EXPANDING the
IT Spectrum

Texas A&M
Information Technology
2013 Annual Highlights

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We concluded a notable year filled with goals achieved and obstacles surmounted. We successfully completed or made significant progress on key projects that speed access to technology resources and upgraded services to meet the needs of a growing university population. Our achievements have built a solid base for future progress, positioning us to enhance resources to strengthen research, teaching and collaboration. Information technology at The Texas A&M System is undergoing a comprehensive assessment to find ways to improve service efficiency and effectiveness. The next year and beyond will see us engaging in new approaches to solve problems through IT. This organization is well suited to meet these challenges, as we provide maximum value while serving the mission of the university.

Thank you for taking time to review our progress in this annual report. The dedicated professionals at Texas A&M IT, along with our partners at the university and throughout the A&M System, are responsible for the many successes highlighted here. I encourage you to share your questions or comments with me and the members of our team as we continue to build an outstanding IT environment for our university.

DR. PIERCE CANTRELL

Vice President & Associate Provost for
Information Technology

"We made significant progress [to] speed access to technology resources and upgraded services to meet the needs of a growing university population."

ELEVATING RESEARCH

This fiscal year, the Supercomputing Facility helped increase research productivity, along with a $0.5 million grant that enabled enhancements to the campus network.

RESEARCH

$0.5 Million grant spurs advanced research connectivity

Texas A&M University was the first university in Texas to build a 100-Gigabit per second (Gbps) long-haul network connection with a $0.5 million National Science Foundation grant. The new link between College Station and the Lonestar Education and Research Network hub in Houston advances data-intensive scientific research with a five-fold increase in data transfer speed.

High-speed connectivity supports the university's growing demand to access national and international research resources and efficiently move large data sets. "This key technology facilitates data-intensive research in established disciplines and in new areas that have not yet become prominent. Physical distance will no longer be a barrier to engaging in collaborative scientific discovery," said Dr. Pierce Cantrell, Vice President and Associate Provost for Information Technology, the grant's principal investigator.[1]

Science DMZ optimizes fast data transfers

The $0.5 million National Science Foundation grant also funded enhancements to the campus Science DMZ, a data-intensive network with dedicated, on-demand bandwidth to efficiently transfer large data sets. The improved pace at which Texas A&M researchers can move, access and explore massive datasets will alleviate a major bottleneck, enhancing research productivity.

Although the campus network provides 10 to 100 times faster speed than most home user connections, scientists needed even higher rates to run data-intensive applications or move large data files. The Science DMZ is a dedicated portion of the campus network specifically engineered for high-performance science applications. It provides speeds up to 10 Gigabits per second.

Supercomputing use on the rise

Supercomputing usage hours[2] rose 62 percent from 27 million in FY 2012 to 42 million in FY 2013. Most of the increased usage occurred on the Texas Advanced Computing Center's Lonestar cluster at The University of Texas at Austin. Use of Texas A&M's Eos supercomputer grew by seven percent to 21 million hours. With 24 million maximum available hours per year, Eos operated at about 90 percent capacity.

The Supercomputing Facility increased technical assistance to student users by 66 percent (2,611 hours in FY 2012 to 4,333 in FY 2013). Help was provided through teaching short courses, an in-depth, three-day programming tutorial and answering user questions via email. Students and faculty received advanced support from supercomputing analysts for large code porting, code optimization and parallelization, and computing process work-flow improvements in fluid dynamics, bioinformatics, weather modeling, materials science and other areas.

DATA TRANSFER
SPEED
5X
FASTER
TAMU TO HOUSTON

62%
MORE

SUPERCOMPUTING
HOURS USED IN
FY 2013

[1] *Co-PIs are Guy Almes, director of Texas A&M's Academy for Advanced Telecommunications and Learning Technologies and Willis Marti, director of Networking and Information Security and Chief Information Security Officer.*

[2] *Calculated in Bidling Units, which is usage of one supercomputer core for one hour.*

eCampus boosts technology-enhanced teaching

Texas A&M's transition to eCampus, the next-generation learning management system powered by Blackboard Learn, gathered speed. At the College Station campus, over 67 percent of instructors of record moved to eCampus from the legacy eLearning system. In fall 2013, 85 percent of students (45,472) used eCampus for at least one course. At the Galveston and Qatar campuses, all instructors and students (2,720) used eCampus.

To prepare for eCampus, primary and backup servers were installed on the campus data centers' virtualized computing and storage infrastructure. Using standardized infrastructure will improve reliability, streamline failover to the backup system and simplify future expansion to meet increased load. eCampus was extensively load tested to ensure sufficient capacity. The system handled 12,000 concurrent end user sessions and 1,530,000 hits per hour (approximately 25 percent over current maximum needs).

Faculty volunteers pilot tested eCampus in fall 2012 and spring 2013, providing valuable feedback on system configuration settings. Training included in-person events, webinars and drop-in help sessions. The mobile-friendly eCampus website was launched to provide transition information and help documentation links. The new self-service eCampus Tools allowed instructors to request eCampus courses based on their officially listed sections.

Upgrades keep classroom equipment running

Implementing the AMX Resource Management Suite (RMS) helped eliminate lost class time and provided more accurate downtime rates for classroom equipment. Staff use the RMS to remotely monitor and manage classroom devices. The RMS provides real-time updates of equipment use, lamp hours and energy usage.

Texas A&M IT's standardized classroom technology deployment reduces implementation and support costs and improves efficiency. Collaboration with the colleges of Architecture and Liberal Arts extended this standardized platform to departmentally controlled classrooms. Of 300 RMS licenses, Texas A&M IT currently uses 162 and 21 licenses are used by Architecture and Liberal Arts.

Texas A&M IT centrally supported 158 classrooms of the 251 Registrar-controlled rooms (63 percent). In FY 2013, 15 classrooms were upgraded with automated classroom systems. All but three classrooms were fully automated. In automated classrooms with AMX system hardware, instructors can operate the audio-visual equipment through a single interface.

Online degree planner fosters student success

The Undergraduate Degree Planner, deployed through the Howdy web portal, facilitates timely completion of a degree at Texas A&M. Students can plan the courses needed to meet degree requirements, quickly determine areas requiring attention using progress bars and check course prerequisites.

In 2011, the Texas Legislature sought to improve timely degree completion by requiring undergraduate students at public higher education institutions to file degrees plans (Texas Education Code, Section 51.9685). Texas A&M IT developed the Undergraduate Degree Planner and held successful pilots in the fall 2012 and spring 2013

semesters. Several enhancements and changes were added based on input from students, advisors and academic deans. Best-fit improvements made in the Curriculum, Advisement, and Program Planning (CAPP) degree audit system reduced adjustments advisors needed to make manually, and improved the Undergraduate Degree Planner functionality. CAPP is the degree auditing/checking system used by advisors in the Compass student information system.

ECAMPUS USE
by students

85%
Texas A&M University

100%
Galveston & Qatar campuses
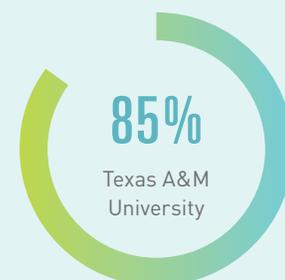
ENHANCING TEACHING

This year, teaching and learning were enhanced through transitioning to a new learning management system, upgrading classroom equipment and deploying an online degree planner.

ADVANCING INFRASTRUCTURE

In 2013, Texas A&M IT expanded their infrastructure to keep the university and the A&M System connected, enriching the lives of students and communities across Texas.

INFRASTRUCTURE

Texas Pipes expands broadband

Texas Pipes network project nears completion with 98 percent of fiber built and six A&M System members connected to the new infrastructure. Funded by a $6.6 million Broadband Technology Opportunities Program grant, the Texas Pipes network will provide 1-Gigabit per second (Gbps) connections to all 11 A&M System campuses and the ability to boost to 10 Gbps in the future. The project is on track for completion in October 2013.

Texas Pipes leveraged existing broadband infrastructure by building new connections between the A&M System campuses and the A&M System's TTVN network backbone, which utilizes the Lonestar Education and Research Network, the Texas regional optical network. Through project partners, Texas Pipes will bring broadband capabilities to underserved areas of Texas, increasing access to distance learning, research and health services. The project will connect K-12 schools, libraries, health care providers and public safety entities to high-speed Internet service. Visit **texaspipes.tamu.edu** for more information.

Stronger network keeps the campus connected

A new alternate fiber optic path between the main campus and west campus data centers expanded campus network reliability, speed and coverage. With the backup route, network and Internet access will remain available even if fiber in one area is severely damaged. The network supports critical campus services including Internet connectivity, TAMULink wireless, enhanced cellular

service, email and more. The new route did not use the campus steam tunnels. In 2011, a steam pipe leak severely damaged a section of fiber connecting the campus data centers.

During construction, exchange points were moved, modified or added to provide more efficient, reliable service. Exchange points are campus facilities that allow efficient concentration of network cabling and electronics for management and further distribution to endpoints. Redundant connections for all major network exchange points were added as well.

Wireless and ResNet upgrades enrich campus life

TAMULink wireless coverage expanded to cover all 47 campus residence halls and apartments, including the new Hullabaloo Northside dorm. The expanded TAMULink network supported explosive growth of wireless on campus. New wireless usage records were set with 74,878 unique users in a 24-hour period, up from 61,736 last year. Peak usage increased to 34,986 users, up from 31,013 users last year.

Eighty percent of wireless access points now use the newer 802.11n technology, which provides faster transmission speed and throughput. Technicians are working to re-engineer classrooms and other densely populated areas to support more simultaneous wireless connections. They monitor traffic to identify peak areas, then add, move or adjust the range of access points to ensure adequate coverage.

TEXAS PIPES:

SIX

SYSTEM
MEMBERS
CONNECTED

Texas A&M University
Tarleton State University
Prairie View A&M University
TAMU-Commerce
TAMU-Central Texas
TAMU-San Antonio

74,878
WIRELESS
USERS IN
24 hours

GROWING SHARED SERVICES

Texas A&M IT strengthened shared services offerings this year with improvements to Laserfiche, growth of a mobile website initiative, and lower software pricing.

Laserfiche employed to increase efficiency

The Texas A&M Laserfiche shared service is used by over 1,600 users in 27 groups/departments and holds 3.22 terabytes of data. The Laserfiche electronic document management system stores and shares information efficiently and cost-effectively in an enterprise document repository. Laserfiche is Texas A&M's preferred vendor for document management with Texas A&M IT providing centralized support.

The shared service infrastructure was upgraded to run in a virtualized environment using the Laserfiche Rio multi-server licensing technology. Laserfiche Rio provides central control over information infrastructure, including standards, security and auditing, while allowing departments local flexibility over content and business process management. In collaboration with Laserfiche, the Texas A&M IT Laserfiche team developed an online interface to provide autonomous license management for departments. This functionality is expected to be incorporated into a future release of the base Laserfiche product.

Mobile initiative transforms university websites

Texas A&M made progress toward a more mobile-friendly campus. From January to August 2013, the number of college and academic department responsive websites increased from 16 to 31 (34 percent of sites). View the Go Mobile progress chart at **u.tamu.edu/HY9_dDym.**

The campus-wide Go Mobile team continued to help the university adopt mobile web technologies.

Improvements to the Go Mobile website included a Resource Center blog for learning best practices and mobile-ready, brand-compliant website templates. The Go Mobile team held seven outreach and training events to assist in the transition. Last year, the Go Mobile team produced a mobile strategy that supports making information accessible on any web-capable mobile device. They recommended implementing responsive websites, which automatically rearrange content based on the visitor's screen size.

Lower software prices augment savings

New lower prices took effect for all personal software offered by the Texas A&M Software Center. Products including Microsoft Office and Windows were reduced in price by as much as 50 percent. Several factors, such as new software contracts and changes in operating costs, affected prices.

The Texas A&M Software Center administers licensing agreements, which allow students, faculty, staff and departments to make software purchases at greatly reduced prices. Texas A&M departments saved over $3.9 million. Eligible employees and registered students who purchased discounted software for personal use collectively saved more than $2.9 million.

Specialized technical software provided by the Texas A&M Software Alliance was added to the Texas A&M Software Center's online store. The Texas A&M Software Alliance provided students no-charge access to engineering, medical, veterinary, physics and science software to better prepare them for successful careers.

TEXAS A&M LASERFICHE

1,600 *users*

DATA REPOSITORY GROWTH:

2010	800 GB
2012	2.12 TB
2013	3.22 TB

TEXAS A&M SOFTWARE
SAVINGS

$3.9 *million*

BY DEPARTMENTS

$2.9 *million*

BY EMPLOYEES & STUDENTS

COLLABORATION

School of Law joins the Aggie family

Following Texas A&M University's acquisition of Texas Wesleyan School of Law in August 2013, information technology functions were transitioned to Texas A&M infrastructure and services. The conversion was accomplished in a short time frame and enabled School of Law faculty, staff and students to start the fall term as members of Texas A&M.

Because of the transition's scope, most Texas A&M IT departments were involved, as well as university groups such as the Office of the Registrar, Student Business Services, Division of Finance and others. Students were provided access to information systems to register for classes, set up email, process scholarships and financial aid, and pay tuition statements. Faculty and staff were granted accounts to be integrated into human resources and payroll systems. The campus wired and wireless networks and telecommunication systems were transitioned to Texas A&M's resources.

IT Advisory Committee recommends cost-saving solutions

The IT Advisory Committee (ITAC) made recommendations on university shared services for email and virtualization. ITAC enhances shared governance by identifying common IT issues, collecting input from members' departments, reviewing solutions and providing recommendations to the Vice President and Associate Provost for Information Technology. ITAC reviewed cloud-based email providers and submitted recommendations, which will be reviewed by a campus-wide email selection advisory committee. ITAC recommended initiating a project for offering virtual machines and storage shared services at Texas A&M.

New TTVN WebMeeting

TTVN WebMeeting provides enterprise online webconferencing and collaboration services to the A&M System. The service's new tools simplify creating and conducting online meetings, full-featured online classes and interactive webinars for hundreds of participants. Mobile apps let users participate via iOS and Android devices. In addition, the system was moved to virtual servers and backup devices in the campus data centers. During the first semester of use, over 5,000 users enrolled for the new service.

Over
5,000
USERS ENROLLED
IN THE NEW
TTVN
WEBMEETING

INCREASING COLLABORATION

Texas A&M IT helped further collaboration within the A&M System, making recommendations on shared email and virtualization services, assisting in the School of Law transition, and introducing a new service for conducting online meetings.

EXPENDITURE SUMMARY

Expenditures by
CATEGORY

For Fiscal Year 2013: Total $82.6 Million

- $5.9M Capital Equipment
- $49.7M Operations & Maintenance
- $444K Travel
- $20.3M Salaries
- $2.6M Wages
- $3.7M Fringe

Expenditures by
DEPARTMENT

- $20.4M Vice President & Associate Provost for Information Technology
- $31.3M Computing & Information Services and Networking & Information Security
- $8.8M Educational Broadcast Services
- $6.9M Enterprise Information Systems
- $2.5M Instructional Media Services
- $2.3M Instructional Technology Services
- $10.5M Telecommunications

Texas A&M Information Technology

The Office of the Vice President and Associate Provost for Information Technology and the departments of Texas A&M IT provide services and resources that help the faculty, students and staff of Texas A&M University use technologies to achieve excellence in teaching, research, learning and administrative pursuits.

Computing & Information Services

Computing & Information Services (CIS) provides core IT infrastructure resources and facilities that support the campus and departments within Texas A&M IT. CIS operates central campus servers that house mission-critical data and services, including email, Internet and network access, campus wireless, websites, data center operations and administrative and academic systems. CIS provides campus computer labs, 24-hour assistance through Help Desk Central, hardware and software support, custom application development, discounted software for departments and individuals, as well as the university's Supercomputing Facility.

Educational Broadcast Services

Educational Broadcast Services (EBS) is comprised of KAMU-TV/DT, KAMU-FM and TTVN. They offer a unique synergy of technology and expertise for wide area networking, interactive communications, public broadcasting and audio/video production that broaden the range of services available to the university community. KAMU provides public radio and television broadcasting services to Bryan/College Station and surrounding areas.

TTVN is the wide area data and interactive communications network for The Texas A&M University System, which provides enterprise-level, high-speed data networking services to each of the 11 A&M System university campuses and the seven research and service agencies. TTVN also provides interactive videoconferences with any site worldwide, WebMeeting webconferences and live and archived Windows Media streaming audio and video webcasts.

Enterprise Information Systems

Enterprise Information Systems (EIS) is responsible for the implementation and maintenance of mission-critical, enterprise-wide information systems at Texas A&M. Compass, the web-based student information system, has been implemented at the College Station, Galveston and Qatar campuses. EIS also is responsible for Howdy, a comprehensive web portal, which serves as the "front door" to Compass and connects students, applicants, faculty, staff, former students and parents/guardians to web-based services at Texas A&M.

Instructional Media Services

Instructional Media Services (IMS) provides and supports multimedia equipment and technology tools that enhance and improve the quality of classroom instruction. IMS maintains multimedia/computing equipment in technology-enhanced Smart classrooms across campus. These automated systems allow instructors to use one interface to easily control classroom equipment including the data projector, screen, computer, DVD player and optional equipment such as a Smart Sympodium or document camera. IMS personnel also deliver and set up equipment for classes or other functions in rooms without permanent equipment.

Instructional Technology Services

Instructional Technology Services (ITS) fosters effective use of technology in teaching and learning. ITS maintains, administers, and develops university-wide systems, services, and training to support the university's online learning infrastructure. They manage and support the university's centralized learning management system eCampus (Blackboard Learn). ITS provides professional development opportunities and empowers instructors to use best practices in higher education to enhance student learning through technology. They offer workshops, in-person training, course design consultations, and online resources for instructors to complement various learning styles and promote effective course design.

Networking & Information Security

Networking and Information Security (NIS) maintains and supports the campus and community network backbone and provides network connections. They are responsible for Internet connectivity, campus wireless service and remote office services. NIS is in charge of the information security program that maintains and enhances the overall security posture of the university. Their responsibilities include campus firewall maintenance, incident response and investigation, firewall and sensor configuration and providing information and notification on viruses, attacks and vulnerabilities. NIS initiates and applies IT policies and procedures, as well as develops and administers information security awareness training for students.

Telecommunications

Telecommunications provides fast, reliable and cost-effective telecommunications services. They offer voice services to all A&M System offices in College Station and other offices in Texas and international locations, as well as all network service contracts for all A&M System office locations. They support security and surveillance systems on campus, as well as manage the university's two-way radio systems. Telecommunications also manages the Emergency Alert System, a component of the university's Code Maroon system, which provides the ability to rapidly distribute emergency information to the campus.

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