

University of Missouri New Cluster by Gordon Springer

The University of Missouri is receiving a SUR (Shared University Research) equipment grant from IBM. <http://www.ibm.com/developerworks/university/sur/>

This equipment will be used for bioinformatics research. Ongoing research utilizes next generation Illumina sequence data for analyzing plant data like Arabidopsis and soybean. It includes SNP analysis, transcriptome analysis, and microRNA studies.

Other research projects are actively generating EST data for genomes such as maize, swine, bovine, and ovine. These data are studied to identify genes that directly affect the maternal development of viable fetuses and to increase the quantity and quality of food production. Data from these projects are available for researchers to access via the University of Missouri Bioinformatics Consortium's web site.

Work is being done on performance comparisons among various short read genome sequence assembly algorithms in three categories: (1) reference-based methods, (2) de novo, and (3) hybrid.

Pioneering work has been done at MU on SNP discovery methodologies using short-read sequencing platforms and the discovered SNPs have been used to develop high-density genotyping platforms in cattle and swine. These platforms have been used for population genetic analyses in over 50 breeds of cattle and 60 species of Pecorans.

The equipment from IBM is as follows:

- (8) Compute Nodes (1U)
 - dual-socket, quad-core Xeon E5530 2.4GHz
 - 24GB DDR3 memory
- (1) 150GB SATA HDD
- Infiniband Adaptor
- Qlogic 10GbE Adaptor

- (2) machines to interface to the GPFS file system (2U)
 - dual-socket, quad-core Xeon E5520
 - 24GB DDR3 memory
- (2) 150GB SATA HDD
- Infiniband Adaptor
- PCIe 4Gbps Host Bus Adaptor
- Qlogic 10GbE Adaptor

Storage

DS3400 4Gbps FC storage controller

EXP3000 expansion unit

24TB SATA HDD

Networking

Voltaire QDR Infiniband switch

GigE switch

This system will be integrated into the existing MU clustered systems environment. Initially, only those researchers developing the MU system will be allowed to access it. In the future, this system will become part of a cloud computing environment that extends to a larger geographic environment for resource sharing. Using a single sign-on capability such as that used in the GPN Consortium's CI infrastructure, access and sharing of these resources will be readily accessible to the community. The primary focus is to create an environment for sharing of data and resources in the "cloud" as well as developing bioinformatics tools (pipelines) to facilitate researchers answering significant biological questions of interest.

GPN State Visits by Bill Mitchell and Greg Monaco

Greg Monaco, GPN Director for Research and Cyberinfrastructure, and Bill Mitchell, GPN Executive Director, are scheduling visits to states in the region. GPN has provided advanced networking and connectivity to Internet2 since 1998. Since 2003 GPN has helped to coordinate multi-institutional research collaborations and experimental testbeds for shared cyberinfrastructure. Most recently, member-lead advisory committees have helped to set region-wide goals for networking, cyberinfrastructure and collaboration.

The purpose of the visit is two-fold: 1) to increase the awareness of GPN and the services available; and 2) to gain a better understanding of the local environment, projects and initiatives to assist in GPN planning and service delivery. GPN is a member-driven organization.

This will be an opportunity to learn about

- The Great Plains Network
- Regional goals for cyberinfrastructure
- GPN efforts to enable research collaboration
- The GPN Annual Meeting

This will also be an opportunity to meet Bill and Greg and to help them to understand your projects and your unique needs in the areas of networking, computation, data storage, training or other aspects of cyberinfrastructure.

Getting on Open Science Grid (OSG) by Kate Adams

Do you need more computing power than is currently available to you? Are you running simulations or calculations? Grid or cluster computing might be the solution for you. Open Science Grid (OSG) has processing power to share across the nation. There are OSG resources available to GPN members.

If you are at a GPN member institution, the Engage team will help you get access to OSG resources. To

get started, send email to engage-team@opensciencegrid.org. A very helpful Engage team member will walk you through getting your personal certificate and submitting jobs. For more information about Engage, here is their twiki: <https://twiki.grid.iu.edu/bin/view/Engagement/WebHome> Here is more information about using OSG resources: <https://twiki.grid.iu.edu/bin/view/Documentation/UsingTheGrid>

News from OSG by Marcia Teckenbrock

- The OSG Site Administrators Workshop will be held at Vanderbilt on August 11 and 12. (See <http://indico.fnal.gov/conferenceDisplay.py?confId=3429>). The focus will be on the upgrading of OSG CE's and SE's with the OSG 1.2 production release. The workshop will deal with practical, hands-on issues relating to OSG site administration.
- The OSG Security team has found an easy-to-use Mozilla Firefox plug-in that uploads an X.509 certificate into a MyProxy server directly. The user only needs to select a username/password combination and the address of the server; the tool does the rest. More details are at <https://addons.mozilla.org/firefox/addon/12560>
- The OSG Annual Report to the National Science Foundation has been published: <http://osg-docdb.opensciencegrid.org/cgi-bin/ShowDocument?docid=965&extension=pdf>
- The Engagement team presented an OSG tutorial at Notre Dame's CI (Cyber Infrastructure) Days event, providing a forum for discussion and learning about OSG services and capabilities on the national scale and how they interact with the existing local campus CI at Notre Dame.

GPN User Survey

Recently, GPN send out a survey to members to discover what services GPN should offer, besides network connectivity. The survey results are currently being analyzed.

Upcoming Meetings

<http://symposium2010.oscer.ou.edu/>

FREE Oklahoma Supercomputing Symposium 2010 on **Wed Oct 6** on the University of Oklahoma Norman campus. The keynote speaker will be **Dr. Horst Simon, Director of the National Energy Research Scientific Computing Center (NERSC)**.

<http://events.internet2.edu/>

Internet 2 has several meetings coming up, including a Shibboleth workshop, EDUCAUSE, and a member meeting.

<http://indico.fnal.gov/conferenceDisplay.py?confId=3429>

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To Contribute to the Newsletter

To contribute a story or to announce an upcoming meeting or event, send your contribution to Bill Mitchell (bill@greatplains.net), Greg Monaco (greg@greatplains.net) or Kate Adams (kate@greatplains.net)

About the Great Plains Network

The Great Plains Network develops and maintains a high-performance network that meets the needs of cyberinfrastructure to the membership; and supports multi-institutional, multi-disciplinary research and education initiatives that require advanced cyberinfrastructure. GPN members includes 24 research institutions in nine states and also connects most other higher education institutions, school districts and public libraries in those states to Internet2.

Subscription Information: You can subscribe and unsubscribe to GPN News at <http://www.greatplains.net/cgi-bin/majorcool>.