

**A Status Report on NYSGrid:
January 24, 2007**



Russ Miller

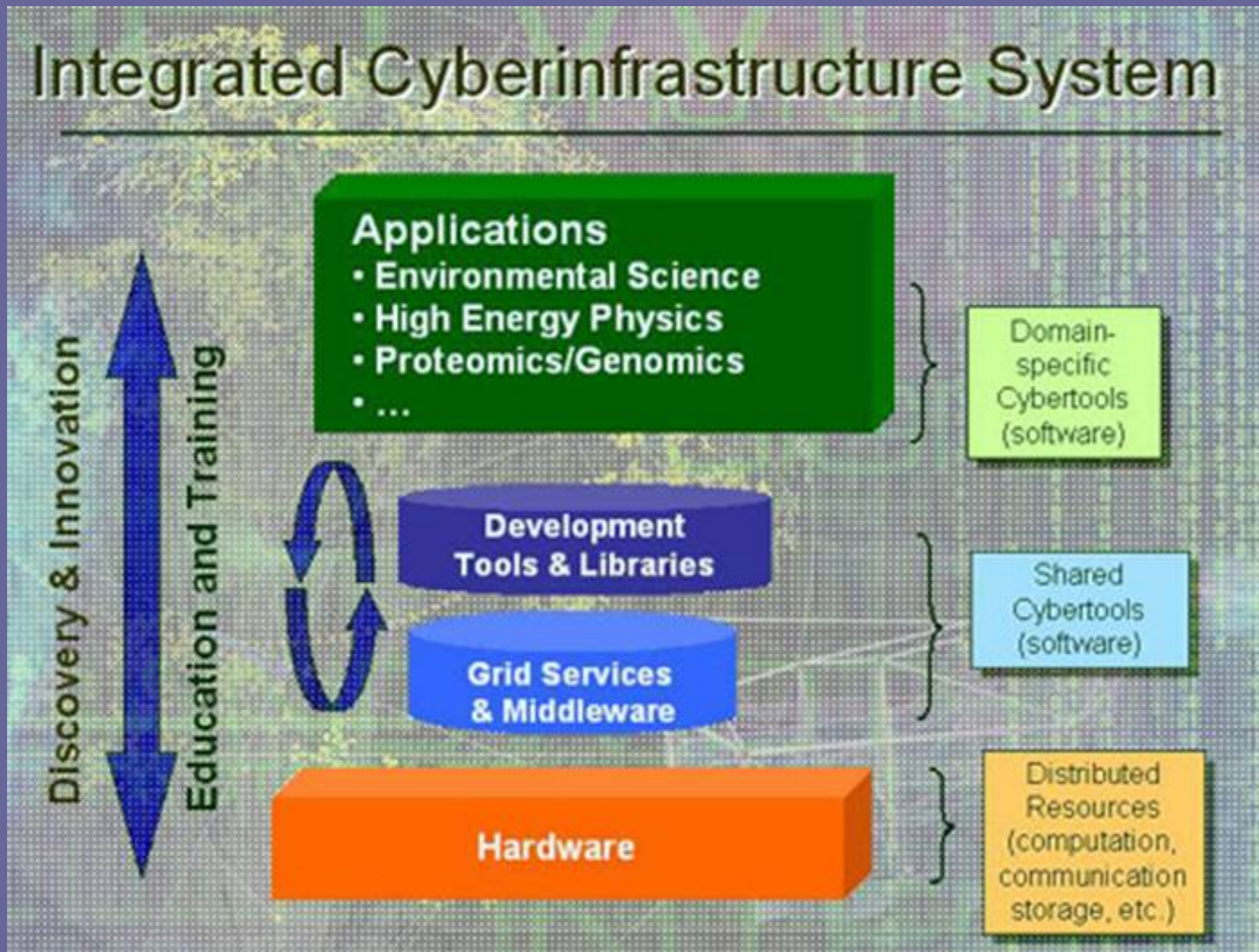
Executive Director, NYSGrid

SUNY-Buffalo & Hauptman-Woodward Inst

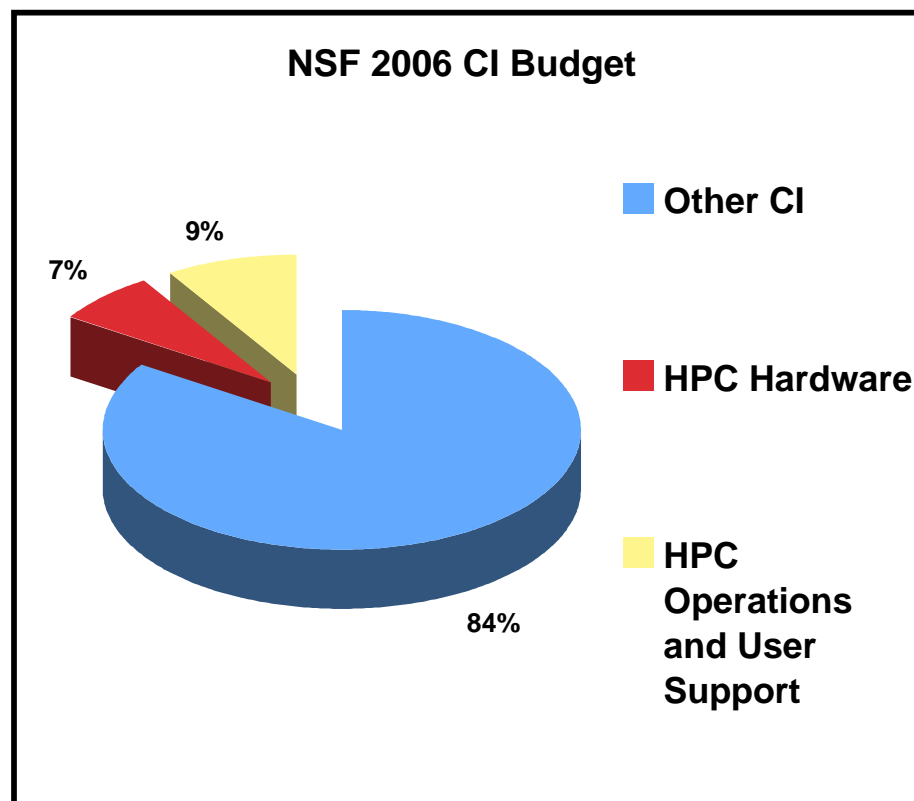
Cyberinfrastructure

- **Foster & Kesselman: “a domain-independent computational infrastructure designed to support science.”**
- **NSF: “comprehensive phenomenon that involves creation, dissemination, preservation, and application of knowledge”**
- **Generic: transparent and ubiquitous application of technologies central to contemporary engineering and science**
- **NSF Cyberinfrastructure (OCI)**
 - ❑ **HPC Hardware and Software**
 - ❑ **Data Collections**
 - ❑ **Science Gateways/Virtual Organizations**
 - ❑ **Support of Next Generation Observing Systems**

NSF Integrated Cyberinfrastructure



NSF CI Budget



- **HPC for general science and engineering research is supported through OCI.**
- **HPC for atmospheric and some ocean science is augmented with support through the Geosciences directorate**

HPC Spectrum for Research

5 years out - capable of sustaining PF/s on range of problems - lots of memory - O(10x) more cores - new system SW - support new programming models

Primarily funded by NSF; leverages external support

Trk 1

Portfolio of large, powerful systems - e.g. 2007: > 400 TF/s; > 50K cores; large memory - support PGAS compilers

Trk 2

Primarily funded by univs; limited opportunities for NSF co-funding of operations (HPCOPS)

University Supercomputers

O(1K - 10K) cores

Research Group Systems and Workstations

Multi-core

Funding opportunities include: MRI, divisional infrastructure programs, research awards (NO OCI FUNDING)

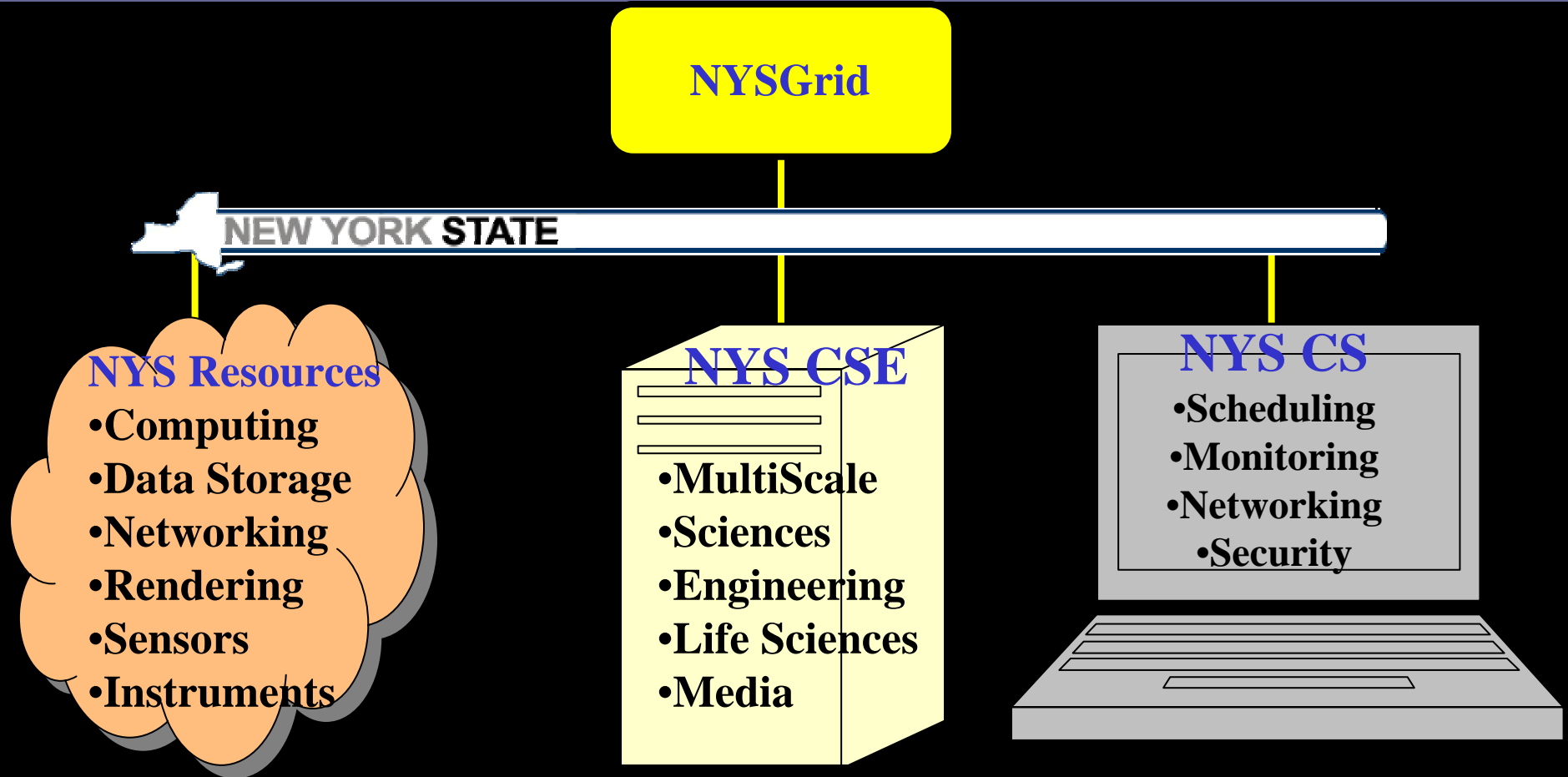
NSF Petascale Proposal (Track 2)

- **First Award (\$59M on TeraGrid):**
 - **TACC: Prime**
 - **ASU & CTC: Outreach**
 - **400TF Sun with 13K 4-core AMD chips**
 - **100TB Memory**
 - **1.7PB Disk**
 - **Operational (Final Config) in Oct 2007**
- **Track 2 RFPs: Nov '06/'07/'08**
- **CISE: Debbie Crawford is acting AD (Peter Freeman stepped down earlier in the year)**

NSF Petascale Proposal (Track 1)

- **Timeframe: 4+5 years \$200M+\$100M**
- **Due: February 2, 2007**
- **Petascale Environment (compute, storage, networking, viz) to support revolutionary advances in Sci & Eng**
- **Sustained Performance of 10TFlop/s - 2PFlop/s by 2011**
- **Integrated into National Resource Environment**
- **Proposals: CA, NCSA, ORNL, PSC**
- **NYSGrid Participation: BNL/SB, Buffalo, Cornell, NYSERNet, NYU, RIT, RPI**

Cyberinfrastructure Initiative in NYS: NYSGrid



NSF Director Arden L. Bement: “leadership in cyberinfrastructure may determine America's continued ability to innovate – and thus our ability to compete successfully in the global arena.”

State-Wide Developments I

- **BNL/SB: 100TF IBM BG/L in 1Q07 (Davenport/Glimm)**
- **Buffalo (J. Jose)**
 - Cyberinstitute delay continues
 - CCR completes move to Medical Campus (Furlani)
 - MPI-HMMER available for protein sequence analysis (Chaudhary)
- **Cornell: Installed 2TF Commodity Cluster (L. Callahan)**
- **RPI: 100TF IBM BG/L + Opteron in 1Q07 (M. Shephard)**

State-Wide Developments II

- **Rochester: 3 listings on Discover Mag “Top 100 Achievements of 2006” (Eric Fredericksen)**
- **Stony Brook (Jim Glimm)**
 - **Established The New York Center for Computational Science**
 - **6 Faculty Lines Open**
 - **Degree Program, New Courses, etc.**
 - **Installed a 3.4TF Dell/Intel Cluster with 20TB Storage**

NYSGrid Status I

■ Council

- Several Members still not Identified

■ Funding (Haile)

- Reviewing Opportunities NYS, NSF, NIH

■ Technical (Bednasz)

- Excellent Progress

■ Infrastructure (Owens)

■ Communications (Lance)

- Flyer; Press Release

NYSGrid Status II

- **Resource Provider Group (Davenport)**
 - **Status of Identifying Resource Contacts**
- **User Group (Shephard)**
 - **Identified Core Group**
- **Middleware (Khanna)**
 - **Developing a Plan**
- **Education, Outreach, and Training (Callahan)**
 - **Recently Formed; Start for Formulate Strategy**
- **Back to Chris.....**