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 effectiveness of the current operations of ESnet. .. consider the proposed evolution of ESnet, its appropriateness and comprehensiveness in addressing the data communication needs .. that will enable scientists nationwide to extend the frontiers of science. .. make suggestions and recommendations on the appropriateness and comprehensiveness of the networking research .. with a view towards meeting the long-term networking needs ..”
# The Distinguished Panel

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<tr>
<th>Last Name</th>
<th>First Name</th>
<th>Affiliation</th>
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<tr>
<td>Bailey</td>
<td>Ron</td>
<td>ASCAC Member</td>
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<td>Cheswick</td>
<td>Bill</td>
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<td>Corones</td>
<td>Jim</td>
<td>Krell Institute, President</td>
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<td>Foster</td>
<td>Ian</td>
<td>ANL &amp; U. of Chicago</td>
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<td>Huntoon</td>
<td>Wendy</td>
<td>Pittsburgh Supercomputing Center (PSC)</td>
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<td>Newman</td>
<td>Harvey</td>
<td>California Institute of Technology (Caltech)</td>
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<td>Rahn</td>
<td>Larry</td>
<td>SNL &amp; DOE-BES-Chemical Sciences</td>
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<td>Sobieski</td>
<td>Jerry</td>
<td>Mid Atlantic Crossroads (MAX), Dir of Res Initiatives</td>
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<td>Stechel</td>
<td>Ellen</td>
<td>Chair &amp; ASCAC Member</td>
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<td>Williams</td>
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<td>LLNL</td>
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<td>Co-Chair &amp; ORNL</td>
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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.”
      - 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)
- Face to Face Meeting – Late Summer
Questions

Thank-you for your Attention