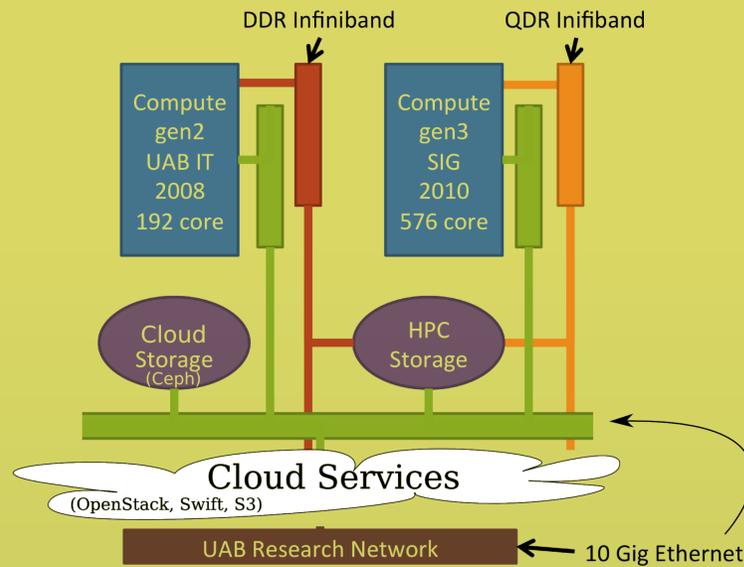# Research Computing Support
brought to you by **UAB IT**
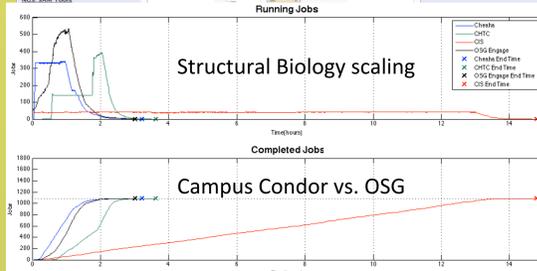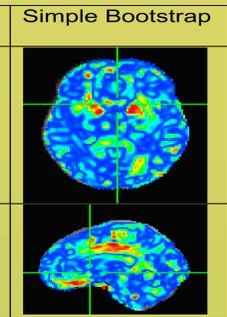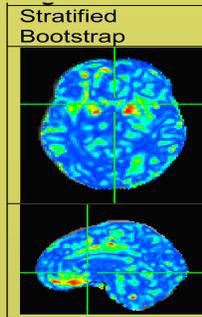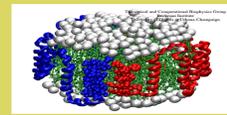
Research Computing System

DDR Infiniband   QDR Inifiband

Compute gen2 UAB IT 2008 192 core

Compute gen3 SIG 2010 576 core

Cloud Storage (Ceph)   HPC Storage

Cloud Services
(OpenStack, Swift, S3)

UAB Research Network ← 10 Gig Ethernet

UASRON
your connection to the world

UASRON
Alabama

Huntsville
Atlanta
Birmingham
Tuscaloosa

National LambdaRail Architecture

SLR Topology, showing also POP-territories (gray areas unserved) & key Federal lab sites

UASRON is a very high bandwidth lambda network that connects the UA System to National Lambda Rail and Internet2. UASRON is a collaboration between the UA System, NASA, and Southern Light Rail (SLR)@GaTech.

University of Alabama System Owned and Operated, UASRON is a Dense Wave Division Multiplex (DWDM) Network, analogous to a 40-Lane, bi-directional, Data Highway connecting UAB, UAH, UA, ASA, to Atlanta and Nashville. Current technology allows each lane (channel) to carry a payload of 10Gigabits-per-second.

Research Apps
solutions built to order

AmberTools Users' Manual

PorToL
Porifera Tree of Life
www.portol.org

Stratified Bootstrap   Simple Bootstrap

Galaxy / UAB

Welcome to UAB Galaxy!

WWFSMD?

Running Jobs

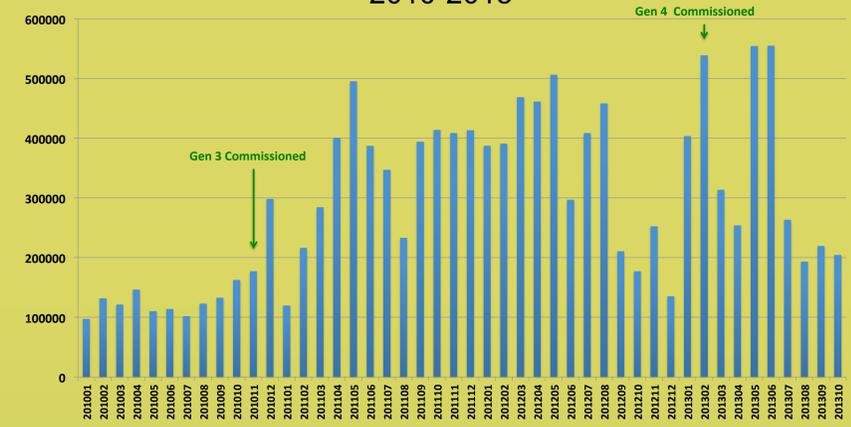**Structural Biology scaling**

Completed Jobs

Campus Condor vs. OSG
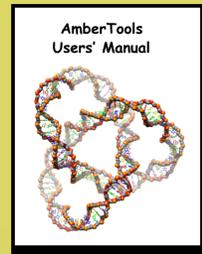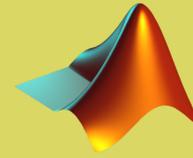
MATLAB, Auto-docking via Condor, AFNI, Gromacs, NAMD, Amber, FSL, GNU Scientific Toolkit, etc…

Frank M. Skidmore, M.D., Thomas Anthony, M.S.; Joanna Myers; Jon Marstrander, M.S.
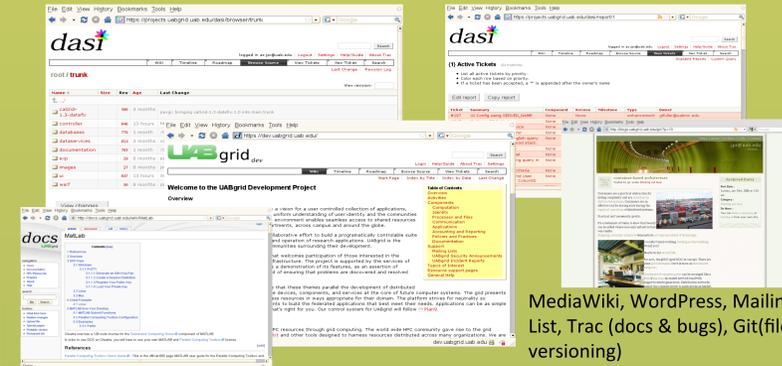
A large variety of High Performance Computing apps help make sense of piles of data and model complex systems. Designer apps help speed up tasks and fill in gaps whether its world wide computing, tissue banking, cohort discovery, or data archiving.

Developer Accounts
an open platform to build research

dasi   dasi

docs

MediaWiki, WordPress, Mailing List, Trac (docs & bugs), Git(file versioning)

Engage your peers. Our platforms, languages, and collaboration tools make it easy to build solutions, document code, record changes, track bugs and collaborate across organizations. Mediawiki, WordPress, mailing lists, Trac, Git, your favorite languages, and slew of other tools: we live on the same platform and run our lab that way too.

Results Delivered
HPC Hours per Month
2010-2013

Gen 4 Commissioned

Gen 3 Commissioned

Computing Trends

Job Profiles FY 2013		
	Compute Hours	Hardware Required
Single core	29%	Any Computer
SMP	21%	Multi-core Node
MPI	50%	Infiniband

Interactive Compute Hour Growth			
2010	2011	2012	2013
0.1K	0.1K	11K	30K

MATLAB use 2013	
Users	Installations
920	1542

Compute Hours by School FY 2013

- 50% School of Medicine (including GBS)
- 25% School of Public Health
- 11% School of Engineering
- 13% Southern Research Institute
- 1% Others

A growing resource fabric: combining funds from research Awards and sustained UAB IT investments to fund on-going expansion of compute, network, and storage capacity and maximize the impact and availability of acquisitions.

The Team

An engaged professional staff collaborate with investigators to maximize the impact of research

openstack + ceph
PHP
python
Java
MATLAB
R
debian
eclipse
openSUSE
AMD Opteron
intel Xeon inside
DELL
GNU
Linux
ANDROID
CentOS

Bob Cloud
Executive Director
Infrastructure Services
UAB IT

David Shealy
Director Research
Computing
Physics / UAB IT

Puri Bangalore
Consultant to
Research Computing
CIS / UAB IT

John-Paul Robinson
System Architect
Research Computing
UAB IT

Mike Hanby
Information Systems
Specialist
Engineering / UAB IT

Thomas Anthony
Research Associate
Research Computing
UAB IT

Ed Harris
Asst. Director
Infrastructure Services
UAB IT

Bill Bradley
System Programmer
Infrastructure Services
UAB IT