Disclaimer

These slides were presented at the President's Information Technology Advisory Committee's (PITAC) November 4, 1998 meeting by the chairs of its six panels. The panels were asked to suggest revisions to the PITAC's Interim Report. The information in these slides will be taken into consideration as the PITAC drafts its final report.

Scalable Information Infrastructure Panel

Les Vadasz

November 4, 1998

Panel Participants

Panelists

- **PITAC Members**

  Les Vadasz (Chair)
  Steve Dorfman
  Dave Dorman
  Danny Hillis
  Dave Nagel

- **Non-PITAC Members**

  Brewster Kahle, Alexa Internet
  Reagan Moore, SDSC
  Craig Partridge, BBN Technologies

Discussants

Jim Flanagan, Rutgers
Jeff Johnson, Internet Security Systems
Rick Stevens, Argonne Natl. Lab

Government Speakers

Christine Falsetti, NASA
Dave Nelson, NASA
George Strawn, NSF

Findings: Suggested Update

- Our Nation's dependence on the Information Infrastructure is increasing daily.
- The Internet has grown well beyond the intent of its original designers, such that we do not understand it and cannot safely extend what we currently know to more complex systems.
- Learning how to build and use large-scale, highly reliable and secure systems requires research.

Recommendations: Suggested Update

- Understand global network behavior including data collection, analysis, etc., so that models can be created for dimensioning, simulating, analyzing, and predicting future networks.
- Focus research on the physics of the network (optical, wireless, etc.) including bandwidth issues.
- Focus research on scalability issues including: number of nodes, geography, bandwidth, system heterogeneity, distinct service offerings within a network, privacy, survivability, etc.

Recommendations: Suggested Update (cont.)

- **Focus on network usability research topics:**
  - Support safe public participation
  - Efficient content distribution of video and high-bandwidth applications
  - Persistent access
  - Commerce infrastructure (identity, ownership, royalties)
  - Preservation of our digital cultural artifacts

Recommendations: Suggested Update (cont.)

- Focus on middleware research topics such as latency, reliability, broadcast efficiency, and security.
- Clearly differentiate between testbeds that serve the needs of research. In particular, a distinction must be made between testbeds for network research and testbeds for applications research.