Looking to the Future

Information Technology Division Bulletin

vol. 3 no. 9 | Summer 2007

Message from the CIO

Summer is typically a time to focus on vacation, preparations for the new academic year, and research. We are dedicating this bulletin to IT resources available for TTU researchers. Resources include Data Hosting Services, High Performance Computing Center, TechGrid, and the Community Cluster. I would like to thank the areas that contribute compute cycles to the TechGrid: Math Department, Rawls College of Business, Technology Support, and the University Library. In the fall we will also distribute a brochure outlining safe computing practices for research data and systems. Here’s to a productive summer!

-Sam Segran
Associate Vice President for IT and Chief Information Officer

Overview of High Performance Computing Center

The TTU IT Division’s High Performance Computing Center (HPCC) provides computational resources for the Texas Tech University community. While the primary users are faculty researchers, HPCC staff will be glad to assist any TTU student, faculty, or staff in their work.

HPCC provides:

• High Performance computing resources (over 1000 cores, over 10 Teraflops);
• Consulting to help researchers with their software and/or hardware needs;
• Training in parallel and grid computing used at the facility;
• Administration for local High Performance Systems; and
• Research Grid.

For additional information please contact the High Performance Computing Center at 742-4350 or visit our website at www.hpcc.ttu.edu.

Cluster Computing at Texas Tech University

The HPCC runs several major computing resources at Texas Tech University. These include a mixture of Xeon and Opteron-based systems. The largest resource is a 256 processor system with an Infiniband network fabric to improve the performance of parallel jobs. This resource is available to all researchers on campus.

If you need more computing power and are looking at purchasing a cluster, please consider the Community Cluster Program run by the HPCC. This program assists researchers in purchasing compute nodes (in a cluster) by negotiating a low price, providing system administration, system software upgrades, power, space, and cooling. The Community Cluster offers researchers the opportunity to have more computing power than they could individually purchase at a much lower total cost of ownership. Community cluster participation also saves costs associated with administration of individual groups of servers.

TTU Grid Users Group (GUG)

The Grid Users Group (GUG) provides an opportunity for interested students, faculty, and staff to collaborate on various research and computing projects. The GUG meets several times each semester and typically highlights a particular grid project, with a primary researcher or group presenting a project overview for the user group. The group engages in discussions about the specific project, as well as provides input to the TTU IT Division for grid strategic planning. For additional information about the GUG, contact Dr. Philip Smith (Philip.Smith@ttu.edu), Jerry Perez (Jerry.Perez@ttu.edu), or call 742-4350.

Dr. Philip Smith (Sr. Director, HPCC) is on the 3.5 Lubbock championship USTA tennis team called the Fallstaffs. This team won the Lubbock championship by competing against 6 other Lubbock teams. The competition took 14 weeks and began in the spring. By winning the Lubbock competition the Fallstaffs will compete against 20 other teams in Texas on August 3—5 in Dallas. The winner of this level will move on to the national competition. The team has three TTU faculty members, one staff member, and three TTU students. The team is made up of 13 players. Each match consists of 3 doubles and two singles competitions. Thus a minimum of 8 people are necessary for a full complement at each match. The Dallas competition is especially difficult for the Lubbock team since there is usually an air quality alert, temperatures at 105, and high humidity during the tournament.

Dr. Philip Smith, Sr. Director of the High Performance Computing Center
Data Hosting Services

Technology Operations and Systems Management (TOSM) maintains a data center that is environmentally controlled, secure, and offers 24 X 7 operational monitoring. Campus departments, organizations, and colleges that elect to relocate their servers to the data center take advantage of power distribution units which prevent power spikes from affecting server hardware. As part of the strategic plan, TOSM recently installed a back-up generator to protect equipment in the event of external power outages.

The TOSM Server Support group offers three services to help with the administration of departmental servers. The services include:

- Hosting and administration of servers (housed in the environmentally controlled data center);
- Server backups which include vault rotation in case of a disaster; and
- Consultation for server-related issues.

Databases currently housed at TOSM include:
- Microsoft SQL Server 2000 Database Cluster
- Oracle 10g RAC Database Cluster
- IBM DB2 UDB V7.1

Contact serversupport.tosm@ttu.edu for more information.

TechGrid

The Texas Tech University grid, TechGrid, developed and deployed in 2002, is a comprehensive cyberinfrastructure project to bring a distributed-knowledge environment to Texas Tech University research and education. TechGrid consists of 600 Windows and Linux PC's. The grid uses available compute cycles when donated resources are idle, such as evenings and weekends. The TTU Office of the CIO and the TTU IT Division are very appreciative of the areas that contribute idle compute cycles: Math Department, Rawls College of Business, Technology Support, and the University Library. If others would like to participate, please contact Jerry Perez (jerry.perez@ttu.edu).

During the past five years, TechGrid has helped facilitate the massive computing needs of research projects involving computational chemistry, bioinformatics, biology, physics, mathematics, engineering, and business statistical analysis. Additionally, TechGrid has been instrumental in teaching distributed and grid computing in the Advanced Technology Learning Center, Teaching Learning and Technology Center, Jerry Rawls School of Business, Computer Science department, as well as the Mathematics and Statistics department.

The goal of the TechGrid project is to enable significant advances in scientific discovery and to foster innovative educational programs. TechGrid will integrate and simplify the usage of the diverse computational, storage, visualization, and some data resources of Texas Tech University to facilitate new, powerful paradigms for research and education. The project serves as a model for other campuses wishing to develop an integrated cyberinfrastructure for research and education.

Safe Computing Tips: Server Management Security

- Ensure that access to all confidential and sensitive data is managed appropriately.
  - Use strong passwords. (Password integrity relies heavily upon the password length, complexity, reuse, and aging).
  - Change default administrator accounts passwords.
  - Social Security Numbers must not be used as primary or secondary identifiers.
- For database and web applications, use eRaider authentication. Programming assistance for the front-end authentication is provided by Technology Support. For assistance, contact Mike Simmons at 806-742-2400 x237.
- You may choose to enhance the security of data on the hard drive by the following two methods:
  - Restrict user access to the directory file structure.
  - Restrict user permissions to the directory file structure.
- Other practices and tools may be used to increase the security of the system. For example, you may take periodic system snapshots by using a security scanner available from Microsoft at: http://www.microsoft.com/technet/security/tools/mbsahome.mspx

For additional safe computing information, please visit http://safecomputing.ttu.edu.

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Learning Center, Teaching Learning and Technology Center, Jerry Rawls School of Business, Computer Science department, as well as the Mathematics and Statistics department.

http://www.infotech.ttu.edu
Texas Tech University Web Site: http://www.ttu.edu
Computer-Based Training (CBT): http://cbt.ttu.edu
Laws and Texas Tech Policies: http://www.itts.ttu.edu/documentation/laws

Past copies of TTU IT Division Bulletins may be found online at http://www.infotech.ttu.edu/itbulletin
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