

NSF Directorate for Computer & Information Science & Engineering: Funding Opportunities

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Outline

- Context
 - CISE strategic objectives
 - CISE reorganization: drivers and goals
- Details
 - Divisions, clusters, programs
 - FY 2004 activities; FY 2005 plans



CISE Strategic Objectives

- Enhance research portfolio
 - Strengthen the core
 - Cyberinfrastructure
 - Cybersecurity
- Broaden participation
- Improve organizational effectiveness



CISE Reorganization: Drivers

- Scientific: changes to the field
 - Had essentially the same organization from 1985 to 2003
- Administrative: proposal pressure
 - Up 125% from 1997 to 2003 (vs. 16% for NSF); up even more in FY 2004
- Financial: end of ITR
 - How to invest those funds?

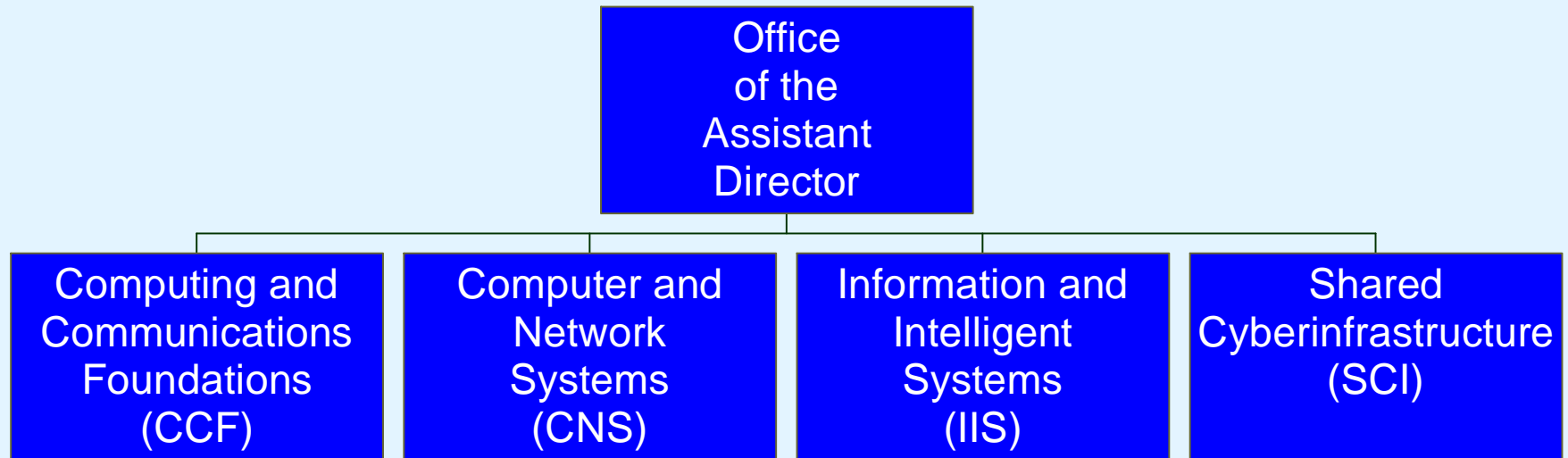


CISE Reorganization: Goals

- Align divisions to reflect the field
- Group similar programs into *clusters*
 - Sharpen focus
 - Increase flexibility
 - Eventually increase grant size & duration
- Develop cross-cutting *emphasis areas*
- Integrate education and research
- Build on success of ITR



New CISE Organization





Computing and Communication Foundations (CCF)

- Formal and Mathematical Foundations
 - Computer science theory; numerical computing; computational algebra and geometry; signal processing and communication
- Foundations of Computing Processes and Artifacts
 - Software engineering; software tools for HPC; programming languages; compilers; computer architecture; graphics and visualization
- Emerging Models for Technology and Computation
 - Computational biology; quantum computing; nano-scale computing; biologically inspired computing



CCF Competitions

- FY 2004
 - Responsible for about 2030 proposals
 - Heavy mortgages and commitments
 - Decent success rates for CAREER (15%) but terrible success rates for clusters (5%)
- FY 2005 and FY 2006
 - CAREER competitions both years
 - Formal and Mathematical Foundations, and Emerging Models for Technology and Computation: November 2004 but *no* competition in FY 2006
 - Foundations of Computing Processes and Artifacts: May 2005 with funds from FY 2006 budget
- FY 2007: Fall deadlines for all three clusters



Computer and Network Systems (CNS)

- **Computer Systems**
 - Distributed systems; embedded and hybrid systems; next-generation software; parallel systems
- **Network Systems**
 - Networking research broadly defined plus focus areas in programmable wireless networks and networks of sensor systems
- **Computing Research Infrastructure**
 - Research infrastructure; minority institutional infrastructure; research resources
- **Education and Workforce**
 - Curriculum development/educational innovation; IT workforce; special projects; cross-directorate activities (e.g., REU sites)



CNS Competitions

- FY 2004
 - Responsible for about 2035 proposals
 - Good success rates on CAREER and infrastructure (30%)
 - Fair success rates on most other programs (10-15%)
- FY 2005 — One solicitation per cluster
 - CAREER: July deadline as usual
 - Computer systems: November 2004
 - Network systems: December 2004
 - Computing Research Infrastructure: late August deadline (late July for letters of intent for large proposals)
 - Education and Workforce: January 2005
- FY 2006: Same deadlines as in FY 2005



Information and Intelligent Systems (IIS)

- **Systems in Context**
 - Human computer interaction; educational technology; robotics; computer-supported cooperative work; digital government
- **Understanding, Inference, and Data**
 - Databases; artificial intelligence; text, image, speech, and video analysis; information retrieval; knowledge systems
- **Science & Engineering Informatics/Information Integration**
 - Bioinformatics; geoinformatics; cognitive neuroscience; ...



IIS Competitions

- FY 2004
 - Responsible for about 2590 proposals
 - Success rates of 17% CAREER, 5% regular programs
- FY 2005
 - Raise acceptance rate of 2004 to 12-15%
 - CAREER in July as normal
 - Science & Engineering Informatics/Information Integration and Universal Access: December 2004
 - Data, Inference, and Understanding and Systems in Context: May 2005 with most funding from FY 2006
- FY 2006: Same deadlines as in FY 2005



Shared Cyberinfrastructure (SCI)

- Infrastructure Development
 - Creating, testing, and hardening next-generation deployed systems
- Infrastructure Deployment
 - Planning, construction, commissioning, and operations



SCI Competitions

- FY 2004
 - NSF Middleware Initiative (NMI): 140 proposals; expected success rate of 10-15%
 - International Network Connections: in panels
- FY 2005
 - Continuing support for centers (PACI, ETF)
 - Cyberinfrastructure Teaching, Education, Advancement, and Mentoring (CI-TEAM): early 2005
 - NSF Middleware Initiative (NMI): spring 2005
 - Leveraging and coordinating shared and domain-specific cyberinfrastructure: contact a program director if you have ideas for leveraging CISE research
 - Some programs with other agencies/directorates



Cross-Cutting Emphasis Areas

- Characteristics
 - cut across clusters and divisions
 - address scientific or national priorities
- FY04 Emphasis Areas
 - Cyber Trust: 488 proposals
 - Science of Design: 182 proposals
 - Information Integration: 250 proposals
- FY 2005 Emphasis Areas
 - Cyber Trust: January 2005
 - Science of Design: spring 2005
 - Information Integration: December 2004
 - Broadening Participation: late winter/early spring 2005
 - Possibly one more



Summary

- FY 2004
 - Transition to clusters and emphasis areas
 - Last year of ITR
- FY 2005
 - All clusters and emphasis areas in place
 - Reduced competitions in CCF and IIS due to severe budget constraints
- FY 2006
 - Back to normal operations (FY 2007 for CCF)



Further Information

- CISE Web site: www.cise.nsf.gov
- Computing Research News bimonthly columns: www.cra.org
- Handouts
 - Crosswalk from old to new programs
 - Copy of these slides