

Technology and Application Trends

Their implications on Future Internet
and Experimental Facilities

Howard Marsh
DoD

Questions to Address (1)

- Computer and network technology roadmaps?
 - wireless, optical, sensor networks, embedded devices, small and large computers, and others?
- How the technologies will enable new network capabilities?
- How would new technologies change the overall networking and Internet landscape?
- How existing Internet architecture cannot easily accommodate some of the new technologies?
- How the existing Internet doesn't allow higher level applications to exploit new network capabilities?

Questions to Address (2)

- What are some of the new and exciting network enabled applications in all aspects of our lives?
 - Including in science and engineering, commerce, business, military, entertainment, and others?
- How these new applications and their scenarios will pose new requirements for the underlying Internet and networks?
- How existing Internet architecture does not or cannot support some of the emerging applications?
- Anything else?

General Suggestions

- Breakout groups need to be very disciplined and focused
- The chair can help but the participants are the key
- Quickly and concisely organize your thoughts
 - clarity and brevity very important
- Keep discussions to a high level with focus on key points
- Allow everyone a chance to state an opinion

People

- **Group 1**
 - **Chair:** *Mary Anne Scott*
 - **Report Writers:** *David Clark and Joe Evans*
- **Group 2**
 - **Chair:** *Howard Marsh*
 - **Report Writers:** *Larry Peterson and Sonia Fahmy*
- **Group 3**
 - **Chair:** *Kevin Mills*
 - **Report Writers:** *Jim Kurose and Dipankar Raychaudhuri*

Roles

- **Chair**
 - Ensure all questions get addressed
 - Everyone gets an opportunity to speak
 - Manage time
- **Report Writers**
 - Listen and take good notes
 - Prepare a few slides
 - Report findings of the group back to the larger group

Research Agenda for the Future Internet Design

**Mary Anne Scott
DoE**

Questions to Address (1)

- What are the key architectural limitations of the existing Internet?
- Why these limitations are hard to overcome?
- What research problems they pose?
- What Future Internet architecture challenges to be addressed to incorporate and take advantage of the disruptive technologies (as discussed in Session 1)?
- What are the specific research challenges?
 - Breakdown into focused research problems

Questions to Address (2)

- What Future Internet architecture challenges need to be addressed to support the emerging applications (as discussed in Session 1)?
- What are the specific research challenges?
 - Breakdown into specific focused research problems
- What are the specific research challenges in making Future Internet secured, robust, and easy to manage, evolve, measure and instrument?
 - Breakdown into specific focused research problems
- How can this research be best realized?
 - Can it be incrementally done in the context of existing Internet?
 - What are the benefits of addressing these in a clean-slate context?

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Requirements for the Facility for Experimentation

Guru Parulkar
NSF

Questions to Address (1)

- How critical it is to have prototyping and experimentation as an integral part of research on Future Internet?
- How critical it is to allow experimentation at some scale and with real users and applications?
- How to enable experimentation at scale with real users and applications (assuming answer to question above is positive)?
- What kind of facilities will be needed to allow meaningful experimentation that would lead to real impact and making progress towards Future Internet?
 - Outline high level requirements

Questions to Address (2)

- How can we leverage existing and future facilities provided by different agencies such as DoD, DoE, NSF, and others?
 - Benefits of federating different facilities?
 - Technical and non-technical issues in federation?
 - Proposed Approaches?
- Any other ideas for enabling prototyping and experimentation with Future Internet architectures?

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