



Research infrastructure in the Untied States Overview and Examples

John Goodhue May 27, 2019



















Digital Research Infrastructure

Networks

Compute and Storage

Scientific Workflows

<u>People</u>

Network Engineer

System Administrator

Software Engineer, Research Computing Facilitator

Technologies

conduit and manholes, service provider contracts, Links; Peering; Firewalls, SDN; performance tuning, DDOS mitigation; intrusion detection, Science DMZs... servers, storage, file systems, object stores, cloud integration, performance tuning, data centers, containers, authentication, schedulers...

simulation, data analytics, machine learning, workflows, performance tuning, data capture; data curation, data sharing...



Network Infrastructure

- Campus Examples
 - MIT
 - University of Vermont
- Statewide Examples
 - Connecticut Education Network
 - California Research and Education Network
- Regional
 - Northeast Research and Eructation Network
 - Great Plains Network
- National
 - Internet 2
 - ESNET



Compute and Storage Examples

- Campus Example
 - Harvard FAS
 - Stonehill College
- Regional Examples
 - MGHPCC
 - Northeast Storage Exchange
 - Pacific Research Platform
- National Examples
 - Department of Energy Labs
 - National Science Foundation Supercomputer Centers
 - Open Storage Network
 - Commercial Cloud Services



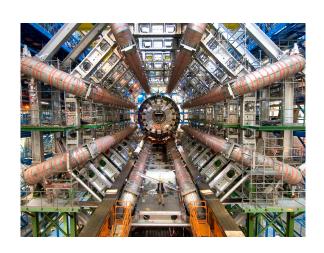
People

- Campus Examples
 - Harvard Women in Technology
- Regional Examples
 - Northeast Cyberteam
- National Examples
 - National Data Service
 - Open Science Grid
 - CaRCC
- Regional/National Examples
 - Campus Champions

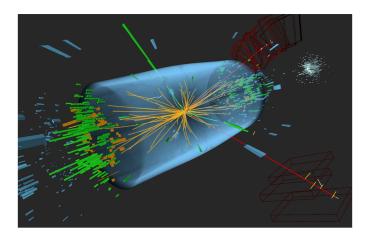


ATLAS

particle detector experiment at the Large Hadron Collider observe previously unobservable physical phenomena



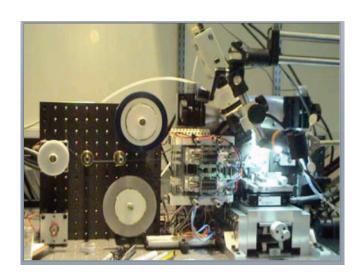




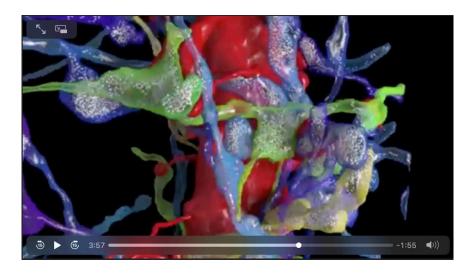


Lichtman Lab

research laboratory at Harvard University understand development of neural circuits



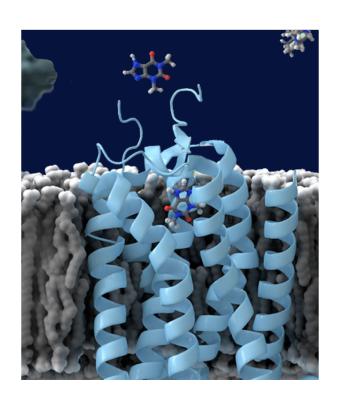






Silicon Therapeutics

venture-funded startup physics driven drug discovery









MBTA

state agency in Massachusetts data-driven transportation planning

