

IT to Build High-performance Computing Cluster

In response to the recent recommendations of the University's Research Computing Task Force, IT is building a jointly funded, high-performance computing cluster this summer. For this "community cluster," IT will provide the infrastructure, including networking, central storage, power, HVAC, head node, and staff; faculty and researchers will pay for the individual compute nodes. The nodes will be priced more competitively than individuals or departments could negotiate individually.

The cluster will contain at least 100 nodes consisting of more than 2,000 cores. The target price for the base node is around \$3K, including a 5-year warranty. Faculty and research staff in many disciplines have shown high interest in joining the community of cluster node owners. You can see the [expected configuration](#) on IT's Research Computing Web site.

There are many benefits to joining the community cluster. You will be able to:

- Choose your level of participation.
- Free your group from system administration.
- Free yourself from the need to provide space, AC, backup systems, etc.
- Enhance your grant proposals.
- Work in a consistently managed software environment.
- Gain opportunistic access to unused nodes.
- Enjoy improved network access.

See IT's Research Computing Web site for [details on these and other benefits](#).

In order to expedite the bidding and purchase processes for the compute nodes, network switch, and other components, we need to hear from other researchers who have an interest in joining the community cluster as soon as possible—the week of June 13 if possible. We need initial purchase commitments by June 30.

If you're interested in joining the research community cluster, call or send email to Dick Sacher (dsacher@udel.edu, 831-1466) in IT Client Support & Services (IT-CS&S).

What Are High-performance Computing Clusters?

Not every researcher can afford to buy or build a supercomputer for his or her research group. But a lot of researchers have a need for a computing resource that can handle complex computations using very large datasets.

One economical way of providing researchers with the computing power they need is to build a shared **high-performance computing cluster**, a system composed of dozens or hundreds of processors, closely linked to each other through high-speed networking, sharing a large pool of disk space and memory. Researchers and their sponsoring institution, in our case, the University of Delaware, can split the cost of building an impressive system suitable for many different kinds of research computing. Researchers purchase only the number of "**compute nodes**" their research requires, while the sponsoring institution provides the infrastructure, security, and support. In addition, researchers can also use other researchers' unused nodes for short periods of time, making it a true community resource.

Cluster computing is not a new concept; the idea was introduced in the late 1960s and became commercially available in the 1970s. But recent advances in networking and parallel computing,

combined with faster, less expensive computer processors, have made high performance clusters a cost-effective way for a university to provide its researchers with enough computing power to solve difficult, large-scale computational problems.

Planned Outages

UDSIS unavailable during maintenance

UDSIS will be unavailable on Saturday, June 11 for the latest round of patches and fixes. This round of patches mainly affects financial aid processing, along with a few fixes for Admissions and Student Financials. The system is expected to be down most of the day.

Constituent Groups and Feedback

IT College Council

Once a month, IT hosts a meeting with representatives of the University's colleges to better understand and address the needs of college-based faculty and staff. Recent discussion topics have included campus-wide Active Directory structure, the research community cluster, and upgrades to the Chapel Street Computing Center. Currently, members of the council are:

- College of Engineering: Jim Byrnes and Michael Davis.
- College of Arts & Sciences: Rich Duggan and Pat McMahon.
- Institute for Global Studies: Eric Cantrell.
- College of Education & Human Development: George Mulford.
- College of Agriculture & Natural Resources: James Hageman.
- College of Health Sciences: Ken Anunda.
- College of Earth, Ocean, & Environment: Paul Dumigan.
- Alfred Lerner College of Business & Economics: Rob Spotts.

If you have items you'd like discussed at the college council meetings or want more information, contact your college's representative.

Infrastructure

Wireless upgrade project

The campus wireless network upgrade we discussed in the last IT Activity Report was completed on May 13. Faster wireless access points (WAPs) were installed in over 100 buildings on the Newark campus and in five buildings in Lewes. You can view a complete [list of buildings with wireless upgrades](#).

Computing Center power upgrades prepare for sustainable server virtualization

To meet future central and departmental server hosting needs, the Chapel Street Computing Center power and cooling systems are being upgraded. This major overhaul will provide the critical infrastructure necessary for us to triple the capacity of the Computing Center's machine room, allowing us to host the new research computing cluster and to expand our virtualization service.

University departments with inefficient, stand-alone servers in closets or classrooms—each with its own power and cooling requirements—have expressed increasing interest in virtualizing their servers in a central location. Server virtualization is a “green” technology because many virtual servers run in one physical box. Not only does this technology use less energy, it has the added benefits of taking up less space, and costs less to buy than individual physical servers.

Through IT-hosted server virtualization, University departments can realize greater efficiencies and economies of scale by migrating stand-alone servers spread throughout campus to virtualized servers in the Chapel Street Computing Center. IT Network & Systems Services (IT-NSS) is currently accepting [virtual machine requests](#). Virtual servers can easily be custom-configured with anywhere from 2–8 CPUs, 1–8 GB memory, and the choice of one of several popular operating systems. If your department plans to acquire servers this summer, we urge you to compare the costs of installing stand-alone servers in your department with the [fees](#) for our efficient virtualization service.

Cable TV upgrade

On June 1, Campus Televideo became the UD cable TV provider. Campus Televideo is the largest provider of satellite-delivered cable television programming to colleges and universities nationwide.

The Campus Televideo system offers a wide range of programming choices and a configuration that enables UD to easily customize its channel lineup. In addition to the core channels available in the previous system, Campus Televideo adds several digital SD sub-channels and one HD sub-channel from local broadcast affiliates (e.g., NBC, ABC, etc.). Channel offerings can be easily expanded and changed to meet evolving customer demands. The cable system also improves FM radio reception for stations from Philadelphia to Baltimore.

The Campus Televideo system is a hybrid analog/digital platform that extends to all classrooms, lounges, dining areas, and residence halls. TV tuner requirements have not changed: TVs with analog or digital QAM tuners will work although older TVs with analog-only tuners will receive fewer channels.

Research Support

JMP and JMP Genomics software available at no charge to individuals

Thanks to the cost-sharing support of several departments, four statistical modeling and analysis packages will be available for 2011–2012. UD faculty, staff, and students will be able to obtain copies of JMP, JMP Pro, JMP Genomics, and SAS (Discrete-Event) Simulation Studio for JMP at no charge. The software may be installed on UD-owned or personally owned PCs and Macs. JMP products are built on the basic modules of SAS and include those components as part of JMP.

The software and license codes will be distributed via UDeploy at the beginning of July. Online and instructor-led training is planned for summer or early fall. Watch for announcements this summer at the [IT Research Computing](#) site.

If you have questions, send email to researchcomputing@udel.edu.

Green IT

The benefits of sleep

People often believe that when a computer enters standby, the monitor goes dark, and perhaps even the hard drives spin down, they are saving significant power. After all, the computer isn't actually doing anything. But this is not the case. A computer in standby mode uses close to 95% of its normal operating power, essentially powering down only the monitor.

Sleep is entirely different. When a machine goes to sleep, it powers down all but enough to maintain memory. To be energy-star rated, as most computers are today, the machine must draw less than 5W in sleep mode. For example, a dual monitor quad-core workstation will cost about \$250 a year using standby but only about \$100 if allowed to go to sleep, a savings of 60%. While smaller workstations may use less power, the ratio remains the same.

Hibernation is similar to sleep, but instead of memory remaining powered up, the computer writes memory to disk then shuts down and uses zero power. This option tends to be the best setting for laptops, so that when you close the lid, the computer hibernates and won't drain the battery. A new option with Windows 7 is Hybrid Sleep, which puts the machine in sleep mode for a specified period of time (say an hour) while writing memory to disk. This process has two benefits: If power is lost, the machine comes up right where you left it, but if you need to use the machine before it hibernates, it wakes up almost instantly.

The only real downside to sleep is that the machine cannot be accessed remotely. Check your computer's help file for information on these options.

Spring cleaning

Spring is here and it's time to get rid of unused computing equipment. Be sure to erase all hard drives by running [DBAN](#) for Windows machines or by booting from the Macintosh OSX system DVD and running Disk Utility. Send computers and components to Surplus, located in the GSB. You can schedule University Movers Services to transport groups of machines collected by individual units.

For more information about surplus computers and electronic equipment, see the Supporting Services [recycling Web page](#).

Teaching and Learning

2011 Summer Faculty Institute

Over 90 faculty members signed up for the Summer Faculty Institute (SFI), which was held from May 31 to June 3. Approximately 50% of those who registered attended the full week of events.

This year's SFI, "Passport to Success," kicked off with the keynote presentation—"Maximizing instructional effectiveness"—by Susan Smith Nash. Nash discussed methods and technologies that provide the "maximum return on investment."

Three other featured sessions included:

- "Syllabus 3.0" by Dr. Allen Partridge.
- "Leveraging mobile information and social technologies for the classroom" by Dr. Jon Landis.
- "International students have arrived. Are you ready?" hosted by a UD faculty panel.

Among many other topics, participants learned how to get to know their students before classes start, expand their guest list with video conferencing, how to determine the best tool for their Web presence, how to use new communication channels, and how to create online office hours.

Open education and social media for teaching and learning

As more and more resources and Web services become available to educators, it is time to explore trends, see how faculty at the University of Delaware can tap into these freely available resources and contribute back as well. A new blog, managed by IT-CS&S, aims to share faculty practices at UD and explore what is happening worldwide in terms of open educational resources, open textbooks, and social media for teaching and learning.

If you're interested in exploring any of these topics for your classes, check the [open education blog](#) and contact the [IT Support Center](#) to request a consultation.

Sakai@UD upgraded to version 2.8

On June 1, Sakai@UD was upgraded to version 2.8. This upgrade includes hundreds of bug fixes and enhancements, including a new Profile tool that allows users to connect with peers, share pictures, and update their status. It also includes email notifications for the Forums tool, a feature frequently requested by our clients.

To provide information about the Sakai upgrade and to offer a fresh look at Sakai@UD, IT-CS&S staff held a [Sakai Day](#) on June 8. The day included sessions on Sakai 2.8 and an opportunity for instructors to ask questions about their use of Sakai@UD. To request a consultation on Sakai@UD, contact the [IT Support Center](#).

Business Systems

CASHNet® replaces WebCredit for credit card processing on May 31

For the past several months, IT has been working with many of you to convert your forms and Web applications that accept online payments to use the CASHNet® payment service. Beginning June 1, credit card processing for online forms will use CASHNet instead of WebCredit, and the remaining forms that accept ACH payments only (online checks) will be converted to CASHNet this summer. We will be in touch with you regarding that conversion if your applications are affected. Any payment forms that are not currently active will be converted to use CASHNet before their next usage. WebCredit will still be available for reporting purposes but not to process future payments. There will be a few changes for you, the form owner, but your clients will notice little change in their usage of your form. For questions on payment methods, please contact Sondra Holbrook-Wagner, Cashier, and for questions on forms using CASHNet, please contact Maria Mullin, IT Web Development (IT-WD) at mullin@udel.edu.

Document imaging systems

Several University departments currently use document imaging systems for efficient storage, retrieval, and processing of critical business and academic information. Instead of storing pieces of paper, document imaging systems store digital copies of applications, dossiers, portfolios, business transactions, and other documents. Flexible search tools make it easier to find and process the stored documents. Using such systems provides stronger security, offers better disaster recovery options, and saves money by reducing search time and storage costs. IT is beginning a process review to determine campus document imaging needs and to decide whether a central document imaging and management system would meet those needs. To participate in the review, or for more information, contact Pat Sine, director of IT-CS&S (sine@udel.edu).

NSO registration & Quick Bio for parents/guardians

We have changed New Student Orientation (NSO) sign-up from a paper-based registration process to a Web-based, decision-support, real-time system. Students who are admitted to UD are invited by the NSO Office to visit Blue Hen Home—our undergraduate Admissions portal—to choose their NSO visitation and advisement day in June/July and to register and pay for guests who will accompany them that day. NSO dates are determined by the students' program plans and are associated with advisement dates that are available for those plans. Using the self-service registration form, students may change their NSO date and register and pay for parents, guardians, and other visitors. In addition, we are inviting parents and guardians to provide contact information, so that UD may associate them with their student and share information with them. In the future, UD will offer online, secure services to parents. Many departments were involved to make this happen; namely, NSO, Undergraduate Admissions, Honors Program, Registrar's Office, IT-WD, IT Management Information Systems (IT-MIS), and the Development Office. This process saves time and money and is a big win for students, parents/guardians, and UD!

Human Resources PeopleSoft upgrade successful

The Database Administration team participated in the successful completion of the Human Resources PeopleSoft Upgrade project. The database and application changes were incorporated in mid-April, well within the projected timeframe and with a minimum of downtime for the user community. The monitoring of activity has shown that the system is stable and performing as expected.

Standby database implemented for Web Forms applications

The Database Administration team has implemented a standby database instance for the Web Forms database and applications. This mirror database resides on a separate server in a different location to assist in ensuring recoverability of data, in keeping with similar instances for our PeopleSoft systems and with the overall disaster recovery strategy at the University.

HRMS 9.1 upgrade a success

On Monday, April 18, HR and IT-MIS successfully completed the HRMS 9.1 upgrade. New features include Commitment Accounting, Candidate Gateway, and Resume Mirror. As part of Commitment Accounting, the Labor Allocation Module (LAM) has been moved to HR, which allows more accurate financial data for the University community.

Candidate Gateway will allow applicants to apply for jobs online while Resume Mirror will parse and store the resume within PeopleSoft. HR will provide training on these new features.

UDSIS upgrade scheduled

The UDSIS upgrade from 8.9 to 9.0 is in the testing phase. Test Move 1 was completed in April and testing for this phase should be completed by the end of June. Test Move 2 is planned for July. The upgrade is scheduled for the production server in mid-October.

Event Production and Media Services

UMS support of major UD events

During April, May, and June, IT's University Media Services (IT-UMS) provided technical and audiovisual support for dozens of events in Mitchell Hall, the Roselle Center for Fine Arts, the Bob Carpenter Center, and many other on-campus venues. We supported these recent events:

- Commencement 2011 weekend: On May 28, IT-UMS provided audiovisual and logistical support for the University-wide commencement exercise as well as over 20 individual school, department, and college convocation ceremonies on May 27 and 28. At commencement, we fed live video from four on-field cameras to three large video screens, including the Daktronics video screen embedded in the stadium's scoreboard.
- Alumni Weekend 2011: During Alumni Weekend, June 3–5, IT-UMS provided the following support for the entire weekend:
 - Live multi-camera video feeds and pre-produced content for eight screens in the main tent and two large screens in the hospitality tent.
 - Audiovisual and stage support for events in Mitchell Hall and the Roselle Center for the Arts.
 - Video footage and coverage of all events and activities.
 - Audiovisual and classroom support for the registration, presentations, and exhibits in Gore Hall, Wolf Hall, and Old College.
- Ag Day: On April 25, IT-UMS provided audio support for two stages and the UDairy Creamery opening ceremony at the College of Agriculture and Natural Resources annual Ag Day event. This was the second year we'd been involved in running the concert stage.
- High school commencements: Between May 11 and June 16, IT-UMS staff will have provided audio and technical support for 19 high school commencements held in the Bob Carpenter Center.
- Coming up: On June 18, IT-UMS will provide full video and audio production support for the Blue-Gold All*Star Football game to benefit the Delaware Foundation for Reaching Citizens.

Video production highlights

IT-UMS video production staff members support a number of college, departmental, and outreach projects. Highlights include the following:

- We're working on a video project with the Office of Communication & Marketing to commemorate Richard Heck's Nobel Prize winning research.
- We're nearing completion of a series of promotional videos for the Office of Graduate Studies, highlighting several graduate programs across the University.
- We recently started work on videos for the [Office of Economic Innovation & Partnerships](#) Web site.
- We're working with Hotel, Restaurant, and Institutional Management on videos to supplement a fundraising proposal for an entrepreneurship grant from the Darden Restaurants Foundation.
- Off-campus networks continue to use our production facilities. Two examples:
 - After having produced eight full-length episodes of the PBS *Great Decisions* series this year, we are currently planning production for the 2012 broadcast year, with production to begin late in 2011. *Great Decisions* is the longest-running television series devoted exclusively to international affairs and foreign policy.
 - For the past two years, Comcast and IT-UMS have co-produced *Comcast Local Edition*, an original programming series on political and community issues most pertinent to Delaware, from our East Hall studios. Production of the next series of episodes will begin later this month.

Training Opportunities

Customized training

Requests for IT education and training that meet specific departmental or unit needs increased significantly this spring. To customize our training, we meet with individuals or small groups from a department, unit, or college to find out what IT tools they're using, what they're trying to accomplish with the tools, and then establish training that will help them use the tools.

For example, we met with staff from Facilities to find out what type of IT training they needed. They wanted to learn more about how they could use MS Excel in their jobs. During a series of six 1-hour sessions, we helped the group create and learn how to use a spreadsheet that directly applies to their work. Jerome Hayes, Custodial Manager, had this to say about his group's experience:

"The training improved several of the managers' skill levels immediately. Many managers were able to contribute information using Excel to help develop an Academic Custodial Services Manager's Manual that is currently in progress. The IT training that we received helped to improve our efficiency."

Some of our customized training can involve one person and also leads to considerable increases in productivity. For example, Ruth Crump from Admissions works with UDSIS reports to track International applicants. Ruth learned how to use MS Excel PivotTables to more easily analyze her data. Ruth stated, "I really appreciated the information shared with me enabling me to expedite my reports."

If you'd like to learn more about how we can customize LearnIT@UD for you, please don't hesitate to [contact us](#). Or browse through the [sessions](#) we offer monthly or view our many recorded sessions.

Active Directory and SharePoint 2010 seminar

IT will offer a seminar about the University's campus-wide Microsoft Active Directory (AD) domain on Wed., June 22, at 9:00 a.m. We will start with a high-level overview of services offered then talk about the policies and procedures for working within the Active Directory domain. The session will also introduce the SharePoint 2010 system that is now available to the UD community. We will explain how you can request a new site and show some of the new features that are available. A continental breakfast will be served to registrants at 8:30 a.m. ([Register for the class](#) online.)

Personnel

Stephanie Pickering joined the IT Client Support & Services group working in the IT Support Center (SC) as a Technical Support Specialist II. She has over 20 years of experience in customer service and has been working in the technical client support area for the last 8 years. Stephanie will work with the other SC consultants to help the UD community use technology effectively and efficiently by answering clients' questions and troubleshooting their technical problems.

The IT Activity Report is published 4-6 times a year. Archived reports are located at [IT Activity Reports](#). If you have comments, questions, or suggestions for future articles, contact the IT Communication Group at it-commgroup@udel.edu.