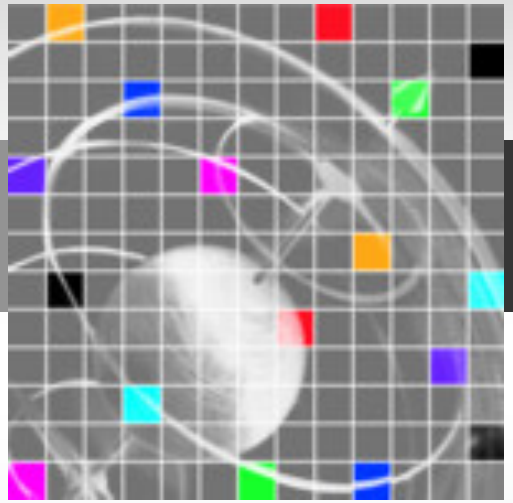
Toward a Global CyberInfoStructure



Marvin Goldberg
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National Science Foundation

A STATUS REPORT FROM EPP/PHY/MPS

National Science Board

Office of Inspector General

National Science Foundation

Director Deputy Director

Office of the Director

- Legislative & Public Affairs
- Equal Opportunity Programs
- General Counsel
- Integrative Activities
- Polar - International

Directorates- Followed by Divisions; Programs.

- Biological Sciences
- Computer & Information Science & Engineering
- Education & Human Resources
- Engineering
- Geosciences
- Mathematical & Physical Sciences
- Social, Behaviorial & Economic Sciences

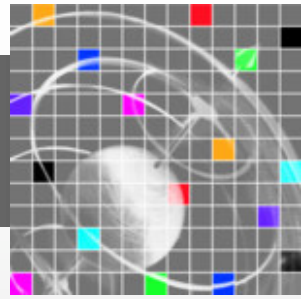
NSF Receives Proposals

Day Job

Merit Review Criteria

- What is the intellectual merit of the proposed activity?
- What are the broader impacts of the proposed activity?

Why is Distributed Infostructure (information infrastructure) needed for Science and Education?



Resources for complex problems are distributed

***Advanced scientific instruments (accelerators, telescopes, sensors…)**

***Storage and computing**

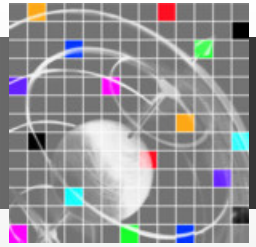
Communities require access to common services

***Scientific/Educational collaborations**

***Universities, Government agencies**

***Health care organizations, large corporations, …**

EPP's Principles and Goals for the Creation of a Global Infostructure in the Service of Science and Education



1] The cost and complexity of 21st Century Science/Education (S/E) requires the creation of advanced and coherent global Infostructure.

2] The construction of a coherent Global Infostructure for S/E requires definition and drivers from Global Applications. These applications will require appropriate coordination that will avoid duplication and inefficiency - a <u>Global Roadmap</u>

….Principles

3] Further, forefront Information Technology must be incorporated into this Global Infostructure for the Applications to reach their full potential for positively changing the way S/E is done.

4] The Large Hadron Collider MRE Project (LHC) is a near term Global Application with an important education component that requires advanced and un-invented Infostructure and is ahead in some planning elements compared to many others.

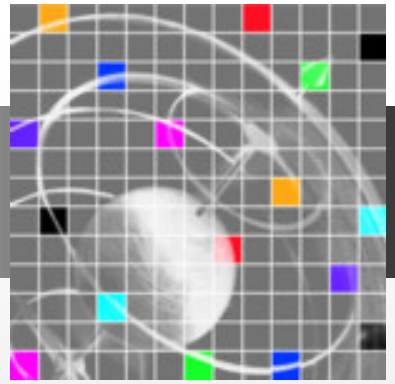
….Principles

5] U.S. funding agencies must work together for effective U.S. participation on Global scale infostructure, and the successful execution of the LHC program in a 4 way agency partnership, *with international cooperation and the needs of Universities in view.*

6] Goal is to build "Virtual Organizations" (VO)

- Make all community resources available to any VO member
- Leverage strengths at different institutions
- Add people & resources dynamically

Steps Taken to Implement the Goals - GLOBAL with LHC



A] The Trillium effort now unifies NSF and DOE IT supported projects.

NSF *GriPhyn* LIGO, SDSS, LHC

NSF *iVDGL*- Same Applications as above; both LARGE ITR.

DOE *PPDG*

.....Steps

B] Meetings at NSF of representatives from *NSF* CISE, MPS, EPP; *DOE* OSCR, HENP and HEP; CERN, and EU Representatives.

The next meeting is planned for 7th February at DOE Germantown; and another is then planned at CERN, probably in early March.
The goal of these meetings is to create coordinated "work packages" for the various communities and agencies.

...Steps

ALL SCIENCE

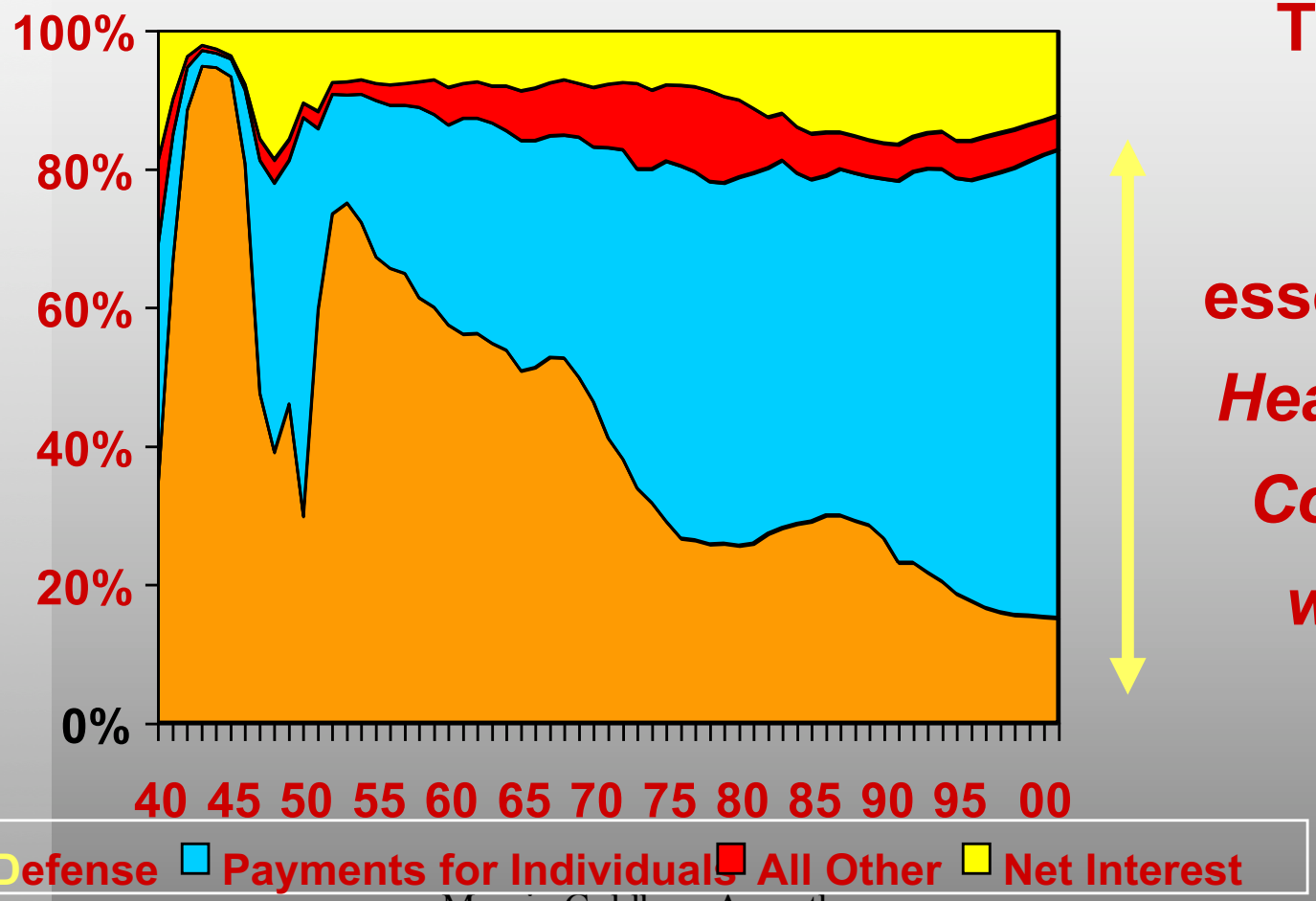
C] Infostructure Workshops: The intent of the infostructure workshops is to present key concepts and basic working knowledge of infostructure topics to mid-level prospective P.I.'s of large-scale projects that seek funding from any of NSF's discipline directorates. Led by EPP/PHY/MPS, it is intended that the workshops serve the needs of and be supported by all NSF directorates.

...Steps

D] Focus on the Future- A proposed series of talks/discussions for the EHR/NSB Committee,

- **First topic: "The use of virtual laboratories: implications of the emerging Grid for education".**
- **Approved by the Committee Chair and EHR AD.**
- **Emphasis on VO's with vision of technology not yet invented.**
- **MORE**

Composition of Federal Outlays -- Percent of Total



The U.S Govt. is essentially a *Health Care Company with an Army!*