

TRANSFORMING TODAY & TOMORROW

Division of Information Technology
2018 Annual Report

LEADERSHIP

LOYALTY



Division of
Information Technology

FROM THE CIO

Transforming Today and Tomorrow. That's not just the theme of this year's annual report, it's also our mantra. Main focus areas for 2018 included enhanced cybersecurity, state-of-the-art data center and cloud offerings, creation of transformational learning opportunities for students, and planning for the next-generation Aggie network.

Our cybersecurity team strengthened markedly as we made significant executive hires, including a new chief information security officer, a principal security operations engineer for Security Operations and Incident Response, and four new members of IT Security, IT Risk Management and Policy. They have broad backgrounds in the military, government, healthcare and financial sectors, addressing each area of the National Institute of Standards and Technology (NIST) cybersecurity framework.

Texas A&M added an additional layer of security with the campuswide implementation of Duo NetID Two-Factor Authentication. The division also deployed critical endpoint protections, including anti-virus, encryption and data loss prevention, with a campus-wide implementation scheduled in the coming year. We will also implement a university-wide governance risk and compliance software.

As we transform today and tomorrow, we must keep up with the latest in AI and the internet of things (IoT). The Division of IT partnered with students in the College of Engineering's Computer Science Department to create an innovative Amazon Alexa "skill." The "Aggie Tech Help" skill, now available in the Alexa app, will help the campus community answer technical questions.

The division also served as a "client" for students in a Project Management in Organizations class, asking a team to evaluate a software program that will be used by our IT Governance councils, committees and special groups.

Innovation also plays a key role in the transformational process. The Laserfiche Enterprise Content Management team is saving The Texas A&M University System \$200-\$250 thousand each year

to archive reports from the Financial Accounting and Management Information System (FAMIS). The System is also utilizing Laserfiche to archive information from the decommissioned Buy A&M (BAM) Purchasing System.

As this report shows, we are committed to the delivery of accessible technology services designed to meet the needs of today while helping the university achieve its mission. I am amazed at the passion our staff bring to their work every day and the responsibility we all feel to help this remarkable institution succeed.

M. Dee Childs

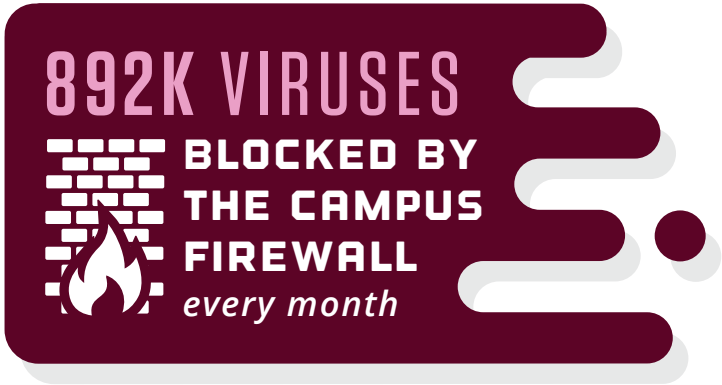
Vice President of Information Technology
and Chief Information Officer,
Texas A&M University



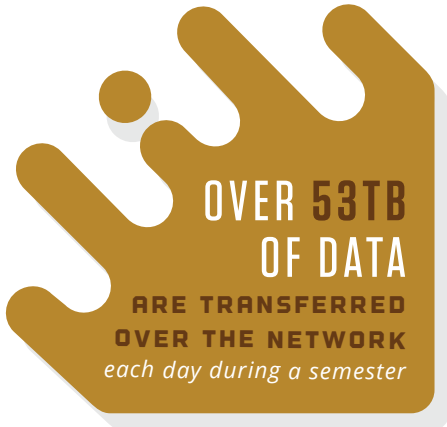
“ We are committed to the delivery of accessible technology services designed to meet the needs of today while helping the university achieve its mission.”

INFORMATION TECHNOLOGY BY THE NUMBERS

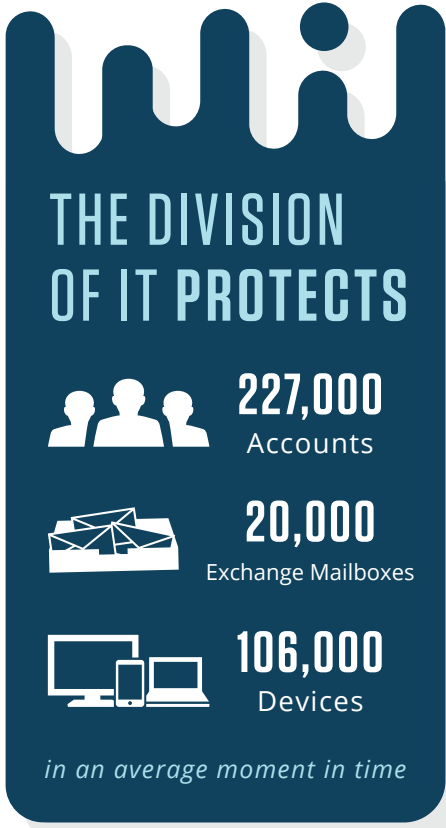
The Division of Information Technology provides IT services and resources that support the academic and research pursuits of Texas A&M University.






892K VIRUSES
BLOCKED BY THE CAMPUS FIREWALL
every month



OVER 53TB
OF DATA
ARE TRANSFERRED
OVER THE NETWORK
each day during a semester



THE DIVISION OF IT PROTECTS

-  **227,000** Accounts
-  **20,000** Exchange Mailboxes
-  **106,000** Devices

in an average moment in time



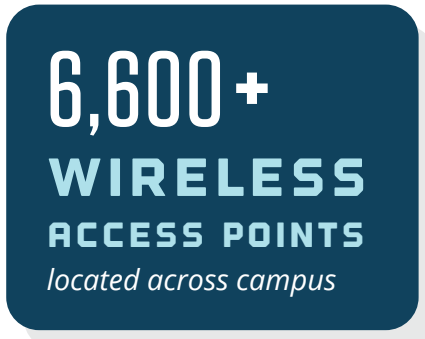
OVER 
4 MILLION
wireless sessions
SECURED DAILY




670K **ACTIVE IDENTITIES**



3 PETABYTES OF DATA
INSPECTED EVERY DAY



6,600+
WIRELESS ACCESS POINTS
located across campus



10.1 MILLION
EMAILS
INSPECTED DAILY FOR
spam, phishing & viruses



WHAT'S A PETABYTE?
One petabyte of mp3 music would play continuously for over 2,000 years.



“Texas A&M is currently on the way to building a world-class enterprise cybersecurity organization. We Aggies – fearless on every cyber front – will be the example of how cybersecurity is done.”

*Michael Sardaryzadeh
Associate Vice President for Cybersecurity,
Policy and Compliance,
CISO
Texas A&M University*

SECURITY

Apprenticeship Program Readies Students for Cybersecurity Industry

To prepare for the growing cybersecurity industry, the Division of Information Technology and EY (formerly Ernst & Young) teamed up to create a Cybersecurity Apprenticeship Program (CAP).

Ten student apprentices were admitted to the program and will work alongside the Division of IT's security team. The students were selected after a grueling round of interviews and extremely challenging tests.

Based on performance, the students could receive a full-time position with either the Division of IT or EY in the future.

"I can tell you without a doubt that the cybersecurity field is quickly surpassing the medical field in not only the number of areas of expertise or branches, but also the depth needed in each one of those branches," said Dr. Michael Sardaryzadeh, Associate Vice President for Cybersecurity, Policy and Compliance and the Chief Information Security Officer (CISO) for Texas A&M.

Division of IT Wins "Best of Texas" Cybersecurity Award

Cybersecurity isn't a game, but learning about it can be.

Each October during National Cybersecurity Month, the Division of IT designs an online game to help transform the online habits of the campus community. The 2017 effort, "Keep Tradition Secure," was honored with a Best of Texas award for Best Mobile/Wireless Project by the Center for Digital Government.

Through the online game, the division created a unique way to educate individuals on cybersecurity and campus traditions by having players track a hacker known as "Bad_Bull" across campus. Two versions of the game were available – an online game and an interactive, geolocation-based version. Over 9,000 members of

the campus community participated and played the online game. Area K-12 schools were also invited to play the game.

"We are extremely honored to receive this award," said Lacey Baze, Associate Director for Product Strategy & Communications. "Universities are prime targets for cyber attacks, so cybersecurity is a top priority. We are glad we can communicate this in an innovative way that is both educational and entertaining."

Two is Better than One: Texas A&M Embraces Two-Factor Authentication

The overall security posture of Texas A&M University is strengthening with the help of Duo NetID Two-Factor Authentication.

Two-factor authentication adds an additional layer of security to prevent someone else from using your account, even if they know the password. In addition to the password, users must confirm their identity by using a cellphone application or receiving a code by phone call. This authentication is described as a combination of "something you have and something you know."

All first-year students (U1 classification) are now enrolled in Duo. All employees and remaining students will be onboarded in the spring of 2019.

Endpoint Protection, DLP and Encryption Enabled in Division

The Division of IT rolled out Symantec Endpoint Protection, data loss prevention (DLP) and encryption. Rollout of the Endpoint suite to colleges and other units will begin soon. The suite features prevention, detection and response, and adaptation.



Fearless on Every Cybersecurity Front

Since change comes from within, the Division of IT held its first-ever Cybersecurity Showcase to hear from industry professionals about threat intelligence and ways to protect critical infrastructure from cyber attacks.

The event was a resounding success with over 150 attendees, including some students from local high schools.

Topics and speakers:

- Keren Elazari, CISSP, a senior researcher for Tel Aviv University and a security analyst, explained how the cybersecurity industry can benefit and learn from hackers, since they force the industry to evolve. This was the basis of her 2014 TED Talk, "The Internet's Immune System," which has since been translated to 30 languages.
- Lending Club CISO and Senior Vice President Richard Seiersen, author of "How to Measure Anything in Cybersecurity Risk," detailed security risk forecasting using measurement and data.
- Former National Security Administration security threat analyst and current director of cybersecurity for E*Trade, Jonathan Taylor, discussed the destruction caused by malware, identity theft, ransomware and the other things that pose daily threats.
- Microsoft software architect Dave Thaler focused on the importance of protecting critical infrastructure from cyber attacks.

Plans are being made to expand the event in 2019 and beyond. Dr. Michael Sardaryzadeh, Associate Vice President for Cybersecurity, Policy and Compliance and the Chief Information Security Officer (CISO) for Texas A&M, said the showcase will reflect the growth of the university's cybersecurity presence.

"Texas A&M is building a world-class enterprise cybersecurity organization," he said. "We Aggies – fearless on every cyber front – will be the example of how cybersecurity is done."

Richard Seiersen, CISO and Senior Vice President of Lending Club, speaks at the 2018 Cybersecurity Showcase.



Keren Elazari (left), Richard Seiersen, Dave Thaler and Jonathan Taylor participate in a discussion panel led by Michael Sardaryzadeh (far right).





Capstone project students and Division of IT members helped bring an Alexa skill proof-of-concept to life. Pictured from left to right are students Jack Swink, Aaron Blasband and Justin Bevelo; Lacey Baze, Associate Director of the division's Product Strategy and Communications; student Joey Sapp; and Bobby Bernshausen, Communications Coordinator for the Division of IT.

TRANSFORMATIONAL LEARNING

Capstone Project Brings Familiar Voice to Campus

"Alexa, how do I change my NetID password?"

That's just one of the questions users can ask Amazon Alexa using the new "Aggie Tech Help" skill developed by the Division of IT. Four students from the Department of Computer Science and Engineering created the proof-of-concept as part of their senior Capstone project.

Justin Bevelo, Aaron Blasband, Joey Sapp and Jack Swink were the "Texas A&M Alexa Development Team" in visiting professor Mahima Agumbe Suresh's course in the Spring 2018 semester. Lacey Baze, Associate Director of the division's Product Strategy and Communications team, asked the students to design a skill that would serve as an extension to Help Desk Central by answering the questions and pushing a URL for more information.

Bevelo, who works as a consultant at the management firm Credera, said the experience helped when he entered the "real world."

"This project was my first client-based assignment in which I was expected to communicate effectively with the client," he explained. "This experience definitely helped prepare me for my current role with Credera."

Swink, who now works as a .Net software engineer for P97 Networks, agreed and said the project was just one of invaluable things he learned at the university.

"Texas A&M gave me an amazing foundation to build on," he said. "I find myself equipped to not just code in some subset of languages, but I'm capable of picking up just about any language

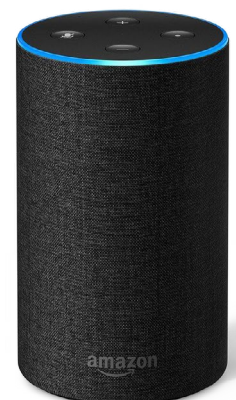
to work on just about anything. I would not be able to do this without all of the theory that I learned at the university."

The Alexa skill allowed the students to give something back to the university as well, since the skill increases accessibility.

"The Aggie Tech Help skill for Alexa is a powerful resource for employees, students and campus guests who are blind or have low vision, those who have restricted mobility, and those with cognitive conditions who may prefer verbal cues over text," said Cynthia Kauder, EIR accessibility coordinator and senior lead IT policy analyst. "Alexa can even recognize synthetic speech, making it extremely helpful for individuals with neurological conditions that may have impacted their motor skills and speech."

Alexa, how do I change my NetID password?

Go to gateway.tamu.edu and log in with your NetID and current password. You can update your password in the "Password Settings."



Project Management Students Introduced to IT Field Through Software Evaluation

Not many students have heard of IT Governance, so imagine their surprise when five were tasked with evaluating a new software program for the Division of IT.

As part of David Sweeney's ERHD 477 Project Management in Organizations class, students were asked to execute a real-world project of their own choosing.

The team, which called itself "SwedishFish," was asked by the Division of IT to analyze BoardEffect, a software program that allows for meetings, document sharing, digital signatures and voting. Each student spent between five and ten hours on the project every week, meeting with Josh Kissee, viewing BoardEffect training videos and assembling as a group.

Kissee, Chief of Staff to the Vice President for IT and CIO, served as sponsor of the project. The executive sponsor was Dee Childs, Vice President for Information Technology.

"Project management is an essential skill in most professions," said Sweeney, who is also Director of Information Technology for Student Affairs. "Learning is most effective when it is experiential. Giving students a real-world project of their own choosing gives them responsibility for their own learning, which is the greatest thing we can give our students."

Sarah Brady, a junior majoring in technology management and human resources development, said it was a bit difficult learning certain concepts and ideas she had not been exposed to previously.

"I think the project has given me great insight into what the IT field is like," Brady said. "I definitely think I will be able to manage new software in an effective manner because of this project."

To complete the project, the team had to give a presentation and provide two deliverables to the Division of IT analyzing the security, settings and usability of BoardEffect.

"It was a privilege working with Aggies who had a strong interest in learning how to apply best practices for delivering IT services," Kissee said. "They gave an excellent presentation and produced a set of recommendations that will be used in configuring the software."



Working together on the BoardEffect optimization project were (front row) students Taylor Conger and Sarah Brady; Dee Childs, Vice President for Information Technology; and student Christine Lenzsch. On the back row are student Daniel Drzycimski; Josh Kissee, Chief of Staff to the Vice President for IT and CIO; and student Anthony Basile.



CONNECTIONS

Technology is here to stay. While making life easier, efficient and more productive, such innovation makes a lasting impact on the world while readying us for the future.

Connecting Brazos Valley to the World

High-speed internet opens an infinite number of possibilities, especially in rural areas.

The Texas A&M Academy for Advanced Telecommunications and Learning Technologies and the Brazos Valley Council of Governments (BVCOG) were awarded a \$26 million grant to build a rural fiber optic cable network through the Healthcare Connect Fund and matching funds. Rural healthcare providers, including

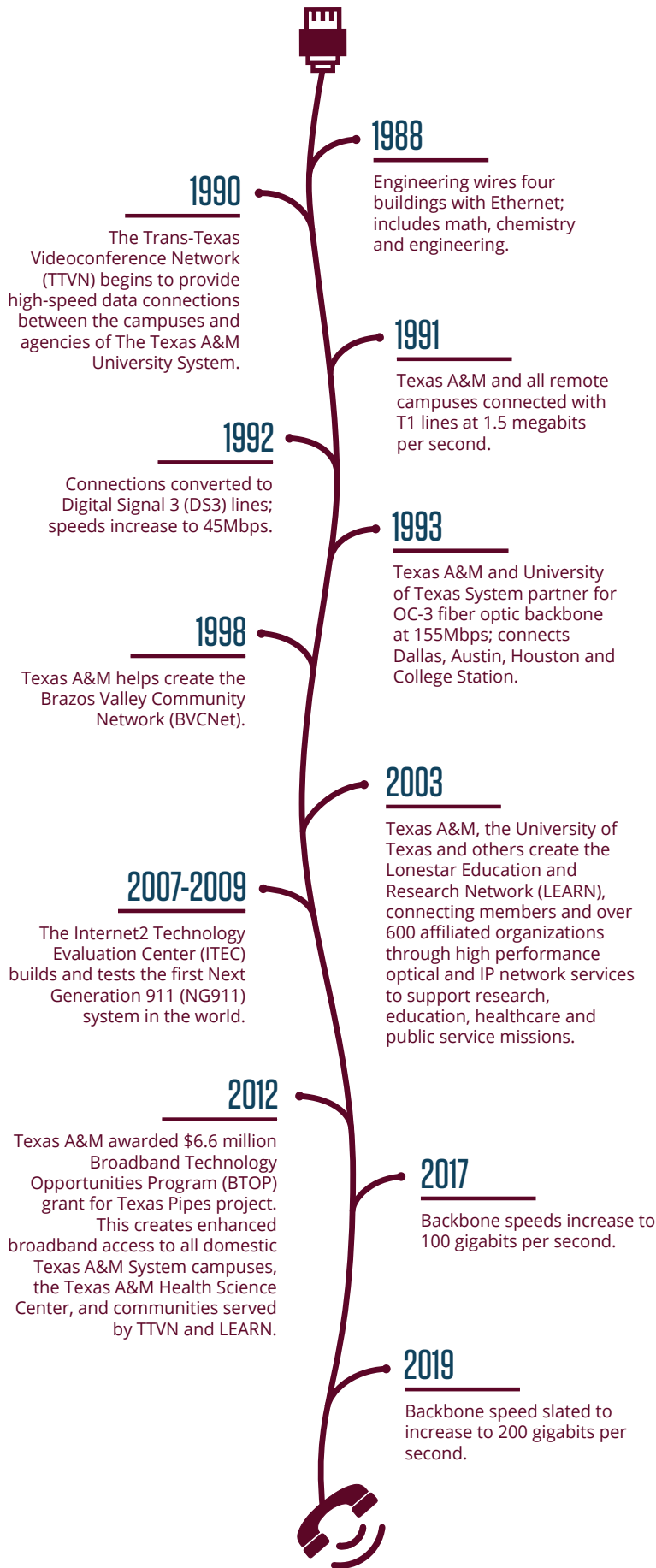
hospitals, schools, clinics and jail clinicians, will be the initial users of the network. When complete, the backbone will loop through Brazos, Burleson, Grimes, Leon, Madison, Robertson and Washington counties.

Walt Magnussen, Chief IT Consultant for Vendor and Agency Relations, explained that as access expands, local businesses may connect in the future. The network is estimated to create approximately 1,100 new jobs in the connected communities over coming years. The backbone will also supply connectivity to service providers who normally avoid rural areas due to high costs and give residents an option to the slower, more expensive satellite or wireless choices currently available. High-speed availability will also make the connected communities more attractive to businesses.

“Texas A&M is rapidly becoming known as one of the lead public safety communications facilities in the world.”

*Walt Magnussen
Chief IT Consultant for Vendor and Agency Relations,
Texas A&M University*





Next Generation 911

Magnussen, who also serves as Associate Director of The Academy for Advanced Telecommunications and Technologies at Texas A&M, testified before the congressional Energy and Commerce Committee in March 2017 as it considers \$12 billion in funding for Next Generation 911 (NG911) emergency systems. The NG911 will upgrade current analog 911 to a digital or Internet Protocol (IP)-based structure, thus creating a faster system that can accept voice, photos, videos and text messages.

“Hopefully this will get the ball rolling as far as getting NG911 around the country,” he said.

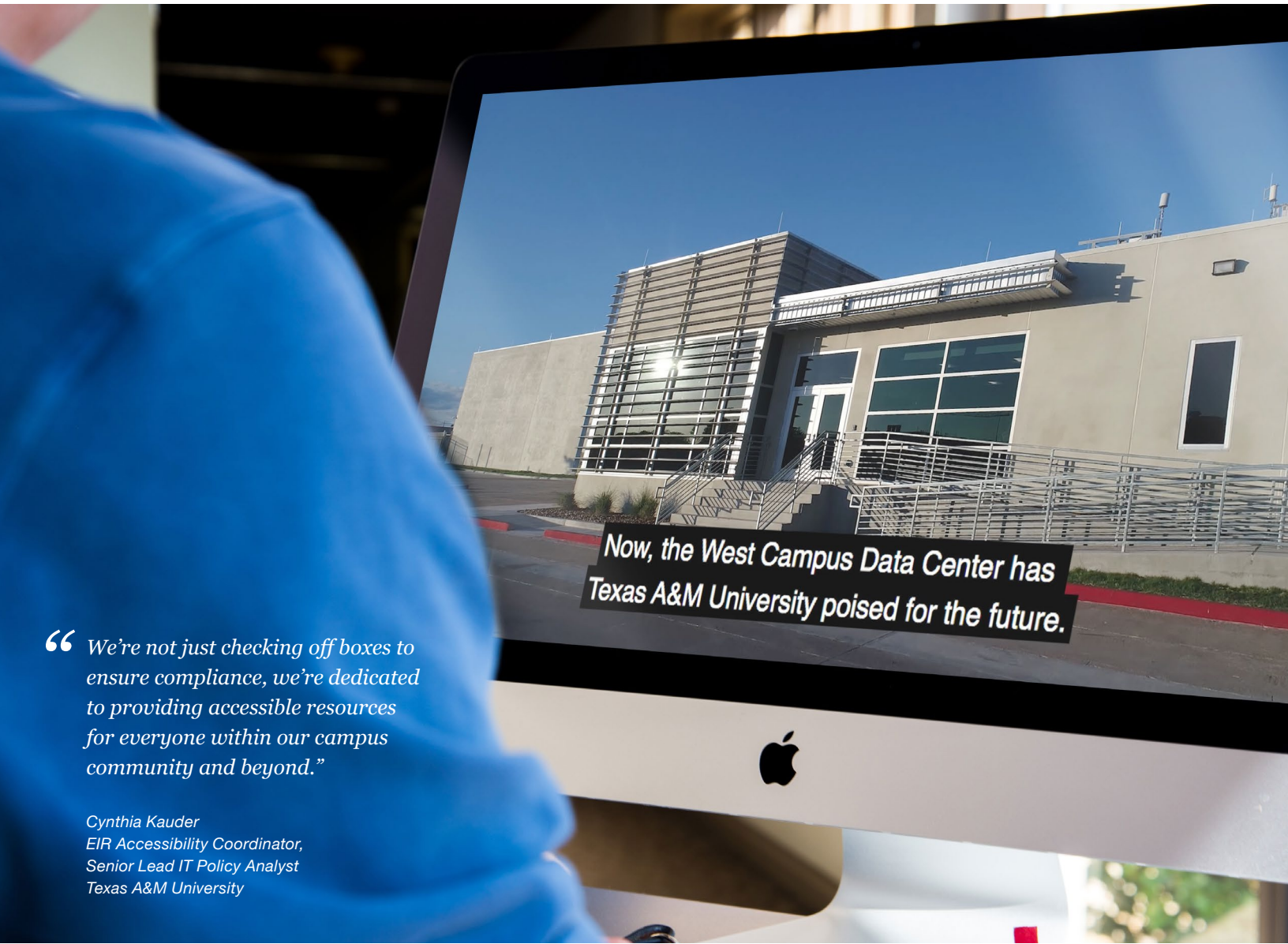
From 2007-2009, with a \$1.7 million grant from the US Department of Transportation, the Internet2 Technology Evaluation Center (ITEC) at Texas A&M worked with Columbia University to build and test the first NG911 in the world. The system is in use at five call centers in the US, but Magnussen hopes new funding will help the technology spread across the country.

“Texas A&M is rapidly becoming known as one of the leading public safety communications facilities in the world,” Magnussen says. “The more the university becomes known as a thought leader, the more projects, research and funding we will attract.”

Magnussen says Texas A&M’s reputation may soon help it become a testbed for fifth-generation (5G) cellular wireless services under a \$25 million grant.

“If that happens, there will be a huge impact, since there will be a significant amount of infrastructure built behind it,” he said. “It’s a \$25 million project, and about \$16 million of that will be equipment and construction.”





“ We’re not just checking off boxes to ensure compliance, we’re dedicated to providing accessible resources for everyone within our campus community and beyond.”

*Cynthia Kauder
EIR Accessibility Coordinator,
Senior Lead IT Policy Analyst
Texas A&M University*

ACCESSIBILITY

Knowledge obtained from teaching, learning and discovery is crucial to the transformation of today and tomorrow. The Division of IT is focused on accessibility to ensure Texas A&M's information resources are available to the largest audience possible, including those with disabilities and special needs.

In addition to new training courses, the development of a video captioning workflow and expansion of the web accessibility compliance initiative, a campuswide Electronic and Information Resources (EIR) Accessibility Task Force was established in the fall to assist with accessibility efforts.

The task force is a subcommittee of the IT Governance Information Risk, Policy and Security Committee. Consisting of 40 representatives from colleges, administrative units and satellite campuses, the task force is charged with creating and managing

process to ensure accessibility for instructional technologies, online resources and applications and the procurement of EIR.

Cynthia Kauder, EIR Accessibility Coordinator and Senior Lead IT Policy Analyst, said that although accessibility is rooted in policy, an important part of the task force is to understand the human aspects as well.

“We’re not just checking off boxes to ensure compliance, we’re dedicated to providing accessible resources for everyone within our campus community and beyond,” Kauder pointed out. “With the global implications of instruction and research at Texas A&M, it’s our responsibility. Plus, it’s just the right thing to do.”



DATA CENTER & RESEARCH

West Campus Data Center Growth Continues

Texas A&M University is transforming the world through research, innovation and academic excellence. As technology grows, so does the need to expand our resources. The new West Campus Data Center positions Texas A&M to deliver the IT services of the future. The facility provides a secure environment for leading-edge, functional and efficient IT infrastructure.

In the past year, the West Campus Data Center doubled the capacity of server cabinets to meet increased demand. All monitoring, security devices and security protocols are in place to satisfy increasingly stringent federal grant requirements.

The Aggie Cloud is now available! Virtualization enables the configuration of a single server into multiple server types. One no longer needs multiple, dedicated servers for different tasks - one server can do it all. This streamlined server configuration reduces cooling needs, energy costs, and maintenance costs.

Benefits of the Aggie Cloud include:

- Ability for campus members to access compute resources through a self-service portal using templates and approval workflows. The templates include appropriate security and firewall settings, allowing faculty to focus on research instead of technical configurations
- Ability to purchase short-term virtual servers with daily billing increments - researchers no longer need to acquire physical servers to meet a temporary need.

Innovative Cancer Research Powered by West Campus Data Center

The GeoServices Geocoding Platform, the official processing platform for United States cancer data, is housed in the West Campus Data Center. This is just one of the Cyber Infrastructure-Enabled Geographic Information Science (CyberGIS) projects Texas A&M's GeoInnovation Service Center (TAMU GISC) has in the facility.

The platform translates postal addresses into latitudinal and longitudinal pairs for use in geographic analysis, planning and policy-making. The system supports the needs of over 80,000 users on a daily basis and is entering its thirteenth year of partnership with the North American Association of Cancer Registries (NAACR). The research is funded by the National Institutes of Health (NIH), the Centers for Disease Control and Prevention (CDC), the Texas Department of State Health Services and organizations such as the Susan G. Koman Foundation.

Daniel Goldberg, Ph.D., director of the GeoInnovation Service Center, said the work improves and explains the accuracy of geographic data used for research and a variety of industries.

"The infrastructure of the WCDC is top notch and everything has been humming along smoothly since our move," Goldberg said. "The move from our data center in the O&M building to the WCDC was pain-free. The staff is knowledgeable, accessible and accommodating and our downtime has decreased to almost zero since our move."



The Division of IT was honored over the past year as we supported the campus community in research, innovation and discovery.

TASSCC Trailblazer Award

Miner "Pete" Marchbanks, Jr., Ph.D. | TASSCC

The Texas Association of State Systems for Computing and Communications (TASSCC) recognizes senior-level leadership with the "Trailblazer Award."

2018 Texas A&M Student Employment Impact Award

Matt Lacy, Senior IT Manager | Student Employment Office

This award recognizes a Texas A&M employee who makes a profound impact on student employment.

Best Mobile/Wireless Project

Division of IT | Center for Digital Government

The award highlights IT professionals and local government organizations for their contributions and dedication to advancing information technology. The Division of IT received its first Best of Texas award for "Keep Tradition Secure," the 2017 cybersecurity awareness campaign.

Best of Category Awards

Division of IT | ACM SIGUCCS

The Special Interest Group on University and College Computing Services honored Texas A&M in two communication categories. All entries can be seen at u.tamu.edu/SIGUCCS.

- **Best General Service Promotion**
"Keep Tradition Secure" - Cybersecurity Awareness Month 2017
- **Best Quick Reference Guides**
"West Campus Data Center Printed Materials"



EXPENDITURE SUMMARY



Help Desk Central, \$2.1 M



Infrastructure (Data Centers, Email, Identity Management), \$9.6 M



Software/Application Development, Database Support, Custom IT Solutions, \$3.5 M



Research & Education Network, \$12.9 M



Cybersecurity, \$4.9 M



Academic and Student Software, \$4.3 M



Telecommunications, \$8.9 M



Wide Area Research & Education Network, Video Conferencing, \$3.2 M

Division of Information Technology

M. Dee Childs, Vice President for Information Technology and Chief Information Officer

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