Report from the Subcommittee for the
Examination of the
Role and Efficiency of Networking and Networking Research
within the Office of Science

ASCAC Subcommittee Members:

Ellen B. Stechel & F. Ron Bailey

The Charge:

- ASCAC has been asked to convene a sub-panel. The sub-panel should:

"weigh & review the organization, performance, expansion, and <u>effectiveness</u> of the current operations of ESnet. .. consider the <u>proposed evolution</u> of ESnet, its appropriateness and comprehensiveness in addressing the <u>data communication needs</u> .. that will <u>enable scientists nationwide to extend the frontiers of science</u>. .. make suggestions and recommendations on the <u>appropriateness and comprehensiveness of the networking research</u> .. with a view towards meeting the <u>long-term networking needs</u> .."

The Distinguished Panel

Last Name	First Name	Affiliation
Bailey	Ron	ASCAC Member
Cheswick	Bill	Lumeta Corporation (on sebbatical)
Corones	Jim	Krell Institute, President
Foster	Ian	ANL & U. of Chicago
Huntoon	Wendy	Pittsburgh Supercomputing Center (PSC)
Newman	Harvey	California Institute of Technology (Caltech)
Rahn	Larry	SNL & DOE-BES-Chemical Sciences
Sobieski	Jerry	Mid Atlantic Crossroads (MAX), Dir of Res Initiatives
Stechel	Ellen	Chair & ASCAC Member
Williams	Dean	LLNL
Wing	Bill	Co-Chair & ORNL

Interpreting the Charge

- **Cornerstone and Framing:**
    - **"that will enable scientists nationwide to extend the frontiers of science."**
    - Other Key Phrases
        - With respect to ESnet
            - *Expansion and Effectiveness of Current Operations*
            - *Proposed Evolution*
        - With respect to Needs
            - *Data Communication Needs*
            - *Long-term Networking Needs*
        - With Respect to Networking Research to meet Long-Term Needs
            - *Appropriateness and comprehensiveness of the networking research*

Interpreting the Charge: Timeframe

- **Timeframe was not mentioned**
  - Assumptions:
    - 5 Years is the technology or event Horizon
    - 10 Years is the predictable facilities Horizon
  - Primary Focus on 5-10 Years
    - Some focus out to 20 Years,
    - Some attention to Nearer Term
      - But distinct from what was covered in the Lehman review (more on cost and schedule, less on enabling the science.)

Open Questions on Interpreting the Charge

- **Clarification** of the initial sentence
  - *"Weight and review the organization, performance, expansion, and effectiveness of the current operations of ESnet."*
    - In light of the Lehman Review: Technical, Cost, Schedule, and Management Review, Feb 2006
      - The committee found that ESnet is effectively managed and responsive to its customers and DOE program management.
- **Clarification** on the timeframe
  - Working Assumption: focus mostly on 5-10 years and preserving flexibility
    - Not cutting-off unforeseen future technology options
- **Clarification** on:
  - What are the principle drivers that led to the Charge?

Some Desired Outcomes

- **Useful guidance**
  - Within the context of furthering science,
  - For the next 10 years of:
    - Networking Research
    - The Evolution of the Network
    - Strategic Relationships
- Succinct description of **priority** **networking needs**
  - Tied directly to science goals
- A vivid picture of **how the network might be utilized** 10 years from now
  - A strategic vision of a new generation of enabling networks & global-scale distributed systems
- **Findings** on:
  - Forces and Trends shaping and changing the way science will be practiced in the future
    - E.g., multi-disciplinary, cross-organizational, high-performance teaming
  - The Network as an enabling technology
    - The value of the network to science
    - New applications for information distribution, sharing, and collaboration
  - Networking as a key component of a system that enables the advancement of science
    - Balance of role of the network relative to system
  - Leveraging the private sector – both in technology push and technology pull
  - Setting the standard in data and information management
  - Technology gaps
  - Security and its relationship to science applications
  - End-users and other Stakeholders

Methodology

- Outline the Report Early for focus
  - To Highlight Information Needs
  - To Drive to the Desired Outcomes
- Meet Regularly
  - Biweekly Teleconference calls
    - The panel has met twice
  - Regular Web Meetings (TBD)
  - One Day or 1-1/2 Day Meeting (Late Summer)
- Information Sources
  - "Testimony" and Panel Discussions from a wide range of stakeholders (in addition to the Panel)
    - One "outsider" per Teleconference
    - Two to Three per Web Meeting
    - 10-14 for the Face to Face Meeting
  - Existing Reports and Presentations and "Work Product"
    - Uploaded or Linked to the Panel's Dedicated & Access Controlled Website

Timeline

- Panel reformulated – completed Jan 2006
- Teleconferencing, Web Meeting Capability, and Website established – January 2007
- First Panel Teleconference – Fri 9-Feb-2007
- Second Panel Teleconference Fri 23-Feb-2007
- Status Report – ASCAC Tues 27-Feb-2007
- Bi-Weekly Meetings continuing on Wed 7-Mar-2007
- ESnet Visit (TBD, likely April)
- Status Report – ASCAC 14-Aug-2007
- Face to Face Meeting – Late Summer
- DRAFT Preliminary Report – distributed to ASCAC 23-Oct-2008
- Preliminary Report – ASCAC 6-Nov-2007

Questions

Thank-you for your Attention