UAHuntsville—i.t.solutions

CIO Report

Dr. John P. McGowan, Interim CIO

State of the Organization

2011 has been a year of milestones for i.t.solutions and for technology at UAHuntsville. We have made progress in providing the supporting technologies for the academic, research, administrative and outreach capabilities of the University. Our focus has been on the build out of the infrastructure of the campus, and on the reorganization of i.t.solutions.

The University of Alabama has supported UAHuntsville in these critical areas. As the Vice Provost & CIO at UA I have acted as the Interim CIO for UAHuntsville for the past 19 months and have been assisted by the Deputy CIO, the Information Security Officer, and the Director of IT Operations for Financial Affairs of UA.

At UAHuntsville structural reorganization has been implemented to rebalance resources and align skills. A Performance Management Process is in place.

In addition to an operational budget being in place, project management is functional, incident management is being refined, a basic change management process and the beginnings of asset management are in place.

The Data Center's new network and virtualized servers with storage are in place with several new systems. A core wired network has been approved and begun, and 18 key buildings will be installed with wireless networks by January 31st.

Laptop encryption and Tripwire implementation are in process and new firewalls are being implemented.

The design and implementation of a high performance computing cluster for the College of Engineering is in process.

Academically, an LMS evaluation is underway regarding the hosting of ANGEL by Blackboard and the Conversion of ANGEL to Blackboard 9.1. Three telepresence units were installed across campus. Library resources are being evaluated. We are coordinating with the Deans of the Colleges regarding software, hardware and multimedia services.

In addition UA and UAHuntsville have jointly agreed to share system and storage services between the two universities and to share capabilities for procurement of software, hardware, and consulting services where appropriate. Several examples that are underway:

- Shared Resources for Backup and Disaster Recovery in Atlanta
- Network Design has been shared and partially implemented at UAHuntsville
- IT Security strategy has been shared and partially implemented at UAHuntsville
- Volume procurement of security software, Tripwire, has been accomplished at the UA System level
- Information Security Officers Roundtable has been established and meets quarterly
- UAHuntsville, UAB and UA will be sharing information regarding the deployment of VOIP (Voice over IP)

We have much more to do but we are making great strides toward our goal of becoming a mission-focused organization that provides value and excellent service. We have learned in the process that we will take many steps forward and several back before we have matured into the "physically and emotionally fit" entity that we desire to become.

The staff has performed admirably in bringing us to where we are and it has often been painful. Change is not easy. We all deserve to be commended for our efforts. Best wishes for 2012!

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Technology Roadmap

The first step to making positive change is to know where you want to be and to be ready to invest in your future. With the state of the infrastructure, it was necessary to get buy-in and commitment for all of the projects that we were implementing. A 2011-2012 Technology Roadmap was developed this year that details the significant investments that are required to keep up with technology innovations.

For each area of development, an estimated timeline was created that detailed individual projects over a five year investment scope.

At ten to twelve million dollars, the Network Services investment is the most significant in terms of cost, but it is much needed and includes both wired and wireless networking and all of our security initiatives.

The remaining cost distribution includes enhancing the VBRH Data Center, virtualizing systems and enterprise applications, and taking continuity of operations to an off-site, hardened facility. An Enhanced Teaching and Learning Center was included but has been put on hold temporarily.

Investments in Support Services and Research Services brought the grand total over five years to 15-19 million dollars.

Project Management and Budget Offices

ITS had never practiced formal project management … when the PMO was formed a cultural shift was started. — Diane Cunningham, PMO

Two important offices were established in 2010 that proved their worth in 2011.

The PMO has refined the process of Project Management, with careful documentation and procedures designed specifically for i.t.solutions. Early on, projects were already in progress so start-to-finish project management was not possible. Now that new projects are beginning, the entire process can be under project management. Two noteworthy milestone projects were the Banner Hardware Migration and Phase 1 of the Wireless project, demonstrating the value of project management.

Finance and Compliance is the responsibility of the Business Officer who has developed the 2011 and 2012 operating budgets as well as a five year budget. It was based on the technology roadmap and increased staffing needs, resulting in increased funding for ITS. Procedures for purchasing and HR tasks like hiring staff and students have been streamlined, and work is being done to secure campus wide software agreements.

Data Center

The Data Center project transformed the old Data Center and an adjacent computer lab into a secure and stable environment to house UAHuntsville systems and the network cabling and hardware.

Starting from bare bones in places, new power feeds and power panels were installed that improved the available electrical supply and distribution and provided power redundancy to every rack. The Power Distribution Units (PDUs) provided monitoring and receptacle level control. Hosted systems can now be monitored.

Racks were installed to increase energy efficiency and maximize floor space. Updated tiles were installed to maximize air distribution and reduce cooling cost.

Equipment standards were introduced for rack assembly, power strip configuration and server configuration. This improved equipment efficiency and simplified maintenance and monitoring.

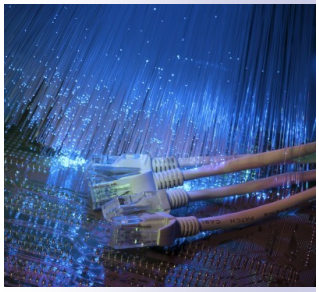
Core Network/Wireless

The network services core infrastructure update is being implemented as part of a five year plan. Coordination was required between the Data Center and network projects so that phases could be completed in sequence.

Several parts of the core infrastructure are now in place with new cabling interconnection, patch panels, and cable management fittings. Cable trays are installed beneath the raised floor for cable management. New switches, modules, and firewalls are part of the core network update that has been completed.

New Wireless System Modules (WiSMs) were also installed for the wireless network project.

Wireless is being installed in Phases. Phase 1 was managed by the PMO and included coordination with the 11i Solutions and CSS vendors in addition to the i.t.solutions teams. Phase 1 will see completion in January 2012. Phase 1 provided wireless coverage to most buildings where classes are conducted and some others including Charger Village. Phase 2 includes remaining classroom buildings and residence halls. Phase 3 includes any remaining buildings and the outdoor spaces that were identified in the Wireless Survey of 2010.



Security

Security has been enhanced on multiple levels this year. Of course the changes to the Data Center have gone far to protect the physical systems. Huge locked cases subdivide the Data Center environment. Further, the racks in each cage offer enhanced security and control features with combination locks for equipment access, key locks for panel access control and internal protection panels.

In the PMO, security has been added to the process of evaluating each project. Security concerns and requirements are addressed early, saving time and money by aiding in product selection, proper configuration, and increasing uptime once implemented.

TAG and the Security Team have made a new service available to departments for scanning desktops for security vulnerabilities and mis-configurations.

Our Second Annual National Cyber Security Awareness Month in October provided an opportunity for outreach and was deemed a success.

Security touches every aspect of IT, from the Data Center to Networking to Systems to Customer Relations to TAG. Incorporating it into the PMO is a real accomplishment. — Pam Tejes, Operations and Customer Relations

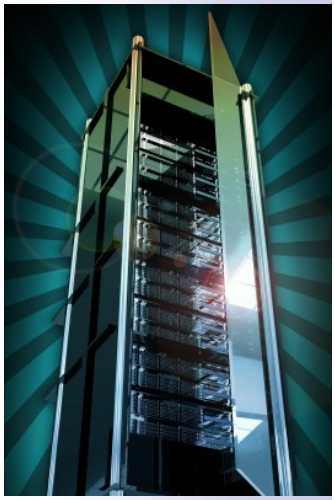
Virtualization

Virtualization makes managing systems more efficient and easier on multiple levels. First are cost savings. Because more than one virtual server can exist on one physical server, less hardware is required, thereby increasing energy efficiency.

Data Center rack space is better utilized as well.

It is also easier to improve business continuity and disaster recovery because the systems are more stable and secure than stand-alone servers.

In i.t.solutions we have already virtualized several servers utilizing VMware, including both the production and test versions of Banner, the Job Submissions application, McAffee EPO, Argos, Tutortrac, and Advisortrac. Most recently the UAHuntsville Webserver was virtualized.



Storage

Hand in hand with virtualization is storage. The Dell Compellent central storage solution which supports VMWare was selected.

Like servers, data space can be virtualized, allowing multiple storage devices to be managed from a central console. Compellant is scalable by simply plugging in new disks, and is designed to support future technologies, so that our storage solution can grow.

Thin provisioning allows you to allocate storage space to a user group without having to reserve that physical space — when you start reaching your capacity you add another disk and the effect is seamless allocation. Additionally, free space is reclaimed in small blocks.

Tiered storage is efficient. Compellent uses three tiers of storage with the most frequently used data in a superfast and more expensive retrieval tier, reasonably fast and less expensive in the middle tier, and slow and inexpensive in the third tier. Compellent has a built in automatic algorithm for determining what data is stored where.

Ultimately, the Compellent solution is to have storage arrays in the UAHuntsville Data Center and in a disaster recovery site in Atlanta.

Continuity of Operations / Disaster Recovery

The failover location will be a base for critical systems and redundant storage to ensure business continuity and disaster recovery capability for critical campus services. — Scarlet Brooks, Data Center

All of our infrastructure changes have contributed to our ability to to provide business continuity and to recover from disasters. The Data Center now has multiple built in controls for power interruption.

The improved environment makes it easier to manage disasters like the one that tested our systems on April 27. Power in Huntsville was out for several days, but facilities kept the emergency generator running smoothly throughout the crisis.

The most harrowing moment was when commercial power was restored. The generator failed to flip back over to the commercial power so the Data Center was on thirty minutes of battery power. It came down to the wire, but the manual switch to commercial power occurred on time, without disruption of service.

An official Disaster Recovery plan is being developed that includes a local failover location for critical systems in Salmon Library in addition to the Compellent off-site disaster recovery system in Atlanta.

Asset Management

With the brand new Data Center it was important for there to be asset management. An exhaustive inventory has been completed for Data Center hardware, including the racks and cages as well as the servers. This is currently being cross-checked against the Banner inventory of hardware to ensure that all of the equipment is properly recorded. Additional information is being gathered that will be used in an asset management system that can be expanded to track each university owned desktop across campus.

Another inventory project includes a database for audio visual equipment used in teaching and learning. Each classroom's audio-visual equipment has been inventoried and equipment standards and room usage reports have been developed to provide tools for future upgrades.

Point of Sale Improvements

It is important to be able to process credit card transactions and we are in a much better position to do that now than before 2011.

Credit transactions were previously primarily dial-up connections on a server that was not under proper climate control and with an unstable network connection.

The new server was one of the first to be included in the new Data Center. Now all of the connections for transactions are TCP/IP instead of dial-up and there are appropriate environmental controls and steady connections.

The new hardware hosts the upgraded Blackboard Transact system, which is the bridge between students and their finances in Banner. On and off campus, students can use their Charger Card to buy lunch or books.

Another system added to the Data Center which provides the point of sale operations for Blackboard Transact is Sequoia. Seven terminals for Sequoia are installed across campus.

A third system, Agilysys, has been installed for point of sale credit card transactions in the Bevill Center which is PCI Compliant for all data transmissions.

Banner Migration

Banner is arguably the most important piece of software at UAHuntsville. Its migration required months of planning in addition to regulatory patches and software updates. The migration was for both the production and test environments. The application server would be migrated from the Solaris operating system to Linux and the database server would be migrating from OpenVMS to Linux. The transition required retraining for the analysts providing support and the database administrators managing the system.

The transition required cooperation between staff from Systems, Enterprise Development and Application Support, as well as close interaction with the SunGard vendor.

Future migrations related to Banner include the Banner Document Management System (BDMS) and ChargerNET, the Luminus portal.

The Banner Migration was an example of real teamwork between Applications and Systems. — Joyce Looger

Banner Related Products

Two ancillary products to Banner have also seen progress. In the area of the Argos reporting system, Payroll Services and Enrollment Services were both provided with datablocks. Argos datablocks for the Scholarship Application (which interfaces with Banner but is a UAHuntsville software product) were also updated.

In the area of BDMS, new applications were created for the Provost's office to scan and store Faculty documentation and for the Student Health Center for storing medical forms. The Graduate Studies application was modified to automatically load data from the online applications into BDMS. A Purchasing application was also completed. Inventory Control and Benefits will be implemented next.

UAHuntsville Website and Content Mgmt

Early in January 2012 a new UAHuntsville website design was rolled out. The lead-up to this entailed a few months of working with the website design vendor and the UAHuntsville Administration responsible for the website roll-out. In addition to the new design, the back-end of the website underwent big changes. The Joomla! Content Management System (CMS) was selected by the vendor and the server for the website was migrated to a new virtualized environment. Search Engine Optimization eased the transition from the old to the new.

With a new server it was possible to improve site performance and security. The entire site was moved to the new server even though only part of the content had been moved to the CMS. Secure FTP is now required and is the only access type allowed for updating the old web pages.

Security is managed through the CMS for the new content, securing the server.

The vendor trained i.t.solutions and the "beta-site" users whose content would be going live with the roll-out. As part of this training, ITS wrote training materials and user documentation.

Ongoing cooperation between the campus and i.t.solutions will be required to complete the transition to the CMS.

Digital Signage

By using MediaSignage cloud based software, UAHuntsville would be able to control and manage content on every digital sign installed on campus with minimal cost. — Eric Dossey, Academic Technologies

Currently, digital signage is scattered around campus, but each unit is managed separately.

In 2011 there was an initiative to change how digital signage works on campus. We are currently beta-testing a product by MediaSignage, a cloud-based solution that would allow all digital signage for UAHuntsville to be managed centrally.

Digital signs could be sprouting up anywhere. With an internet connection and a PC you can manage the signage using MediaSignage software through a browser. All you need is a flat screen television to connect to.

The first beta installation of the new digital signage was in Shelby Center in January 2012.

If the evaluation of this solution is accepted, UAHuntsville could either continue the cloud-based configuration or purchase the MediaSignage software and host it on a server in the Data Center.

Video Production

Video production is one of the services i.t.solutions offers to the campus, and in 2011 we were our own best customer. Two orientation videos were created for i.t.solutions to showcase our services to both students, and also to faculty and staff.

The student video was all about how to be a "star" at UAHuntsville and stars of the video were the Orientation Leaders for this year.

The second orientation video for faculty and staff featured i.t.solutions staff discussing the services we provide.

We weren't the only video production customers, though. We also produced a some Oral Histories for the library archive, and a promotional video for the College of Business.

CRM and Outsourcing Tier 1

Implementation and training was complete on our customer relations management (CRM) system, TechExcel ServiceWise, beginning in 2011. Almost simultaneously, we also entered into a contract to provide 24/7 outsourcing for Tier 1 customer support with Perceptis. Unsatisfactory performance resulted in opting not to renew the contract. Currently, we are employing several temporary help desk representatives to assist in providing support during work hours, and have implemented a phone tree with the help of Telecommunications Services for after hours. Callers are given instructions, may leave a voice mail to be answered in the morning, or may contact the Help Desk Coordinator directly in the event of an emergency.

An RFP has been sent out to outsource 24/7 Tier 1 support and bids are being reviewed; a more permanent solution is expected to be approved soon.

After training a total of eleven TAG staff and students over the course of the year, and working so closely with Perceptis, a more comprehensive training program has been developed for new staff and students, and ultimately for our outsourced Tier 1 Support.

Library Systems

Library Systems initiated the Data Center with the first server to be housed there. The Unicorn to Symphony library automation software upgrade and migration was significant this year.

Library labs and their systems are also managed by Library Systems. Currently these systems are running WindowsXP. Library Systems is experimenting with Windows7 software in the labs.

From a hardware perspective, Library Systems servers are being evaluated to be moved from Salmon Library to virtualized servers in the Data Center where power distribution and environmental protection are better.

Since Library Systems is already familiar with active directory in the library, they have been providing assistance in the campus wide endeavors to get LDAP authenticated active directory on every desktop.

Our mission has been and will continue to be to keep all electronic equipment running smoothly for instructors and students and to configure the equipment in such a way that the computers are easy to use for all patrons and serve as tools to help instructors who teach classes in the library labs. — Jack Drost, Library Systems

Teaching and Learning

Both the ANGEL Learning Managment System (LMS) and audio-visual support in the classroom have taken great strides in 2011.

For ANGEL, training and usage are the most significant improvements. New training courses were offered and each semester this year there was an 10%-14% increase in the number of courses where content was placed in ANGEL for students. ANGEL to Banner grade processing has also increased dramatically this fall.

Audio-visual support has been improved as well, with a well stocked workshop created a for installation, repair, and maintenance of AV equipment. Classroom schedules are consulted so that classes are not disrupted for AV maintenance.

Working with the Campus

This year we were reaching out.

During student orientation, ITS used an hour of time to familiarize students with our services, educate them, and to activate their accounts.

For departments, a service that is now offered is vulnerability scans where insecure configurations of systems are identified. Then we work to shore up the vulnerabilities.

Another proactive service with the Office of International Programs was to evaluate existing equipment, consult with the department to identify needs, and facilitate the procurement of new systems.

Our Information Security Officer worked closely this year with the Research Security Administration to ensure continuity throughout UAHuntsville.

The Data Center renovation experience came in handy as we assisted Dell Computers and Engineering during the environmental redesign of EB136J. The remodeling was needed to support a new high performance computing cluster that is estimated to be complete in February 2012.

Law enforcement relied on our services and forensics to solve crimes and bring closure to an investigation.

Improving Customer Service

Virtually all of our work this year has helped us to improve customer service.

The Data Center now provides the structure to support hosting servers across campus. The Network Core and Wireless means improved accessibility for everyone. The new CMS for the webserver means that our webserver is more secure and easier for the content managers to update.

TAG staff received recognition from many customers commending their professionalism and technical expertise.

In an effort to focus field support, the campus was divided into areas of responsibility. Each technician has taken ownership of specific buildings, allowing the field technicians to work more efficiently and establish trust and familiarity with the customers.

The April 27 storms did not hamper service. ITS staff were on hand throughout the event to ensure that the systems and network were online, TAG service was provided, and emergency updates were posted.

It was wonderful to have a chance to be proactive and offer services to OIPS. — Wendy Worlund, Technical Assistance Group

The Future of i.t.solutions

In 2011 i.t.solutions has made incredible progress. Many of our projects are still in progress, but we have a firm vision for where we want to be and have the momentum to move forward.

When the core network project is complete, users will experience a dramatic increase in bandwidth not only from device to device in the same building, but will also provide a secure and substantially faster connection between most buildings. The completion of the five year plan will expand on this capability even further for a dramatically better network experience.

We continue to work on our security and disaster recovery models, migration of systems to virtualization, and communication and outreach. Charge On!