GEORGE MASON UNIVERSITY | Information Technology Services

ANNUAL
REPORT
FY2018

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VPIT/CIO MESSAGE

During the fiscal year 2017–2018, Information Technology Services (ITS) continued to make progress advancing the critical business needs and academic and research goals of George Mason University.

We thank Mason's senior administration and our valued partners across the university for their direction and support. Special thanks to members of the Information Technology Governance Group (ITGG), Faculty Senate Technology Policy Committee (FSTPC), Technology Leadership Council (TLC), and Systems Administrator Leadership Team (SALT). With your guidance, we were able to make significant progress— we appreciate all you do.

This year, ITS underwent organizational changes and made several promotions to support the addition of responsibilities to our leadership team. The strategic changes positioned our organization to support the rapid, continuing growth and increasing demands of the university and to work together to further transform ITS into a customer-focused and service-driven organization: One ITS.

ITS worked with our Mason affiliates (colleges, schools, institutes, and departments) to align our strategic and annual operational goals with Mason's strategic priorities. Through collaboration and a primary focus on customer success, ITS saw another successful year of finding solutions to meet the university's wide-ranging technology needs and providing an IT environment in which our students can thrive.

I welcome you to view the highlights of our accomplishments and preview what we will be working towards in the year ahead.

Sincerely,

Marilyn T. Smith
Vice President and CIO

INFORMATION TECHNOLOGY SERVICES

WHO WE ARE
Information Technology Services (ITS) is Mason's central IT organization. We provide IT resources, systems, and services to the university community. Six groups comprise ITS, and in FY2018, ITS employed an average of 220 employees and 150 students.

OUR GROUPS
- Academic Strategies
- Enterprise Applications
- Enterprise Infrastructure Services
- Enterprise Service Delivery
- IT Security
- Learning Support Services

WHAT WE DO
GROUNDED BY OUR MISSION
Collaboratively implement and support technology that enriches teaching and learning, research, and university operations

WHY WE DO IT
ENLIGHTENED BY OUR VISION
To inspire life-changing learning and success for our students and for the entire Mason community by providing superior technology and collaborative solutions

HOW WE DO IT
ALIGNED WITH OUR PRINCIPLES
- Engage with our customers and partners to align resources
- Incorporate lifecycle planning to develop sustainable services
- Value our people by encouraging their professional growth, promoting well-being, and recognizing excellence
- Ensure that information technology assets are protected and monitored, to reduce university risk
- Deliver solutions that catalyze student success
- Respond with agility to changing technology needs

GUIDED BY OUR VALUES
- Teamwork
- Communication
- Integrity
- Innovation
- Respect

Providing services and support that help make Mason great

- Application Integration
- Aquia Data Center
- Blackboard & Collaborate
- Business Intelligence
- Computer & Software Resources
- Email & Telecom
- Enterprise Applications
- GMU-TV
- Infrastructure & Network

- IT Security
- ITS Support Center
- Project Management
- STAR Lab & CLUB
- Technology Enhanced Classrooms
- Videoconferencing & Telepresence
- Virtual Computing Lab
- Web Content Management

PROJECTS
IMPROVING THE ACADEMIC, RESEARCH, AND ADMINISTRATIVE EXPERIENCES

- Refreshed classroom technology in 19 University Registrar Classrooms and upgraded 22 general classrooms to support "Bring Your Own Device"

- Supported the ADVANCE program by establishing processes and mechanisms for NVCC and Mason to easily share student data

- Began planning for a NIST 800-171 compliant environment for Controlled Unclassified Information (CUI) research projects

- Partnered with Academic Innovation and New Ventures to offer distance education integrated with critical Mason systems: Banner and Blackboard

- Enhanced the Mobile Mason app and added new features to improve the user experience

- Automated the intake, validation, and processing of middle and high school student applications for the Early Identification Program

- Retired 28 Admissions servers and migrated users to the MESA environment for higher security and improved overall support

- Improved Patriot Preview, the online orientation system, by adding integration with Mason applications and streamlining the process of authentication for students

- Partnered with Enrollment Management to replace the undergraduate recruitment system to streamline the enrollment process

- Improved Smithsonian-Mason School of Conservation's admissions processes by introducing automation of applications and payment processing functionality

- Amended Banner's Disaster Recovery Plan to document processes and mitigate functionality gaps in case of a disruptive event to mission-critical systems

- Upgraded telepresence rooms in Founder's Hall, Engineering Building, and Merten Hall in support of 4VA

- Automated administrative systems used by the Office of the Provost for SACS accreditation and the Office of Sponsored Programs for monitoring and tracking grant expenditures

NETWORK DELIVERS 100G CAPABILITY AND WIDER WI-FI COVERAGE

ITS upgraded over 900 access points in residence halls and 284 access points in academic and administrative buildings, as well as built a new fiber ring to connect Mason's three campuses and two data centers. These upgrades added to the vast and dynamic system that consists of more than 1,300 miles of fiber cable and 4,200+ access points. The network upgrades provide 100G capability and greater bandwidth to the Mason community, as well as improve Wi-Fi coverage in and between buildings. ITS moved away from the costly model of having network routers in each building to centralizing router locations in order to significantly save on maintenance and future upgrade costs. These improvements make Mason's network more reliable to support the university's commitment to research and the student experience.

ADVANCE-ING FORWARD

Mason and the Northern Virginia Community College (NOVA) partnered for ADVANCE, a program aimed at giving NOVA students targeted, personalized support to complete their bachelor's degrees in a timely manner and save money. NOVA students declare their interests in one of more than 20 programs offered as a "pathway," allowing them to earn their two-year degrees at NOVA and then transition seamlessly into their careers at Mason to complete the pathway and earn a four-year degree.

ITS, working jointly with the Office of Admissions, Enrollment Management, and Academic Innovation and New Ventures, completed the following necessary steps to move the partnership forward:

- Created a Secure File Transfer Protocol (SFTP) site where student data collected by NOVA can be securely made available to Mason

- Developed the required processes that move the data to a dedicated environment where it is then uploaded to the Mason Customer Relation Management (CRM) system

- Modified existing processes to move student data into Banner (Mason's source and transaction processing system) at the appropriate time

ITS also collaborated in several working groups with NOVA's teaching and IT staff and began gathering requirements for Phase II to facilitate more automated data sharing for coaches working with ADVANCE students.

BLACKBOARD IN THE CLOUD

ITS took the first step toward delivering the Blackboard Ultra experience to users and migrated Blackboard from a managed hosting environment to Blackboard SaaS (Software as a Service), a cloud-based service. With a focus on enhanced user experience and in preparation for the Wiley online graduate programs, Blackboard SaaS scales to peak usage and continuously delivers updates, maintenance, enhancements, and new features in the background. During the transition, ITS refreshed the Blackboard interface and made it more mobile friendly for faculty and students. Blackboard SaaS is one of the ways that ITS is making infrastructure improvements to support Mason's growth goals and faculty and students in and out of the classroom.

GMU-TV: TELLING THE MASON STORY

The GMU-TV team saw an increased need for academic and administrative departments to produce video content for courses, online marketing, events, community outreach, faculty and staff training, and faculty and student research. GMU-TV produces videos at a fraction of the cost of outside vendors while delivering award-winning content. The team takes a customer-centric approach to produce videos that help their customers reach their goals. GMU-TV collaborates with their customers to tell their stories, often opening up new possibilities and potential. Many of the videos GMU-TV produces directly support the strategic vision of the university by allowing students to learn anytime, anywhere, on almost any device. This year, GMU-TV had a hand in many high-profile projects, including:

- Mason's 50th Golden Anniversary: Alumni in Action: 50 Years of Service

- Student Experience Redesign: In Support of the Student Experience

- Office of Admission's Welcome Center Series: My Mason Stories

Photo by
Alexis Glenn
Creative Services
George Mason University

IMPROVING THE STUDENT EXPERIENCE THROUGH TECHNOLOGY

In order for the Office of Admissions to improve the student experience, they implemented a Customer Relationship Management (CRM) platform, Salesforce, and an undergraduate admissions system solution (TargetX) using the Salesforce platform. ITS supported Enrollment Management and the Office of Admissions to deliver the TargetX tool which allows the university to engage with undergraduate applicants during every step of their admissions journey by:

- Marketing directly to potential and current applicants

- Streamlining the review process (allowing counselors to make decisions within the tool)

- Creating events for applicants and tracking attendance

- Integrating with current application software to manage applications and promote student retention

- Providing a better user experience that allows applicants to monitor the status of their applications and receive decisions online

PROJECTS
IMPROVING THE WAY
MASON DOES BUSINESS

- Assisted with the creation of new websites in CHHS and Career Services that leverage the Mason brand and the Drupal web content management system

- Improved reporting on student data to include point-in-time reporting and INTO Mason reporting utilizing the Business Intelligence infrastructure

- Developed a new ITS intake process, named the "ITS Solution Request Process" to support university partners in requesting ITS help in developing and implementing their technology solutions

- Improved the ability of units to collaborate through the rollout of Webex Meeting Center and Skype for Business

- Reduced the use of paper forms and improved the security of student transactions in the Registrar and Financial offices with the implementation of Dynamic Forms

- Instituted a new Conflict of Interest (COI) system to support the statewide mandate requiring all employees to submit a comprehensive COI disclosure

- Reviewed the existing Architectural Standards Review Board (ASRB) process and identified areas to increase transparency for requesters and reduce the time for requests to be reviewed

- Implemented the solution for delegating and delivering urgent, non-emergency university-wide communications

- Upgraded infrastructure to support new print drivers and data feeds, providing a more robust, managed print services environment at Mason

STUDENT DATA MART
POINT-IN-TIME REPORTING

A number of department leaders requested that ITS collect historical student data, which led ITS to redesign the student data mart to allow for more effective analysis. Prior to this initiative, the student data mart captured only the current picture of student and course data per term from Banner. Daily changes to student information and registration activities were lost. Creating data snapshots (i.e. comparing registration for one day in 2017 versus one day in 2016) was a manual, labor-intensive process and creating trend reports was virtually impossible.

The data mart was redesigned to be a point-in-time data mart—to have effective dates added to most tables and the creation of new rows when student data changes. These steps allow for dynamically-created daily snapshots and trend reporting (i.e. analyzing student registration changes over time to better plan course/classroom use).

The new capabilities help answer questions such as:

• How does course enrollment today compare to last week, last month, or last year?

• How many times has this student changed their major over their career at Mason?

Analyzing these types of information is crucial to the university as it allows Mason to make smart growth choices to better suit the needs of students.

WEBEX MEETING CENTER

In alignment with Mason's strategic goal to support innovative learning, ITS recognized the need for a multi-use enterprise web conferencing solution at Mason and rolled out Cisco Webex Meeting Center. This cloud-based web conferencing tool enables rich collaboration, allowing participants to share video, audio, and content—all online. Webex enriches the learning experience by providing an environment that encourages cross-classroom collaboration and content sharing, connects classrooms to external speakers and events, and allows students to participate remotely. In the business space, Webex is used by departments and colleges for virtual meetings, external collaboration, and hiring. Webex replaced one-off, smaller scale solutions utilized across various campus units and saved the university licensing fees and staffing resources needed to support disparate tools.

ITS SOLUTION REQUEST PROCESS

A new request intake process was developed to take the guesswork out of asking ITS for assistance with implementing IT solutions to meet current and future business needs.

Regardless of the size of the request, the ITS Solution Request Process offers university members a process to work with ITS to:

- Ensure that the IT solution will meet business needs

- Leverage existing resources

- Identify additional necessary resources

- Help navigate relevant policies and procedures

- Receive the appropriate reviews and approvals

- Establish expectations and timelines

The ITS Solution Request Process offers the convenience of submission, expert consultation and collaboration, and continuity of support during the request lifecycle and streamlines Mason's path to success.

SKYPE FOR BUSINESS

Building on the success of the pilot rollout of Skype for Business, the service was launched to the Mason community. Skype for Business allows individuals and small groups the ability for real-time communications, such as videoconferencing and instant messaging. Person-to-person instant messaging is a feature unique to Skype for Business, and is fully integrated with Microsoft Office 365. Skype for Business allows groups to communicate instantly, rather than having to email or call—expediting feedback while reducing disruptions.

We Can Help!

PROJECTS
IMPROVING
INFORMATION SECURITY

- Implemented Two-Factor Authentication for Mason employees for all applications using Central Authentication Service (CAS) including Banner, Patriot Web, and the Travel System

- Revised the identity proofing process for enrollment in Two-Factor Authentication to support the move of Banner to CAS

- Replaced Mason's Security Information and Event Management (SIEM) tool with Splunk to significantly strengthen the protection of the university's complex IT environment

- Analyzed and developed initial documentation required to justify Mason's Controlled Unclassified Information (CUI) program and prepare the university for future CUI-based research proposals

- Upgraded the IronPort email security system and incorporated the link reputation service to scan email for known phishing attempts

- Upgraded the Cisco AnyConnect Virtual Private Network (VPN) to further protect highly sensitive applications

- Deployed an Intrusion Detection System in the Mason environment to monitor malicious activity

- Modified the Online Deposit Application to use TouchNet uPay for a more secure and better-supported experience

TWO-FACTOR AUTHENTICATION FOR MASON EMPLOYEES

In preparation for Mason's move to Banner 9, ITS determined that the security questions used to protect the sensitive information stored in Banner systems, including Patriot Web, would no longer be supported. With phishing attempts and compromised credentials on the rise, Banner would require the addition of Central Authentication Service (CAS) and with that the requirement of Two-Factor Authentication (2FA) to support Mason's need for a second level of protection for highly sensitive applications. Because Patriot Web is used by all Mason employees, whether accessing payroll/tax information or submitting final grades, ITS partnered with Human Resources to meet an aggressive deadline of Tax Day 2018 for employees to enroll in 2FA. ITS redefined the new hire account claim and password reset processes to include 2FA enrollment, established a cohesive marketing campaign and 2FA brand, and took a grassroots approach to work one-on-one with many units and schools to support compliance. These resulted in success by reaching over 93 percent of employees enrolled in 2FA by the Banner to CAS cutover and positioned the university to expand 2FA to students and other critical systems as needed in the future.

SPLUNK: SECURITY INFORMATION AND EVENT MANAGEMENT (SIEM) SYSTEM

ITS replaced the existing Security Information and Event Management (SIEM) system with Splunk, a more robust and cost-effective tool to scan and detect security threats in Mason's complex and dynamic IT environment and address the growing need for server and application log monitoring. Splunk captures real-time data in a searchable repository that generates alerts, dashboards, and visualizations, empowering systems engineers and application owners to proactively identify and respond to emerging security risks and safeguard Mason's assets.

Splunk has become ITS' central log facility for more than 300 systems consisting of network firewalls, routers, switches, wireless access points, servers, business applications and databases, and security devices. Seven months after implementation, ITS increased the log collection limit by 67 percent to accommodate Mason's growing security log needs.

ITS IN FY2018
BY THE NUMBERS

100%
Technology
Enhanced Spaces

260
Classroom Spaces
Supported

47,782
Computer Lab
Visits

70,183
Computer Lab
Logins

5,438
Equipment Checkout
Reservations

11,755
STAR Lab Users

4,963
Virtual Computing
Lab (VCL) Users

59,897
VCL
Reservations

Video Enhanced
Courses Supported
54

5,184
Students in Video
Enhanced Courses

4,520
Collaborative
Learning Hub users

CLUB

62
Operational
Projects

ITS SPONSORED (31)

NON-ITS SPONSORED (31)

FOR PROVOST

FOR SR. VP

MANDATES/
MAINTENANCE

STRATEGIC/
CAPITAL

**68 PROJECTS
SUBMITTED THROUGH
GOVERNANCE**

22,682
Mobile Mason Users

FACULTY/STAFF **STUDENTS**

41,591
Support Center Calls Answered

1,395
Videoconference & Telepresence Events

2,685
Videoconference & Telepresence Hours

4,200+
Wireless Access Points

2,956
Collaborate Web Sessions

47
ASRB Requests Finished

801
Webex Host Accounts

7,754
Webex Sessions

15,600
Duo Users

PHYSICAL (94) VIRTUAL (225)
319
Servers

myMASON

38,176
Avg. Monthly Users

1,433
Banner Users

INB

763,207,971
Inbound Email Messages

82% REJECTED
(Spam, Viruses, etc.)
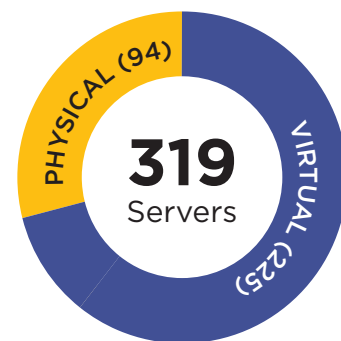
16,494
Lynda.com Courses Viewed

15,124
Lynda.com Avg. Monthly Users

1,300+
Miles of Fiber Optic Cabling

47,201
Office 365 Accounts

8,646
OneDrive Users

7.6
TB of OneDrive Storage

35,135
Bb Users

13,331
Bb Mobile Users
(Avg. Monthly)

Bb

10,000+
Courses Using Blackboard
(During Academic Year)

~2,000
MicroStrategy Users

494,787
BI Reports Delivered

GOALS
FY2019

EXPAND ACCESS TO EXCELLENCE AND TRANSFORMATIVE LEARNING

- Perform an ITS Instructional Services/Resources survey with faculty across the university

- Review and revise the ITS Strategic Plan and develop associated high-level roadmap

- Collaborate with NVCC to define IT requirements; implement solutions for the ADVANCE program

- Support the implementation of HelioCampus

GROW RESEARCH AND INNOVATION OF CONSEQUENCE

- Implement a secure, compliant environment for Research Computing

STRENGTHEN THRIVING, INCLUSIVE ACADEMIC COMMUNITY

- Offer to ITS staff comprehensive information and access to organizational, leadership development, and management training

BUILD FOUNDATION FOR THE FUTURE

- Complete design for Facilities Capital Project: Improve Network Infrastructure, Phase I

- Complete implementation of Two-Factor Authentication for faculty/staff email and Blackboard

- Complete high-priority audit projects as determined by APA and Internal Audit findings

- Complete Banner 9 upgrade and develop plan for moving Banner to the Cloud

- Establish and institutionalize enterprise Data Governance structure as defined in FY2018

- Perform assessment on Wi-Fi network and begin implementation of the recommendations

- Develop a Cloud strategy and implementation plan

- Commission an external assessment of our IT Security environment including as deliverables, a comprehensive roadmap

- Actively participate in the Robinson redesign portion of the Core Campus project