



MAGIC Meeting Minutes

March 5, 2014

Attendees

Rich Carlson	DOE/SC
Susan Coghlan	ANL
Steve Corbato	U. of Utah
Shantenu Jha	Rutgers U.
Bryan Lyles	NSF
David Martin	Northwestern U.
Grant Miller	NCO
Lavanya Ranamakrish	LBNL
Don Riley	U. of Maryland
Alan Sill	TTU

Action Items

Proceedings

This MAGIC Meeting was chaired by Rich Carlson of DOE/SC. Susan Coghlan of ANL and Steve Corbato of U. of Utah discussed their facilities, architecture, and support for high performance clusters including storage, data, compute, identity management and other resources.

Argonne National Labs Architecture and Facilities: Susan Coghlan

Argonne National Labs maintains the Argonne Leadership Computing Facility (ALCF). This facility is a collaborative multi-lab DOE/SC initiative. Its mission is to provide the computational and data science resources needed to solve critical scientific and engineering problems. It has a highly competitive user allocation program under both INCITE and ALCC. The ALCF is targeted to a few very large science projects. It supports and provides compute time to individuals, teams of researchers and industry. Facilities use is approximately 60% INCITE, 30% ALCC and 10% discretionary.

The basic facilities at the LCFs include over 131,072 cores (16.7% of Mira). Mira is a Blue Gene/Q system with 49,152 nodes, 786,432 nodes, 786 TB of memory and a peak flop rate of 10 PetaFLOPs. Vesta is a Blue Gene/Q system with 2,048 nodes and a peak FLOP rate of 420 TF. A third Argonne system, Tukey, has 100 nodes and a peak FLOP rate of 220 TF. The systems have access to 28.9 PB raw capability with 240 Gb/s bandwidth. The WAN is 100 Gbps. ALF is connected to the WAN at 10 x 10Gbps. The facilities also use Globus Online and Grid FTP. The visualization system uses NVIDIA with InfiniBand between nodes.

These facilities support science and engineering in a wide range of capacities including: Physics, engineering, materials science, earth science, chemistry, biological science and several others. For the full briefing, please see the MAGIC Website under our March 5, 2014 meeting.

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University of Utah Computational Resources and Architecture: Steve Corbato

U. of Utah and Salt Lake City is a hub of optical networking for the Western U.S. and U. of Utah hosts the Emulab/protoGENI system. Regional optical network development in Utah includes:

- Collaboration of Utah Education Network (UEN) and the U. of Utah
- New off-campus data center in downtown Salt Lake City (SLC)
- Connectivity to national R&E networks (Internet2, ESnet, N-Wave) at 100 Gbps
- Enhanced interconnectivity among 3 research universities in Utah (BYU, USU, UofU)
- Computational science visualization leadership

U of U leverages Federal stimulus funding:

- NSF EPSCoR RII cyber connectivity
- NTIA BTOP Round 1 award

Other UofU initiatives include:

- SLC metro-area optical network
- Utah Education Network (UEN)
- Optical network extensions to Logan and Provo for USU, BYU, and UVU

The Downtown Data Center was operational spring 2012 with very low costs. It has 92 racks for research computing, 1.2 MW of power with expansion capability, and a metro-area optical ring connecting the UofU campus, data center, and Internet2.

The University of Utah Center for High Performance Computing (CHPC) provides large-scale computer systems, storage, networking, and expertise to optimize high-end computer technologies. CHPC provides a condo model with core infrastructure and general resources to campus. Faculty pay at cost and the facility is primarily funded through research overhead. Computem, storage, and infrastructure include:

- Facilities: racks, power, cooling
- Ethernet and core IB fabric
- Scheduling, batch, and allocation systems
- Applications and licenses
- Science DMZ network
- NSF CC-NIE award
- Dedicated personnel for security and compliance
- XSEDE-like allocation process

Faculty owner resources include owner setting usage policies, owner opt0-in to allow guest jobs, leveraging existing software licenses.

Big science drives big data and computation needs at U of U including: Sloan Digital Sky Survey-IV astrophysical data management, genomics, EPSCoR research projects, data analytics and visualization and network research leadership (Emulab/protoGENI). Other key initiatives include NOAAN-Wave at 100Gbps in SLC, Condo-of-Condos award, NSF CC-NIE, Utah Data Center Consortium. And Four Corners networking.

For the complete briefing, please see the MAGIC Website for the March 2014 meeting.

OSTP Science Priorities input

Each year OSTP provides guidance on science priorities for the upcoming year. MAGIC has the opportunity to suggest topics for consideration by OSTP for possible inclusion in their science priority memo. Discussion among the MAGIC members indicated that a uniform approach to Identity Management (IdM) is needed to enable the increasing scale of

collaborations both nationally and internationally. Discussion should take place between GENI, XSEDE, and OGF on a unified approach to IdM for U.S. and international collaborations. Opportunities for this discussion include the upcoming GENI Engineering Conference March 17-19 in Atlanta, Georgia (Georgia Tech), XSEDE meeting, July 22-25 in San Diego, and OGF to be held in conjunction with the XSEDE meeting.

AI: Alan Sill in conjunction with Inder Monga and Chip Elliott, will identify opportunities for key individuals to discuss unified approaches to IdM for U.S. and international scale collaborations.

Upcoming Meetings:

March 17-19 GENI Engineering Conference, Atlanta, Georgia

April 6-11 Internet2 Global Summit, Denver

April 30-May 1, CCNIE PI meeting at the NSF

July 22-25, XSEDE, San Diego

Next MAGIC Meetings:

April 2, 2014, 2:00-4:00 EDT, NSF

May 7, 2014, 2:00-4:00 EDT, NSF