GriPhyN

Grid-Physics-Network

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ATLAS Software Workshop at LBL

May 12, 2000

GriPhyN Project

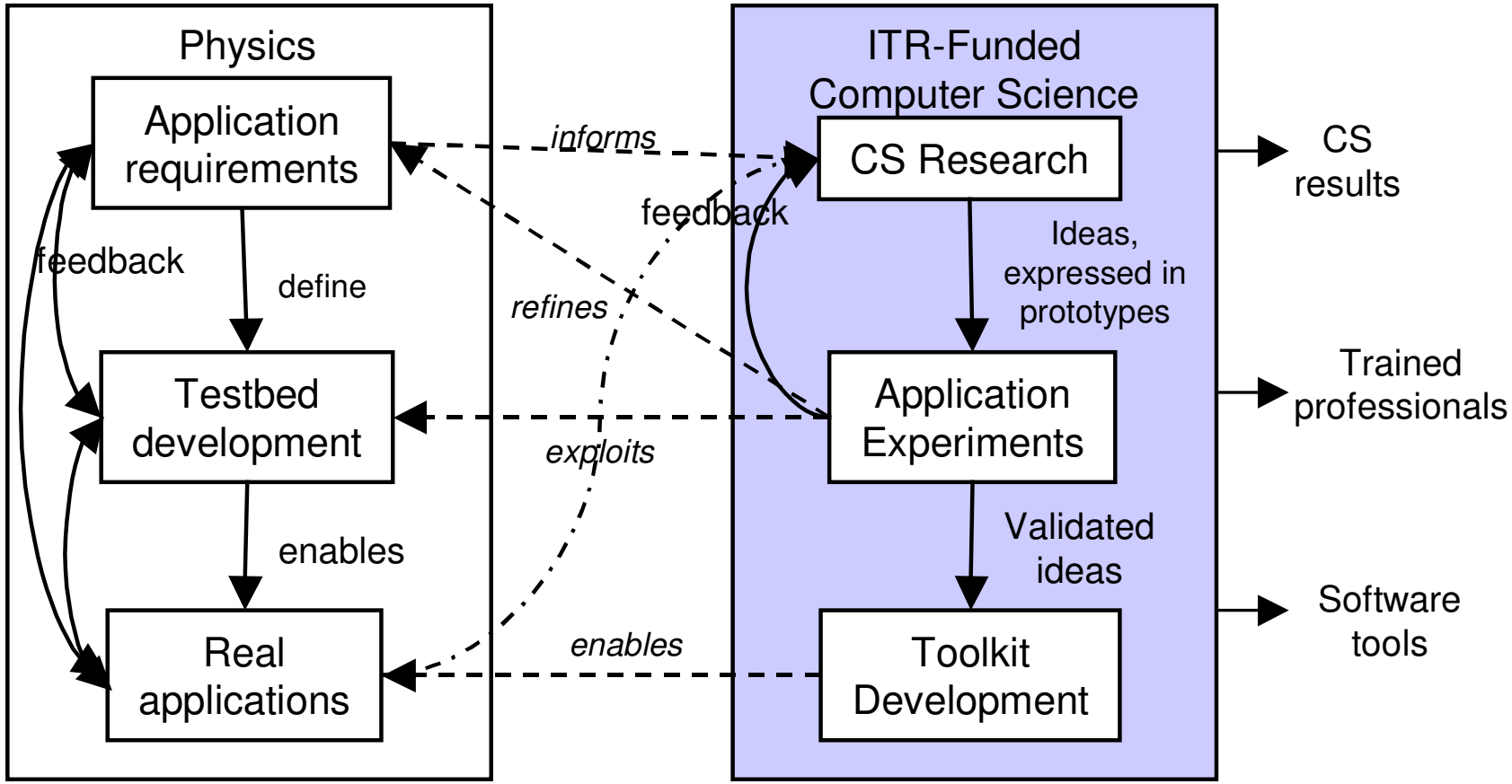
- A Grid proposal to the NSF ITR program
  - submitted April 17, 2000
  - 12.5M over 5 y, starting 7/1/00
- Collaboration of physicists from 4 experiments:
  - ATLAS, CMS, LIGO, SDSS

  and computer scientists with expertise in:
  - security and authentication (Globus)
  - high through-put computing (Condor)
  - mass storage resource brokerage (SRB)
    - and other US grid projects: NPACI, NASA grid, PPDG

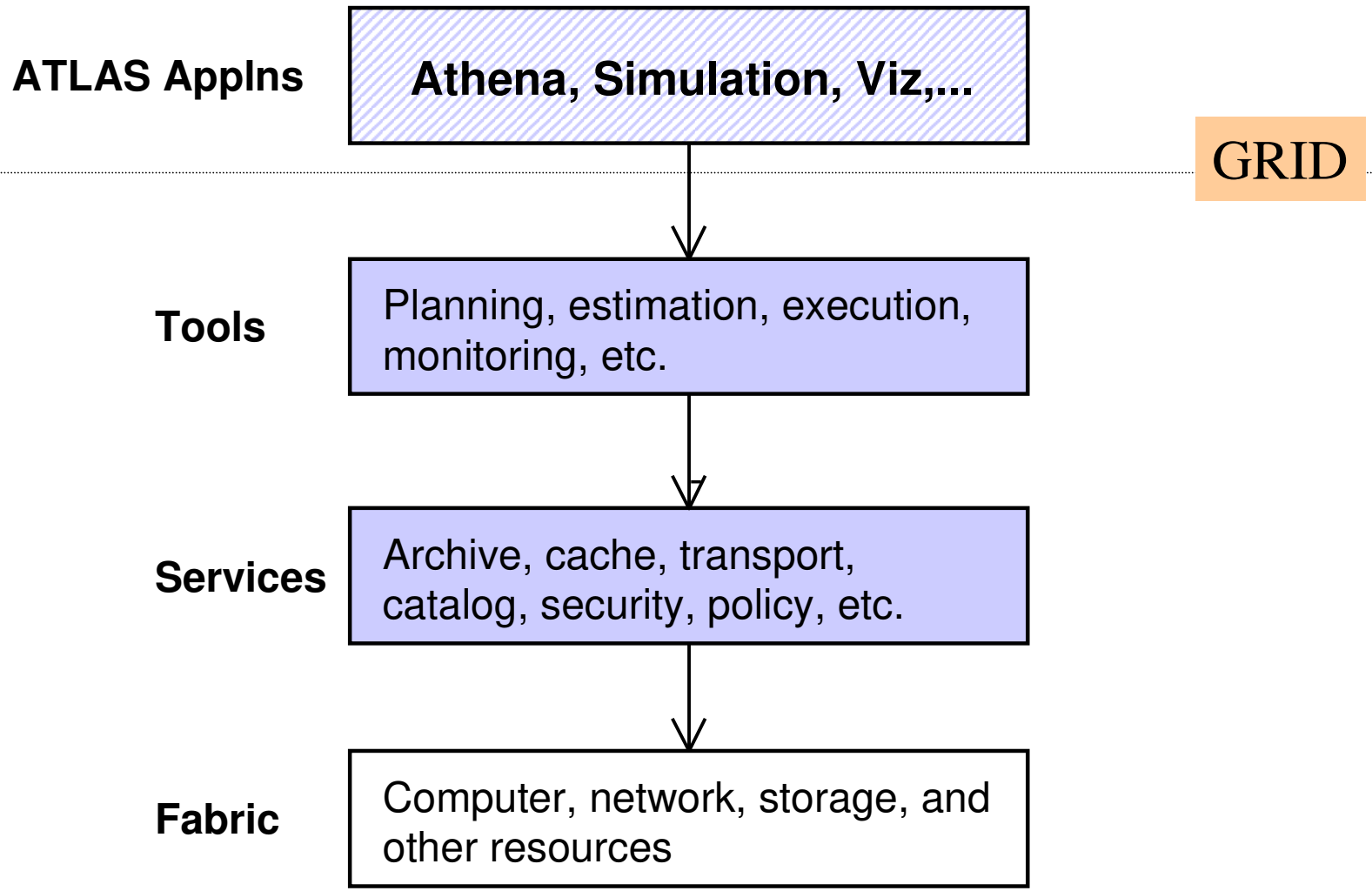
GriPhyN Research Areas

- IT Research:
  - data catalogs, information models
  - transparent caching, file replication and transport
  - automated data and task handling
  - resource planning and estimation
  - execution management
  - policy driven resource scheduling
  - security and authentication
- Deliverables
  - Grid architecture design input
  - Data grid tookits

Computer Science, Physics Interaction



Grid environment



ATLAS GriPhyN Activities

- Linkage between Athena, database, simulation framework, and the grid toolkits
  - Feedback to software developers in both communities

    (ATLAS core developers and grid toolkit developers)

- ATLAS Test-bed Grid:
  - Validate distributed computing model for LHC computing
  - Provide input to new models by testing tools and distributed functionality of ATLAS software
  - Provide input to planning for facilities development (at each Tier) and networks

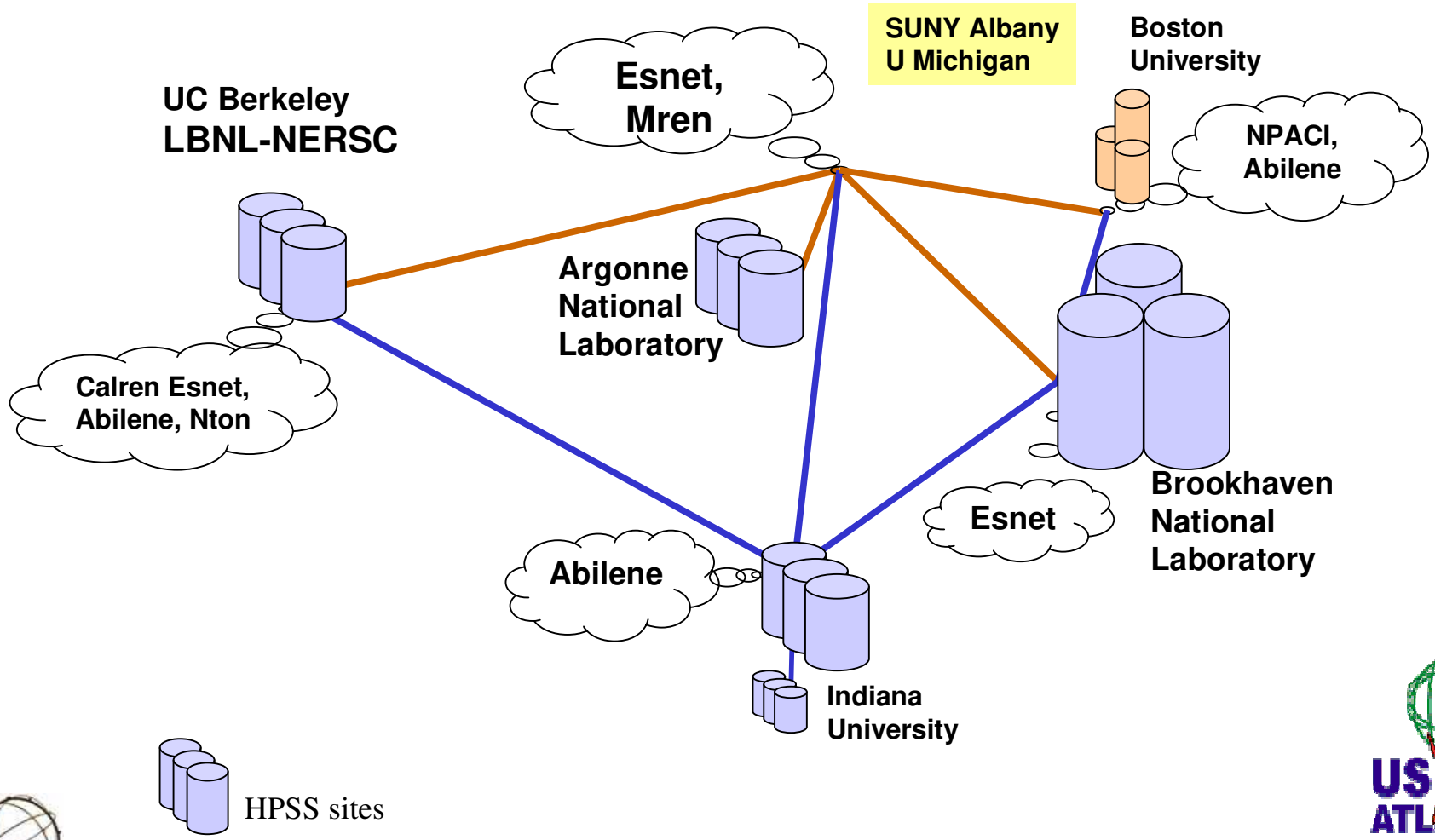
GriPhyN Timeline

- Year 1: intial grid enabling services, O(10TB), O(100) CPUs, O(100MB/s) WAN access
- Year 2: centralized virtual data services
- Year 3: support O(100) TB datasets, O(10 TB) network caches, O(1000) CPUs, and O(400 MB/s)
- Year 4: widely distributed O(1 PB) datasets, O(100 TB) network caches, and O(10,000) CPUs
- Year 5: enhanced data grid tool kits

Making the Grid Real for ATLAS

- Integrate grid development with existing core software efforts: Architecture, Database, Simulation, Graphics...
- Organize effort around objective “deliverables” and coordinate with existing milestones.
- Identify suitable demonstration projects:
  - support grid services for simulation efforts, test beam analysis
  - support large scale simulations
  - MDC1 for Computing TDR ~ Spring 2002

Initial US ATLAS Test Grid



Grid Organization

- We are planning an ATLAS grid workshop to be held at Indiana University
- Tentative dates: July 14-15
- Objectives
  - identify work areas
  - assign specific software development tasks
  - develop a sensible grid computing plan