



U.S. Department of Energy's
Office of Science

Program Area Presentation
Program Integration and Interagency
Partnerships

Advanced Scientific Computing Research
Strategic Planning workshop

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July 23, 2003



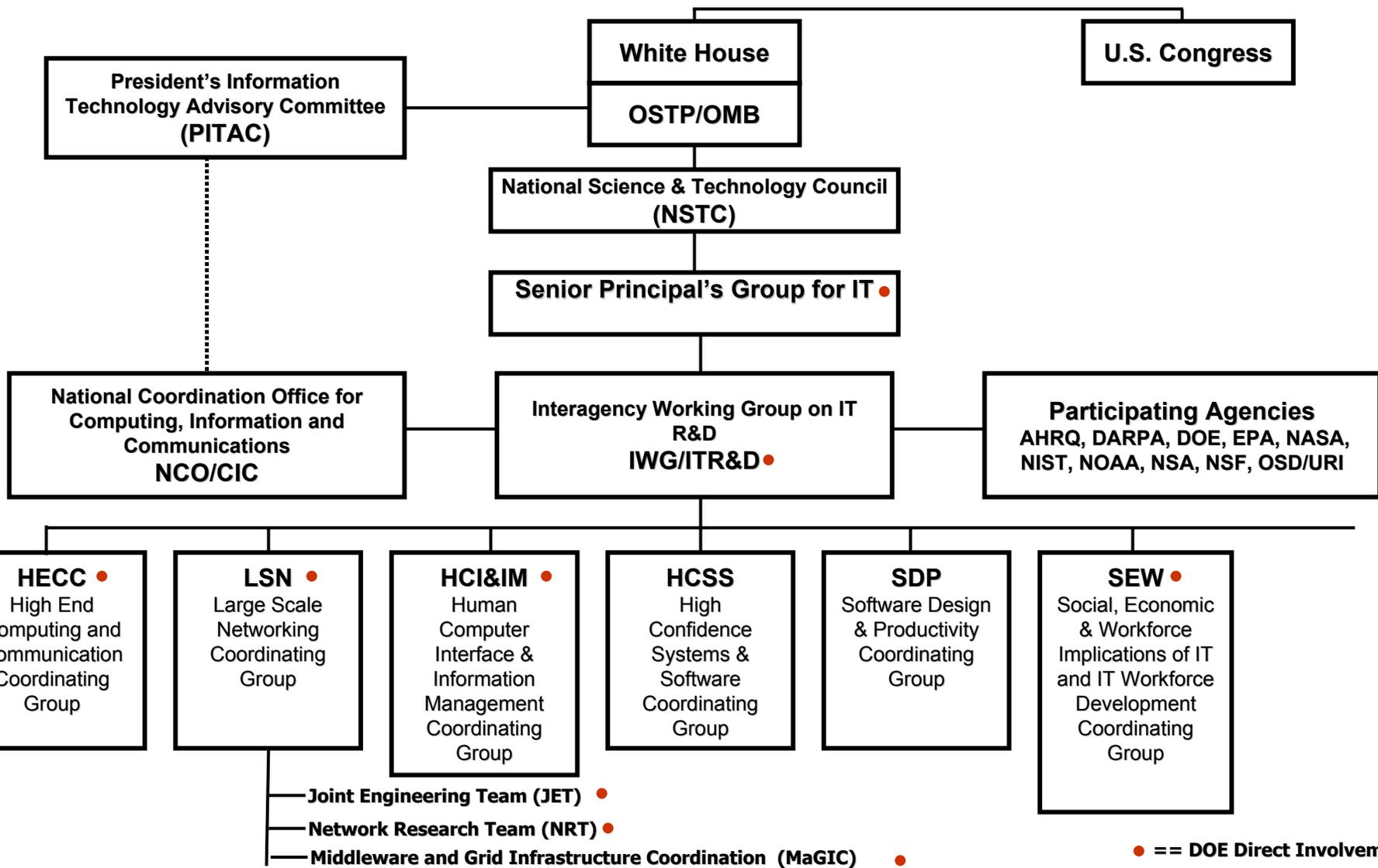
Program Integration and Interagency Partnerships

Principles Guiding Interagency Partnerships:

- Must advance our ability to deliver mission;
- Leverage other agency strengths, and the strengths of the research communities they support;
- Risk-adjusted benefit of partnership should be greater than cost, for both agencies together;
- Effective partnerships built on program manager to program manager partnerships;
- Use personnel from other agencies on our review teams; and
- Communicate.



ASCR in Relationship to Federal IT Research



● == DOE Direct Involvement



Agency Coordination Overview Matrix

	Research Coordination	Development Coordination	Strategy Coordination
NNSA	X – \$17M research funded at NNSA laboratories	X – Red Storm development	X – Formal coordination documents X – IHEC study
DOD – DUSD Science and Technology DARPA		X – HPCS review team	X – HPCS evaluation system plan
NSA	X – UPC	X – Cray SV2/X1 development	
All Agencies			X – HECCWG



NNSA Details

	Research Coordination	Development Coordination	Strategy Coordination
NNSA	X – \$17M research funded at NNSA laboratories, Light weight kernel, common component architecture, performance engineering, ...	X – Red Storm development quarterly review meetings, open source software thrust, ASCI Q review, ASCI PSE review, SciDAC reviews, ...	X – Formal coordination documents, joint funded NAS study, platform evaluation



DOD and DARPA Details

Research
Coordination

Development
Coordination

Strategy
Coordination

DOD – DUSD
Science and
Technology
DARPA

X – HPCS
review team –
Phase I, Phase II
and Phase II;
Review Cray,
IBM, HP, SUN
and SGI projects

X – IHEC study,
agreement on
SC role in IHEC
X – HPCS
evaluation
system plan,
agreement on
SC role as HPCS
early evaluator
at scale



NSA Details

	Research Coordination	Development Coordination	Strategy Coordination
NSA	X – UPC (Lauren Smith), Programming Models (Bill Carlson), Benchmarking (Candy Culhane)	X – Cray SV2/X1 development, Cray Black Widow development (quarterly review meetings)	



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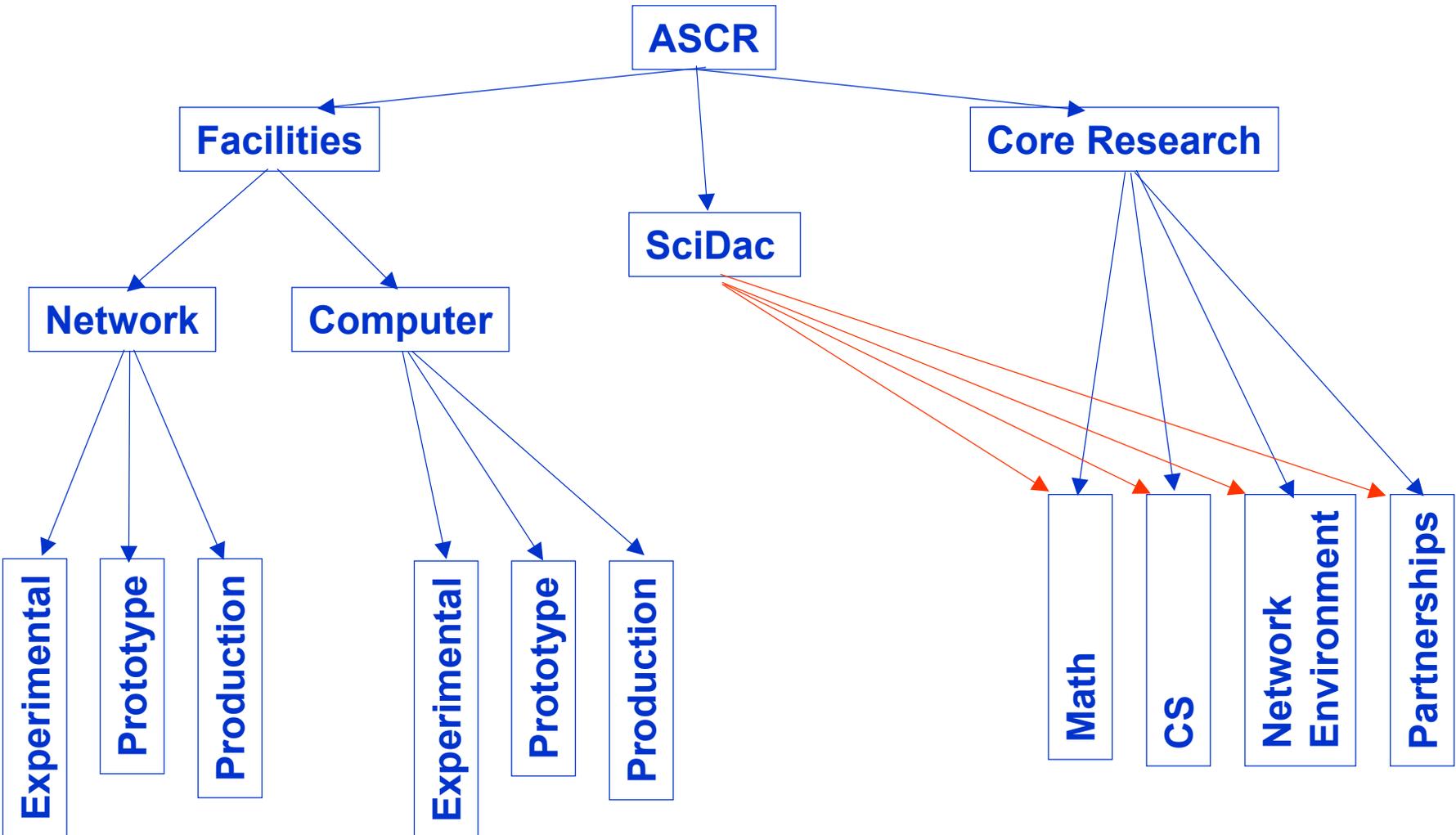
Planning horizon for Program

- ASCR planning horizon typically <10 yrs.
- ASCR planning horizon constrained by coupling to applications
- Rely on other agencies for basic research longer than 10 yrs, for example quantum computing.
- Rely on other agencies for elements of research ASCR does not cover.



Program Integration and Interagency Partnerships

Asset Allocation Strategy:





Program Integration and Interagency Partnerships

Strengths

- Program integration;
- Alignment with mission;
- Authority and responsibility for program elements invested in program managers.



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Weaknesses

- Rigidity, especially in flat budgets;
- Only one way of looking at program;
- May not encourage close enough coupling between research program and experimental facilities;



Program Integration and Interagency Partnerships

Opportunities

- Renewed attention to High End Computing;
- NSF focus on CyberInfrastructure;
- SCaLES meeting defines application requirements;
- Change the way scientific software is developed.
- Define Research and Evaluation Strategy for high end computers;
- Enable scientific leadership.



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Threats

- Satisfying requirements of scientists for high end computing in flat budgets;
- Loss of leadership and program identity;
- Accelerating transition from research to practice;
- Dealing with success – long term support of software.

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Comments