Collaboration Directions at the Pacific Northwest National Laboratory

An Overview of Capabilities

and

An ESnet Wishlist

Presented by:

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Collaboration & Productivity Services

IT Services Division

Introduction

- ► Collaboration: We use it! Our clients use it!
- ► Enterprise-wide capabilities
  - Microsoft SharePoint™
  - Web Conferencing
  - Video Conferencing
  - Streaming Video
  - Instant Messaging
  - Core Computing Services
- ► Scientific and research capabilities
  - Electronic Lab Notebook
  - Real-time Tools – Meetings and Instrument control
  - Collaboratory for Multi-scale Chemical Science
- ► What can ESnet provide?

Multi-disciplinary teams will be able to maximize their productivity, improve product quality, and reduce time to discovery, irrespective of time or location, through the use of our innovative collaboration and information sharing tools.

Collaboration Continuum

On-Demand Tools

Real-Time Tools

Same   Time   Different
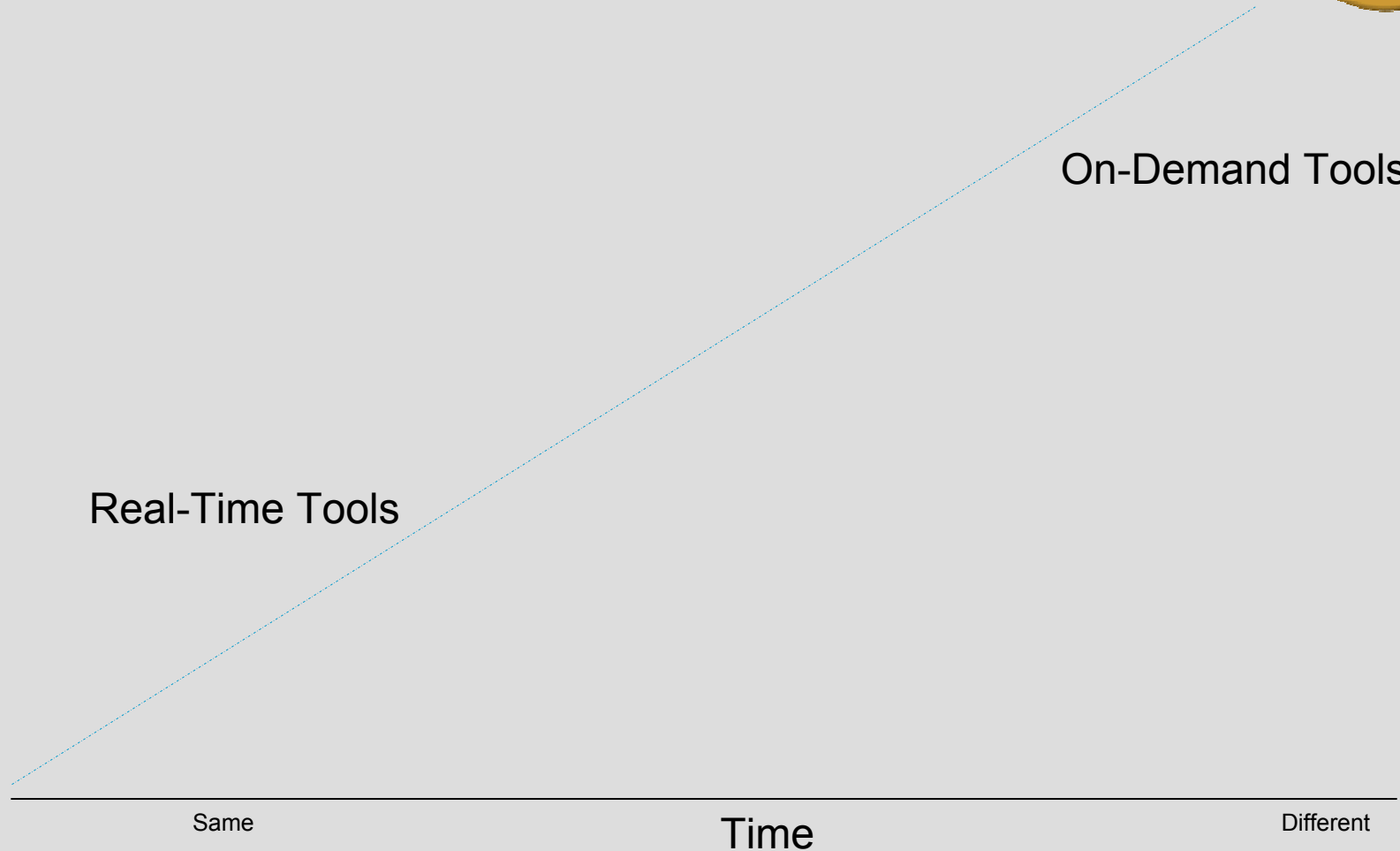
Microsoft SharePoint™

Facilitates information sharing among team members by allowing teams to collect, share, and organize information with a collaborative, team-oriented web site that includes:

- Document management – check in/out, versioning
- Issue tracking
- Contacts
- Events

Microsoft SharePoint

Web Conferencing

A web-based service that enables the easy sharing of information to allow for more effective and economical communications through **interactive online meetings**.

Using WebEx™ Meeting Center, an internationally known web conferencing service, we provide the capability for staff to

- Give a **presentation** to anyone, anywhere
- **Demonstrate** software, live
- Allow anyone in the meeting to view, annotate, and edit any **document electronically**
- Share an **application** on your system or even the entire desktop
- Use **remote control** to provide support on the Web
- Take meeting participants on a **Web tour**

WebEx

Video Conferencing

- High-quality audio and video provide a rich communication environment (ISDN and internal Video over IP)

- Ten premium rooms and nine mobile units (23 conference rooms wired for VC)

- Future expansion to deploy external Video over IP

- Utilize Polycom® and TANDBERG equipment

Streaming Video Services

- ► Live event streaming

- ► On-demand streaming (Video On Demand)

- ► InfoView for live events to allow questions and comments to be passed to the moderator

- ► Interactive Web and removable media presentation authoring (DVDs, digital tape, VHS formats)

- ► General multimedia services
  - Conversion of media (e.g., VHS to DVD, AVI to Quicktime, Video CD to DVD)
  - Video/audio editing
  - Web deployment

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PNNL InfoView

Instant Messaging

► Support for multiple IM packages
- MSN® Messenger
- AOL® Instant Messenger™
- Yahoo!® Messenger

► Presence awareness with MS Office™ products

► Instant Messaging Management & Mitigation (IMLogic IMManager)
- Internal routing of messages
- Blocking of messages, content, versions of clients
- Exposure to only one system over the Internet
- Capability for shutting off direct connections

PNNL Core Computing Services

▶ Extensive training available on Lab-wide productivity software and services (online or classroom)

▶ MS Office environment and PNNL shared network resources provide

- Shared documents with tracking changes
- Public folders and group mailboxes in Exchange for calendars, contacts, etc.
- Network shared drives/folders
- Shared printers
- Microsoft Office 2003 and Microsoft SharePoint tightly integrated
    - Common look and feel
    - Load and save documents to and from SharePoint site

Electronic Lab Notebook

► The Electronic Lab Notebook developed as part of the Office of Science "DOE 2000 Project" continues its development at PNNL as part of the Scientific Annotation Middleware Project, funded by the Office of Science

- Web-based collaboration tool allows scientists to share information in a familiar laboratory notebook context
- Data is stored as a WebDAV resource and can be accessed by other WebDAV-enabled applications
- Open-source software; both client and server are downloaded several hundred times each month

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Electronic Lab Notebook

Real-time Meeting Tools

► The goal of the real-time meeting tools is to allow collaboration among groups of people

- PNNL uses DOE developed "AccessGrid" for multiple site presentations

- The Virtual Rooms VideoConferencing (VRVS) system is used for individual access to Access Grid meetings

- Virtual Network Computing (VNC) is used for day-to-day, ad-hoc work such as debugging code, analyzing data, and troubleshooting
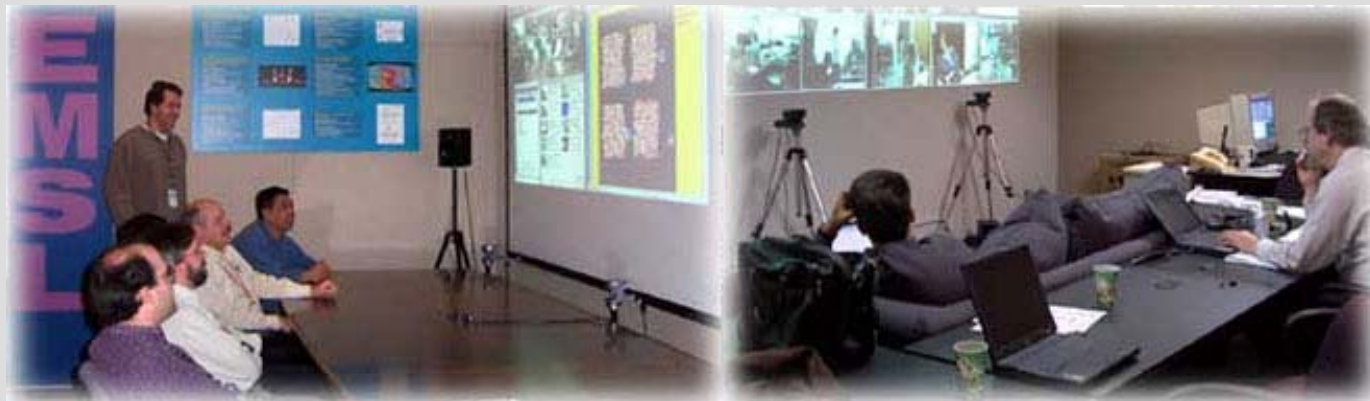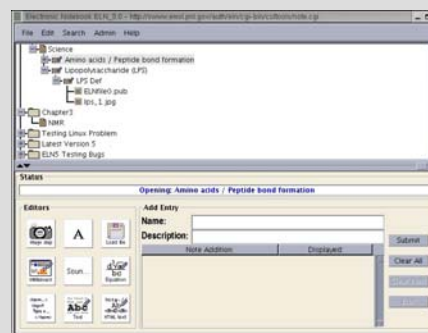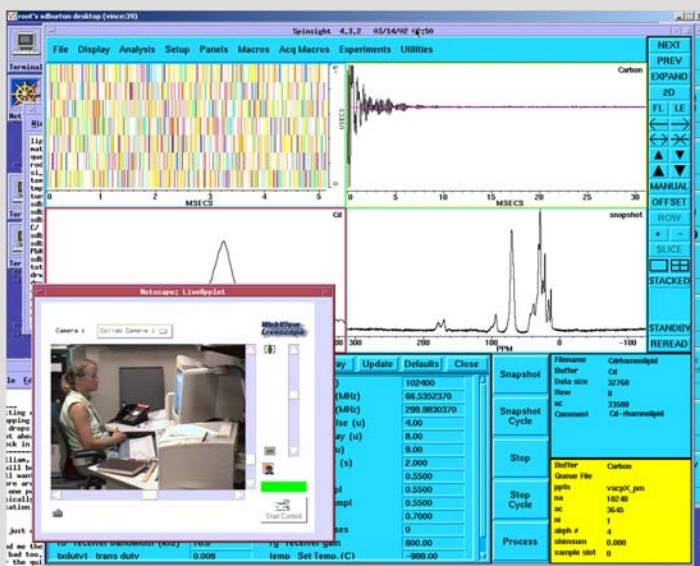

EMSL GVL Room 1101   ISB1 Room 412

Secure Real-time Instrument Control

▶ The EMSL Virtual Nuclear Magnetic Resonance facility

- Secure collaborative environment using two-factor authentication
- Uses SSH and SecurID to access instrument computers
- VNC used for desktop sharing, Java-based web camera control software used to view lab in real-time, ELN used for storing data and information.
- Used by ~40% of EMSL's external users who use NMR instruments

Collaboratory for Multi-scale Chemical Science (CMCS)

▶ A portal developed by PNNL, Sandia, and others supporting

- Distributed research groups
- Community-curated data stores
- Rich publication
- Community annotation
- Informatics analysis
- Cross-scale communication
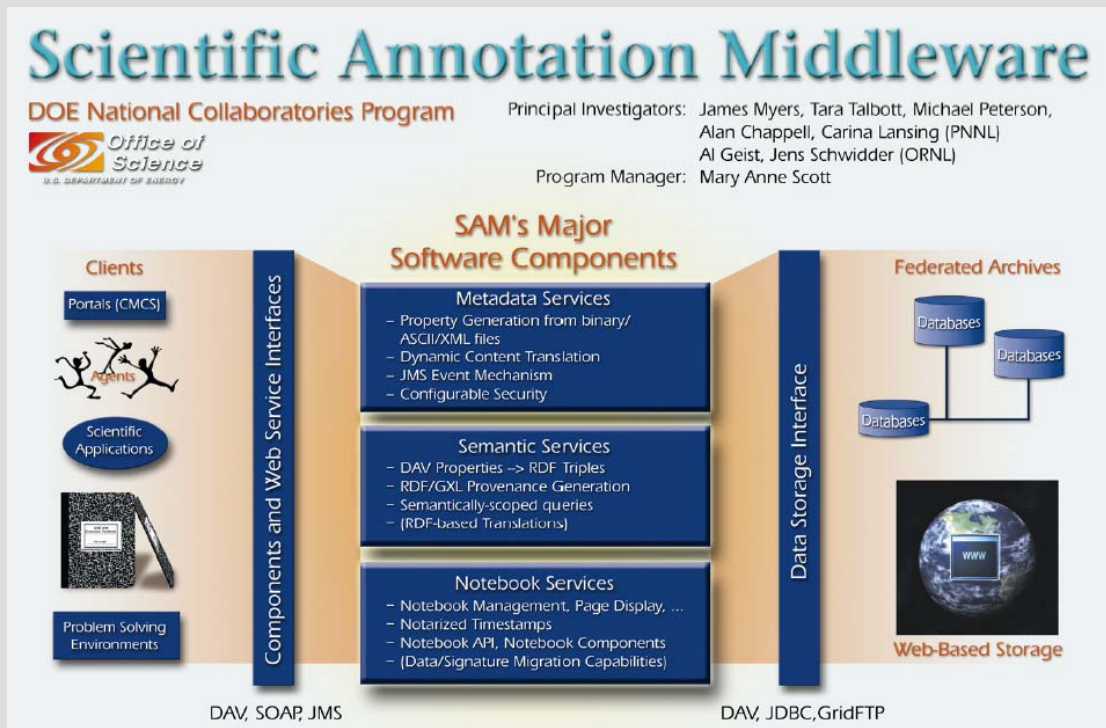- Peer data review
- Provenance capture and visualization

CMCS
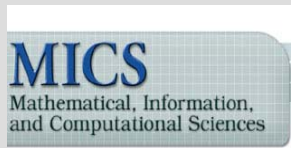
Scientific Annotation Middleware

- DOE Office of Science project with PNNL and ORNL
- Used as the plumbing between data sources and client applications
- Notebook services
- Used in CMCS and NEESgrid and as a stand-alone notebook server

What Can ESnet Provide?

▶ With this list of our current capabilities, ESnet could add value by

- Facilitating federated trust relationships between sites (PKI, SecurID, etc) and **policy** acceptable to DOE/DOD/DHS
- Providing real-time web/video conferencing capabilities
  - Maintain a schedulable Multipoint control unit (MCU) as opposed to a first-come, ad-hoc service
  - Expand ISDN port availability on the ad-hoc MCU
  - Use Video over IP
  - Implement secure Web conferencing product (such as MS PlaceWare LiveMeeting)

What Can ESnet Provide? (cont'd)

- Collaboration services and persistent spaces for labs
  - A DOE-branded software repository
    - Sourceforge-style repository with version control, bug tracking, documentation
    - Include standards to share open source software.
  - Microsoft SharePoint-like Team Space – Cross platform
- Coordination/federation for knowledgebases, content management, metadata
  - Broker Global naming authority and namespace for data (e.g., Life Science Identifier)
  - Directory and search services

Conclusions

- ▶ Basic collaboration capabilities are now essential and being used across the enterprise
  - Break boundary of incompatibility
  - Higher network capacity for more applications
  - Ability to create collaborative groups instantaneously
- ▶ More capabilities are needed by small groups and for next-generation science
  - R&D and pilot projects are ongoing
- ▶ ESnet and the labs should
  - Provide basic capabilities/policies
  - Support next-generation tools with federation/coordination/security/QoS services

Contacts
(509 area code)

▶ Ian Roberts Access Grid 375-6675

▶ Janine Jensen Video Conferencing 375-2680

▶ Sara Perez 372-4783
- Streaming Video, SharePoint, and other enterprise-wide tools

▶ Mike Peterson 372-4751
- Elect. Lab Notebook, other research-oriented tools

▶ Tom Thomas Project Manager 375-6876

▶ Kevin Piatt Program Manager 375-2329