

Riding the PV-WAVE at MCSR Symposium



Don Boughey of Visual Numerics, Inc. presented a PV-WAVE crash course as part of the inaugural Research Symposium sponsored by the Mississippi Center for Supercomputing Research (MCSR) September 6-7 on the Ole Miss campus.

Established by the Mississippi legislature in 1987, MCSR provides free accounts for the research and instructional use of faculty and students at all public universities in the state. The symposium featured talks by researchers and instructors from Delta State University, Mississippi State University, Jackson State University, UM, and the University of Southern Mississippi, as

well as a student poster session and reception at Downtown Grill. PV-WAVE is a visual data analysis software. Representatives from Visual Numerics also led a session on IMSL, or International Mathematical and Statistical Library, during the symposium. IMSL and PV-WAVE may be obtained at no charge through the MCSR license. For more information, visit www.mcsr.olemiss.edu.

Connections *continued from front cover*

chemistry, engineering, physics, computer science, and medical applications involving high resolution images.

The July 27 announcement of the Broadband Ohio initiative, which will move all of that state's agencies and universities to a fiber-based infrastructure, highlights the importance of having access to high-capacity connectivity and a growing trend in how to get it (see www.ohiobroadbandcouncil.org).

"Our hope is that the optical network begun with LONI might grow to include not only our state but Arkansas, Oklahoma, and Tennessee as well," notes Gates.

The hoped for expansion is already underway, as the UM Medical Center recently announced plans to join its Mississippi counterparts in connecting to the I2 and NLR through LONI beginning January 1, 2008.

A History of UM Connectivity

From **David Roach**, Director of the Mississippi Center for Supercomputing Research

1987: UM joins BitNet, a "store and forward" e-mail only network with a 56 Kb AT&T leased-line connection to University of Tennessee at Memphis. The Mississippi Center for Supercomputing Research is formed in July, and its first supercomputer, a CDC Cyber 205, connects initially to BitNet, as do UM's Amdahl mainframes for campus e-mail support.

1987-90: Representatives of IT and Telecom from all IHLs and the UM Medical Center, BellSouth, the US Corps of Engineers in Vicksburg, the Naval Oceanography Command at Stennis Labs in Bay St. Louis, and Mississippi's private colleges create a discussion group to promote network connectivity in Mississippi at the IHLs. The group, known as MISNET, remains active for several years until the ITS State Network is formed in the mid-1990s.

1989-90: UM joins SURAnet, the portion of the Internet for the southeastern United States, via a 1.5 Mbs T1 BellSouth leased-line to Mississippi State University.

1993-94: UM completes installation of the campus fiber network after a transition from point-to-point copper telephone circuits.

1997: UM upgrades its Internet connection from the original 1.5 Mbs T1 to a 45 Mbs T3 to Tupelo where it joined the State Network.

2002: UM joins Internet2 via a BellSouth 155 Mbs ATM OC-3 circuit to Tupelo, connecting to the State Network from there to Jackson, where all the research IHLs share a Qwest OC-3 connection to Abilene/Internet2 in Atlanta, GA. Later, the Internet T3 connection is merged into the I2 OC-3, thereby reducing costs with a shared circuit.

2007: UM joins the Louisiana Optical Network Initiative (LONI) via a 1 Gbs AT&T Premium Metro Ethernet circuit to Jackson. Commodity Internet, Internet2, and the National Lambda Rail (NLR) are made available to the UM campus through this connection.

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UM Joins Others to Upgrade Connections

On July 1, the University of Mississippi took a major step toward a fiber-optic future.

UM joined with Jackson State University (JSU), Mississippi State University (MSU), and the University of Southern Mississippi (USM) in connecting to the Internet, the Internet2 Network (I2), and for the first time, the National LambdaRail (NLR), via the Louisiana Optical Network Initiative (LONI), Louisiana's state-of-the-art, high-speed fiber-optic regional network.

LONI links Louisiana's six major research universities to 85 teraflops of supercomputing power and to the national research and commodity networks. A teraflop is a measure of a computer's speed and equals 1 trillion calculations per second.

The Mississippi institutions previously connected to Internet2's original Abilene research network, which is scheduled for decommissioning this fall.

The four universities shared in the one-time cost of establishing the physical network connections to LONI's point of presence, or POP, in Jackson. Jackson State could connect directly thanks to its location, but the other three schools were required to upgrade their connections to Jackson with new AT&T Metro Ethernet circuits.

The upgrade allows six to ten times more traffic to flow between each campus and the national networks, accommodating the growing demand not only for e-mail and Web browsing but also for data-intensive, network-based research applications.

"Enhancing our computing capacity ensures that Ole Miss researchers can compete nationally and that we are in a position to recruit prominent scholars," says Alice Clark, UM Vice Chancellor for Research and Sponsored Programs.

Perhaps the university's biggest beneficiary of the expanded

bandwidth are researchers in the Department of Physics and Astronomy, who frequently exchange large data files with international collaborators in California and Geneva, Switzerland.

"Getting the connection to the NLR and LONI is crucial in allowing us to participate as a Tier-3 GRID computing facility," comments David Sanders, a UM computational scientist and research physicist.

Still, even with the expanded capacity, Mississippi traffic on the information superhighway doesn't hit light speed until it reaches LONI's fiber-optic network.

UM's offices of Information Technology and Research and Sponsored Programs are working with the other Mississippi research institutions to explore avenues which could lead to the establishment of a fiber infrastructure in the state.

"We would like to move from the current 1 GigE point-to-point premium Ethernet to a minimum 10 gigabit fiber-based ring topology connecting UM Oxford, MSU, and USM with LONI, JSU, and the UM Medical Center in Jackson," states UM Chief Information Officer Kathy Gates. "The costs involved have been prohibitive up to now, but they are starting to come down."

Gates cites the emergency preparedness and disaster recovery measures that an optical network would allow, including the ability to perform remote back-ups, thus mitigating the geographical vulnerabilities faced by participating institutions.

Other benefits include the capacity to handle high definition video-conferencing and media-intense applications as well as the facilitation of collaborative research efforts requiring high bandwidth, such as computational and medicinal

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E-mail Numbers Keep Adding Up

Since the January 2007 TechNews article on the growth of spam and its impact on the university's e-mail system, the numbers continue to increase at an amazing rate.

While September 2006 saw just over 39 million messages received, that number soared to almost 240 million last month, with an average of almost 8 million messages a day.

It wasn't a Friday, but September 13, 2007, saw the highest numbers of both e-mail and spam received in one day for the

month with 11,460,665 e-mails, of which 11,157,628 were spam.

Some 75% of messages that hit the university system originate from known spammer IP addresses and are automatically blocked with no processing at all. If a message is processed and determined to have a spam probability of 98% or higher, then it is discarded. All other messages suspected to be spam are quarantined and can be viewed by users at spam.olemiss.edu.

	Messages Per Month	Percentage that were Spam	Increase from Previous Year	Avg. Messages Per Day
Sept. 2006	39,228,644	82.63%	69.49%	1,307,621
Sept. 2007	239,887,353	87.75%	83.65%	7,996,245

Got a technology question or issue you'd like us to cover? E-mail your suggestions to technews@olemiss.edu!

Office of Information Technology

For Mary Robinson, Telecom Has Global Possibilities

According to the UM Telecommunications Center Web site, if each strand of optical fiber on campus were connected end-to-end, it would stretch 2,941,016 feet, or approximately 557 miles.

Mary Robinson, the Center's Outdoor Plant Supervisor, says it's important to know the location of every inch of fiber, not to mention all the other phone and cable TV lines for which she's responsible.

"We've got a lot of construction on campus, and if a contractor is going to dig, we've got to be able to pinpoint the exact location of our cables," Robinson explains. "If we were ever hit by a storm and debris covered our manholes, then we would need a way to locate them as well."

Using a new handheld GPS field computer, Robinson and technician Jody Allen are employing state-of-the-art technology to record the location of Telecom's cables, conduits, and manholes spread across the UM campus.

GPS stands for Global Positioning System, described on www.gps.gov as a free "space-based radionavigation system that provides reliable positioning, navigation, and timing services to civilian users on a continuous worldwide basis."

"Using GPS is going to be very helpful," Robinson comments. "It will be much quicker and more accurate than our old system of taking three different field measurements to determine one location."

Telecom's move to GPS technology has been assisted by the University of Mississippi Geoinformatics Center (UMGC).

"The GPS equipment vendor was dealing with several entities on campus, including Telecommunications and Physical Plant," explains UMGC Associate Director Hal Robinson (not related to Mary). "They suggested we pool our funds to get the 100-seat educational software package instead of the three or four licenses we'd each buy on our own."

The partnership has proven beneficial to all involved.

"The Department of Geology and Geological Engineering was able to install the software on all 24 of our lab computers," Robinson notes. "GPS and GIS are where municipal planning is going these days, and it's really important our students learn this technology."



Jody Allen and Mary Robinson with Telecom's new Trimble GeoXH Handheld field computer.

A GIS, or Geographic Information System, can be used to analyze, edit, and map the data recorded on GPS receivers.

"We're using GIS to develop detailed maps of campus and the underlying infrastructure," Hal Robinson explains. "This will allow Telecom, Physical Plant, Facilities Planning, and other university departments to see all the information in one place."

Since multiple attributes can be incorporated into these maps, the graphical representation of such data can be very powerful.

"Telecom can record not only where a cable is, but how many fibers it has and how many of them are being used," Robinson says. "That kind of information is invaluable because you can look at a campus map and see where there is spare fiber capacity."

UMGC plans to provide some GPS/GIS training for Telecommunications and Physical Plant later this semester, but Mary Robinson has a little extra help in mind.

"My husband uses a GPS system when he's fishing to mark different points," she explains. "He knows a lot about it and is going to help me learn."

A native of Oxford, Robinson joined the Telecommunications Center in 1994 and has found the work very much to her liking.

"I love being outdoors and I've always liked working with my hands," comments Robinson. "I don't see a lot of women doing what I do, so I guess it's pretty unusual, but they say it's actually easier for women to work with the fiber, because their hands are smaller, and the fiber is really small, like the size of a hair."

Visit www.olemiss.edu/depts/telephone_exchange for information on the Telecommunications Center and umgc.olemiss.edu for more about the UMGC.

Meet Me on the Phone

Thanks to a recent upgrade, the Telecommunications Center now offers Meet-Me Conferencing, a telephone service university departments can use to schedule and host conference calls involving up to six participants.

A Meet-Me conference call may be set up by contacting Telecommunications at 915-5922 with the date and time of the planned call. The request must be made one business day prior to the call in order for Telecommunications to provide an access code for all participants, who may dial in from on or off campus.

The department that schedules the call must provide a cost center number and is responsible for all associated costs. The rate is 15 cents a minute, with the total cost determined by the duration of the call multiplied by the number of participants.

Webmail Upgrade Scheduled for December

If what you want for the holidays is a new look and expanded features in Webmail, you're in luck. An upgrade scheduled for the weekend of December 14-16 will include several enhancements to the university's Web-based e-mail client.

"Probably one of the most popular changes will be the sizable increase in default quotas for all users," says Suzette Henry, Manager of Systems Administration in the Office of Information Technology. "The default quota is currently 5 MB, but that will automatically go to 300 MB for faculty and staff and 100 MB for students. Instead of the inbox having a separate quota from the other mail folders, users will see just one quota displayed on the top menu bar that covers everything."

Users will be able to set a vacation message, a feature not available in the current Webmail application. Other new tools include a "to do" list, an optional preview pane, and a forward option that automatically sends incoming messages to another e-mail address.

There will be extended periods during the upgrade week-



end when users will not be able to access their Ole Miss e-mail account either through Webmail or a local e-mail client such as Outlook or Eudora.

For more information on Webmail, contact the IT Helpdesk at 915-2222 or helpdesk@olemiss.edu.



Classroom Technology Provides Rapid Response

When English instructor Whit Hubbard recently encountered technical trouble while teaching, he used his cell phone to call on the newly-formed rapid response team supporting UM Classroom Technology (UMCT).

"I've found their service incredibly dependable," Hubbard comments. "If there is ever a problem with a projector or multimedia lectern, I can always count on them to address the issue expediently."

UMCT is a program administered by the Office of Information Technology (IT) with funding from the Provost's Office. UMCT equipment, including multimedia lecterns, LCD projectors, and screens, has been installed in approximately 50 classrooms on campus.

An instructor teaching in a UMCT location may call the IT Helpdesk at 915-5222 for immediate technical assistance. If the issue cannot be resolved by



UMCT's Johnny Price and Corey Foster show Whit Hubbard how to use a document camera.

phone, a rapid response team member will be dispatched to the classroom.

The response team is comprised of specially trained IT staff and student workers who wear photo identification badges identifying them as such. Ron Savell, Manager of Technology Services, notes formation of the team is one of several efforts to enhance UMCT services.

"We're also expanding training opportunities for faculty and staff by offering half-hour sessions

on a regular basis," Savell explains. "Instructors who attend training find it very beneficial as it only takes a few minutes to cover some of the most common technical issues they might encounter in the classroom."

The UMCT Web site at www.olemiss.edu/umct offers detailed information on each classroom, including the local contact person, type of equipment available, and any relevant documentation or instructions. The site includes an online form instructors can use to report non-urgent problems.

For more information on Classroom Technology services or training, please e-mail umct@olemiss.edu or call the IT Helpdesk at 915-5222.