

Cyber-Enabled 850 MHz NMR

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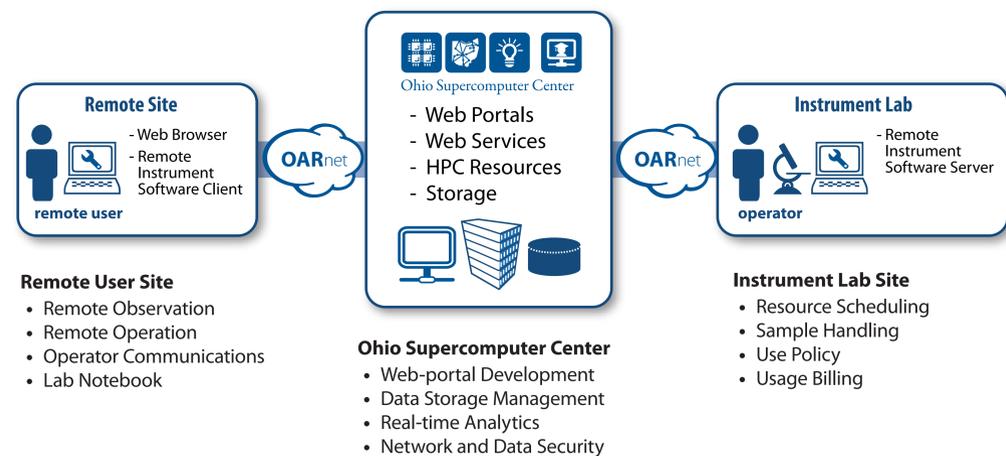
Leveraging Ohio's investments in scientific instruments, wide area networking, high-performance computing, and data storage to foster academia-industry collaborations involving cyber-enabled instrumentation

Remote Instrumentation Overview

Remote instrumentation involves cyber-enabling scientific instruments (e.g., electron microscopes, spectrometers, and telescopes) over the Internet for academia and industry users



Components of Remote Instrumentation



Why Remote Instrumentation?

Benefits

- Return on Investment (ROI) for instrument labs
- Avoids duplication of expensive (\$450K - \$4 Million) instrument investments

Cyber-Enabled 850 MHz NMR at Miami University

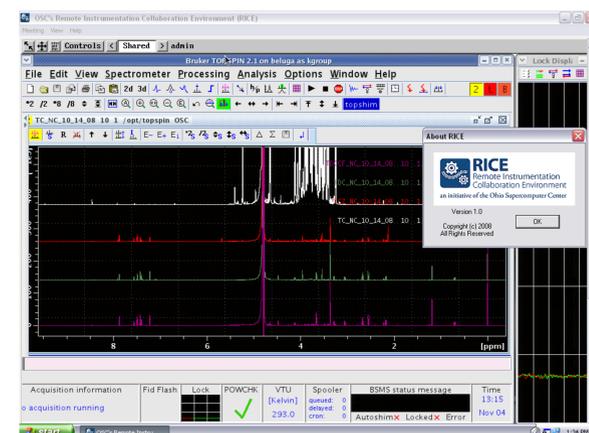
OSC's remote instrumentation web-portal features the Remote Instrumentation and Collaboration Environment (RICE) solution and cyber-enables NMR instrument and data resources



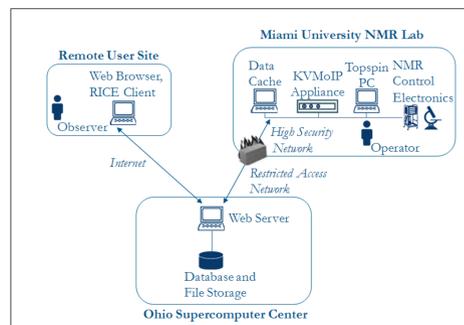
\$2.5 Million 850 MHz NMR at Miami University is the first of its kind in North America



OSC's Remote Instrumentation Web-portal



RICE in an active remote instrumentation session



Cyber-enabled NMR System Deployment

Cyber-enabled 850 MHz NMR research and training partners:

Bowling Green State University, Ohio University, Muskingum College, Talawanda High School

Use Case for Research & Training

Remote Users

- Multiple Remote Users observe and collaborate with an Operator controlling the 850 MHz NMR VNC session during an experiment run
- Once the experiment is completed, the Remote Users can view the experiment data files using a web browser and download them for analytics involving computation and visualization

Instrument Technician

- Remote Users, registered members in the OSC web-portal, schedule instrument time and submit the details of the experiment run; They ship their sample-under-study to the Instrument Technician
- At the scheduled experiment time, the Instrument Technician can "turn-on" instrument access for the Remote Users. During an experiment that takes 2-3 days to complete, the Instrument Technician can update the experiment status for Remote Users' progress-tracking
- After the experiment completes, Instrument Technician can "turn-off" instrument access and initiate archiving of the experiment data using a web browser for the Remote-users to view/download

Pilot project funded by the Ohio Board of Regents

