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The Center of Excellence for Environmental Computational Science

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June 3, 2004

Office of Technology Operations and Planning

Scientific Computing Drivers

- Internal and external collaboration
- *In Silico* science
- Knowledge creation and management
- Technology evolution

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Research and Science Architecture Goals

- Scientific Computing: Provide appropriate scientific and high performance computing services and infrastructure on-demand
- Collaboration: Implement effective, efficient, and secure collaboration
- Science Information Management: Manage scientific information to provide accurate results quickly

The Center of Excellence

- An EPA team that brings together cutting-edge science with IT solutions to transform our scientific capabilities, by
- Building a network for environmental research with improved collaboration tools, a research subnet, and grid computing
- Developing a science portal to provide robust tools and information to decision makers
- Upgrading high-end computational capability

Today's Panel

- Joe Retzer – overview and collaboration issues
- John B. Smith – HPC capacity and grid computing
- Terry Grady – science portal

Collaboration Background

Information technology collaboration is essential to EPA science and the center of excellence

This project identified IT access problems and IT support problems that needed improvement to support the center of excellence, then has moved to begin solving these problems.

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Collaboration Status Review

- Undertaken in the fall of 2003
- Investigated IT impediments to scientific collaboration
- Determined that significant problems existed
- Began effort to remove barriers, improve ability to collaborate

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Collaboration Issues Reviewed (1)

- Electronic file transfers (ftp)
- Web seminar attendance and hosting
- Connections to databases outside the EPA firewall
- Login capability to computers outside the firewall
- Outside collaborator ability to login to EPA computers

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Collaboration Issues Reviewed (2)

- EPA scientist ability to login to EPA computers from outside the firewall
- Help desk abilities to support scientific applications
- Obtaining EPA security practices supportive of scientific needs

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Decisions/Actions Taken Early 2004

- Established a Scientific FTP Server
- Put a Scientific Access coordinator on staff at EPA's NESCC to address IT access issues
- Began process to identify identify desirable design features of an EPA scientific subnet
- Also, the RSA work group established a collaboration team under Kevin Cavanaugh

Scientific FTP Server Project (1)

- Design decisions
  - Funded by OEI/ORD, no per-account or per-use fees
  - Accessible to outside collaborators but with adequate security
  - New server with 3.5 terabytes of disk storage
  - Goal: establish EPA scientist accounts in 1 working day or less
  - Goal: scientists to create outside collaborator accounts via web page in 1 minute or less
  - System development/administration by NESCC

Scientific FTP Server Project (2)

- Project progress
  - February software design began
  - March server and disk storage arrived
  - April beta testing began
  - May 17 available for all ORD scientists
  - Summer to be available for all EPA users

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Scientific FTP Server Project (3)

- How to become an authorized user:
  - Connect to http://scienceftp.epa.gov
  - Read the user guide on the web site
  - Account holder application is on web site
  - Fax or mail in the one-page application

Access Coordinator Role (1)

- In general, to
  - Understand scientist's IT access needs
  - Understand the current limits set by EPA's security systems
  - Work with security team to find solutions for scientific access needs
  - Add missing capabilities such as the FTP server
  - Work to create a new security environment for EPA science via the research subnet

Access Coordinator Role (2)

- Specifically, to
  - Be project manager for the science FTP server
  - Work on issues such as
    - Using secure shell to access computers outside of EPA
    - Getting scientific applications connected to required databases outside of EPA
    - Getting scientific users onto the Aventail remote access service
    - Getting passive mode ftp approved through EPA's firewall
    - Working with ORD to define requirements for a science subnet

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Collaboration Problem Report Form

- A web page has been created to report IT collaboration problems
- It's at http://linden.nesc.epa.gov/collaboration_form.html
- The form will send a message to David Strevel, the scientific access coordinator
- Messages will normally be acknowledged within the next business day

The Collaboration Problem Report Form

US EPA NESCC Collaboration Feedback Form - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://linden.nesc.epa.gov/collaboration_form.html

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SVC Internal - Listing of All Files
NESC^2 - Internal

Collaboration/Firewall Problems and Questions Form

US EPA's Office of Research and Development (ORD) and the the Office of Environmental Information's (OEI) National Technology Services Division (NTSD) have undertaken an assessment of barriers to collaboration with non-EPA researchers, universities, sites offering scientific shareware, laboratory equipment URLs, and other organizations that can help the Agency's scientific community meet its research objectives. This Web page will help us gather information on collaboration problems. Soon after receiving your comments, which get sent when you click on the submit button at the bottom of this page, we will contact you to discuss the problem.

Contact Information

Your Name Your Phone Number Your E-mail Address

Affiliation

(Select Your Office/Region from this Pull-down List.)

(Select Your Center, Lab, etc. from this Pull-down List.)

Using the pull-down lists above, please identify your office/region and lab/center, etc. If you work for an organization not listed above, please specify its name in the text box below. You may also use this text box to specify the branch in which you work.

Other Organization or Affiliation Information

http://www.epa.gov/ Internet

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Start David Stre... C:\Docum... Microsoft ... Draft2_Co... US EPA ... Adobe Acr... SciAccess... 3:16 PM

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Next Steps for Access/Collaboration

- Additional Features for FTP Server
- Build out Science Grid and Portal
- Define Requirements for Research Subnet

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