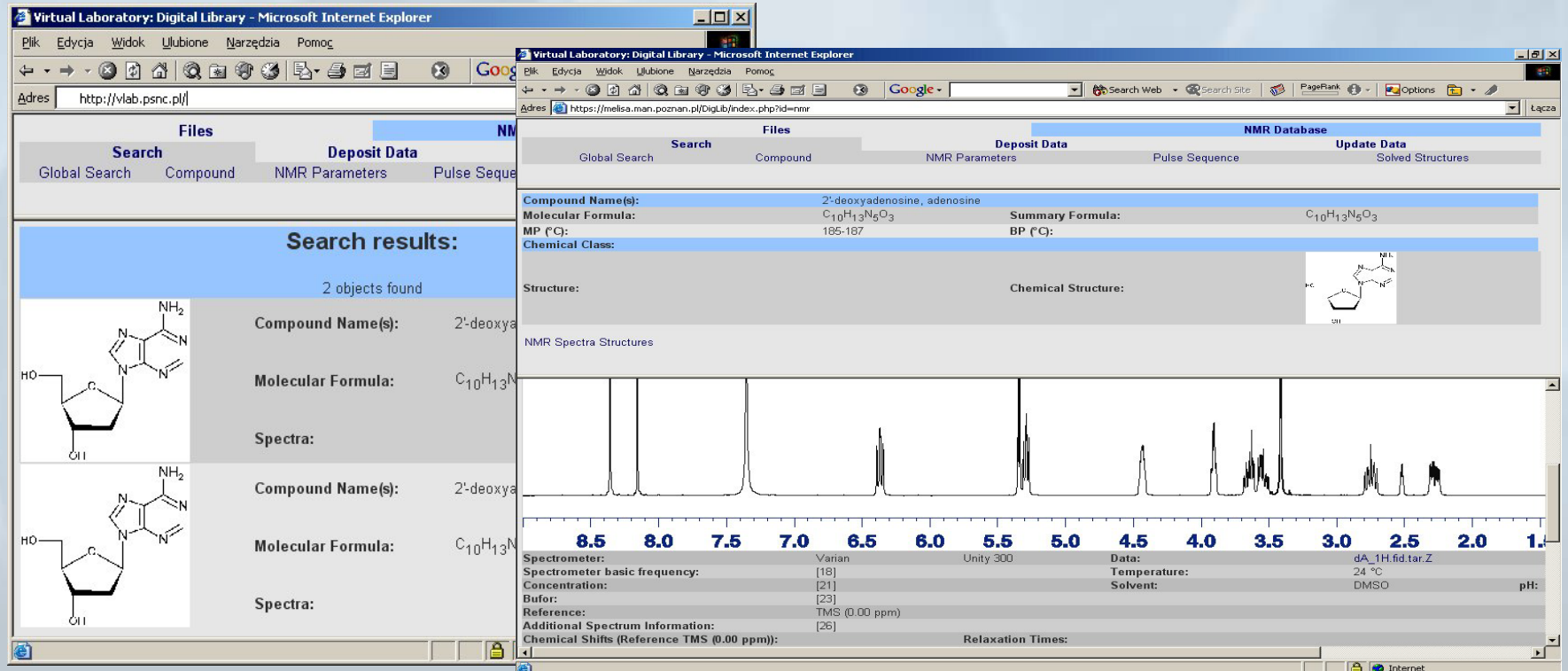
Support for interactive applications:

- taking into consideration user preference (e.g. presence, working hours)
- access to visualization applications from the VLab portal



Digital Science Library

- Storing, in organized way, experiment parameters and results
- Sharing data among scientists
- Browsing, searching and exploring of stored data
- References for external resources



Security

- Important especially in the VLab: valuable lab equipment and scientific data
- User equipped with certificate
- Jobs proxy certificate
- Modules authentication
- Encrypted connection

Putting into practice

Implementations of VLab:

- Virtual Laboratory of Nuclear Magnetic Resonance Spectroscopy – cooperation with Institute of Bioorganic Chemistry PAS

- Virtual Laboratory of Radio Astronomy – cooperation with Radio Astronomy Department of Nicolaus Copernicus University

http://vlab.psnc.pl/

POZNAŃ SUPERCOMPUTING AND NETWORKING CENTER

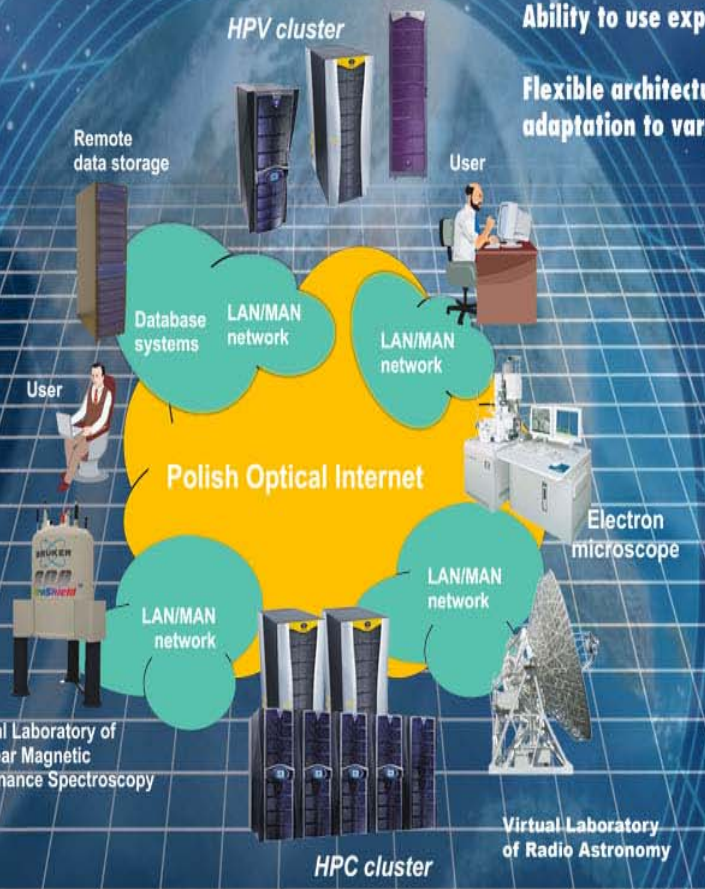
VIRTUAL LABORATORY

VLab overview

- Access via Internet
- Advanced job scheduling
- Resource accounting
- Single Sign-On
- Confidentiality of stored data
- Instrument access control
- Platform independence

Dynamic Measurement Scenario

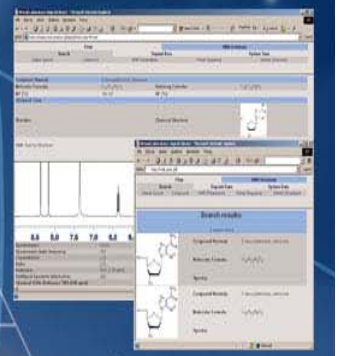
- Flexible definition of various measurements
- Speed up of project realisation
- On-line progress experiments monitoring
- Taking into consideration the influence of a human factor
- Educational area



Ability to use expensive instruments remotely

Flexible architecture enabling adaptation to various types of instruments

Digital Science Library



Sharing the experiment results and bibliography

Communication with other scientists and cooperation within the confines of one project

NEW DIMENSION OF THE SCIENTIFIC WORK

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