



WILLIAM & MARY
INFORMATION TECHNOLOGY
2017 YEAR IN REVIEW

TABLE OF CONTENTS

STAFF RECOGNITION pg.2 // IT MANAGEMENT pg.3 // MODERNIZATION pg.4 // ACADEMICS pg.6 //
HIGH PERFORMANCE COMPUTING pg.7 // AROUND CAMPUS pg.8 // IT'S 20TH BIRTHDAY p.10 // CRM pg.12 //
CRM INTEGRATIONS pg.14 // DATA MANAGEMENT pg.15 // SECURITY pg.16 // INFRASTRUCTURE pg.17 //
BUSINESS INNOVATION pg.18 // WHAT'S NEXT IN 2018 pg.19

RISING STAR AWARD

William & Mary Information Technology helped Student Leadership Development implement a system called TribeLink by Campus Labs. The system documents student experiences such as participation in clubs, interest groups, services hours, and campus events using a web interface and card swipe tracking system.

In 2017, William & Mary won the "Rising Star" award from Campus Labs in its "Engage" category. W&M IT Project Manager Kathy Baldwin and Application Administrator Jake Smith were both heavily involved in the implementation of TribeLink, working behind the scenes on the product for about a year before it became active.



Read the W&M News story at: <https://goo.gl/FjAQaA>



LEADING AV TECHNOLOGY

W&M IT's very own Academic Technology Manager John Drummond was featured in the July/August edition of **AV Technology** magazine, where he provided his perspectives on AV/IT convergence, current campus technology needs, and faculty support. Check out the cover and the corresponding article. Way to go, John!



View a digital copy of the magazine at:
<http://www.mazdigital.com/webreader/51229> or <https://goo.gl/hjo47n>

RECOGNITION FROM W&M POLICE DEPARTMENT

Four W&M IT staff members were recognized by the William & Mary Police Department at their annual awards ceremony, which took place in December of 2017. Norman Elton, Jeff Jolly, Matt Keel, and Jamie Wick were commended for their support of police operations, specifically for maintaining security systems and helping in locating persons of interest. "The WMPD sincerely appreciates the support and expertise provided by our IT partners," said Major Donald Butler. "They play a vital role in helping us keep William & Mary a safe place for faculty, staff, and students."





IT MANAGEMENT TEAM

Courtney Carpenter
Chief Information Officer

Bernadette Kenney
Deputy Chief Information Officer

Peter Kellogg
Director of Infrastructure & Security

Michael Murphy
Director of Academic & Technology Support Services

Rachel Pace
Director of Data Management

Corinne Picataggi
Director of Software Systems

REINVENTING IT GOVERNANCE

In an organization where forging change and continuous innovation are prized, the demands on W&M IT are ever increasing. We are constantly looking for new and dynamic ways to manage our workload, supporting the most important initiatives of the university while improving operational processes. To do both well, we continually modernize the technology behind the scenes. These mounting demands require constant diligence in aligning priorities to meet the tactical and strategic needs of the university.

We rely greatly on the input of our customer community. We work together to determine how to best utilize resources to complete the most essential tasks while providing the latest innovations that our supported technology provides. To that purpose, in 2017 we began reviewing the effectiveness of the current governance structure and identifying customers who will co-lead working groups and committees. By means of collegial discussions and open workload reporting mechanisms, we'll continue through 2018 and beyond to actively and creatively engage our stakeholders to identify the most important work to complete.

Connecting productively and frequently with our university colleagues allows us to support transformational initiatives that are technologically sustainable and promote efficiency. Through collaboration and transparency, we forge on with ingenuity and inspiration.

IT ADVISORY COMMITTEE (ITAC)

The Information Technology Advisory Committee (ITAC) membership reflects the diverse academic and administrative interests of the William & Mary community.

The fundamental aim of ITAC is to further institutional goals through the effective use of information technologies. Committee members contribute input and feedback on IT policies and make recommendations about how and when priority projects should be implemented.

The committee also plays an advisory role on procedural, organizational, and support issues as they relate to academic services and business practices affected by technology use.

Members

Courtney Carpenter
CIO and ITAC Co-Chair

Michael Halleran
Provost and ITAC Co-Chair

Ginger Ambler
Vice President for Student Affairs

Paul Blossom
Professor, Mason School of Business

Henry Broaddus
Vice President for Strategic Initiatives

Carrie Cooper
Dean of University Libraries

Keith Griffioen
Professor of Physics

Laura Heymann
Professor of Law

Samantha Huge
Director of Athletics

Sam Jones
Senior Vice President for Finance & Administration

Matthew Lambert
Vice President for University Advancement

Dennis Manos
Vice Provost for Research & Graduate Professional Studies

Gene Roche
Executive Professor, School of Education

Salvatore Saporito
Associate Professor of Sociology

John Wells
Dean and Director of VIMS

Ex Officio Members

Gary Anderson
CIO/Director Information Technology and Network Services, VIMS

Kent Erdahl
Director of Internal Audit

Michele Jackson
Associate Provost for University eLearning Initiatives

Pete Kellogg
Director of Infrastructure & Security

Bernadette Kenney
Deputy Chief Information Officer

Michael Murphy
Director of Academic & Technology Support Services

Rachel Pace
Director of Data Management

Corinne Picataggi
Director of Software Systems

MODERNIZATION PT.1

>> UPGRADING THE OLD <<



PREPARING FOR BANNER 9

Technology ages quickly. Updates and upgrades help keep systems current and on-pace with a burgeoning technological landscape, security needs, and user expectations. However, these updates and upgrades come with many challenges. The need for modern infrastructure, complex inner workings of systems, and interconnectivity between systems can complicate any modernization effort considerably, making it a time and resource-intensive process. “It takes a lot of work to keep the lights on around here,” quipped W&M IT’s Director of Software Systems Corinne Picataggi.

In 2017, Picataggi’s team had been inundated with projects related to systems that needed updates and upgrades. Sometimes these projects went beyond the incremental steps and made a giant leap forward. Perhaps the highest profile of such projects is the upgrade to Banner 9.

Banner is W&M’s enterprise resource planning (ERP) system. It is an essential core system in the university’s technological environment and it is interconnected with almost all other systems on campus. Ellucian, Banner’s parent company, announced that support for Banner 8 (W&M’s current version of Banner) would be terminated at the end of the 2018 calendar year – making the upgrade to Banner 9 a necessity.

Banner 9 promises to be a more adaptable, mobile-friendly, and user-oriented experience. However, this upgrade is no easy feat. Before any movement to Banner 9 could begin, the infrastructure supporting Banner had to be modernized. It needed to move from aging Solaris web servers to more modern Linux servers. The project took over a year to complete.

“I cannot stress enough how big of an accomplishment this was,” said Director of Infrastructure Pete Kellogg. “It was a lot of work, and we dedicated quite a bit of engineering resources to getting it done in time for the upgrade to take place.” After the physical infrastructure was modernized, Software Systems updated the underlying database and web server, so the new application could run on a modern platform.

With the foundation built, the move of the administrative portion of Banner 9 (aka Banner Admin) can begin. In 2018, current Banner forms will be transformed and made available in the Banner 9 production environment. Functional offices will transition to the new platform at a pace that makes sense based on their business calendars, with a completion goal of October 2018.



More information about Banner 9 at: <https://goo.gl/RyqQw5>

ADVANCING ADVANCE

Advance, the system used by Advancement for donor management, has been undergoing a multi-step upgrade throughout 2017 and into 2018. Vendor support for the current version of Advance is ending, making the upgrade a necessity. The underlying database for Advance was upgraded by one version, but the application is being upgraded by several versions – which means a lot of work for IT (upgrades had been deferred to preserve useful features in the older version). Fortunately, most of the changes are behind-the-scenes and will have minimal impact on users, especially those that are already accustomed to using the web version of Advance.

AXIOM ELITE

Axiom, a software system used for Admissions, was upgraded to Axiom Elite in 2017. Axiom Elite provides a data flow from the Salesforce CRM to Banner, an updated user interface, web access to the system, and a login through W&M’s Central Authentication Service (CAS).

MOVING EMAIL TO THE CLOUD



Sometimes you just need something new. Technology is changing so quickly, that it can often be more practical to purchase a new product than to update or upgrade an existing one. Or maybe a new system is needed to meet new needs or do things that old systems just can't do.

All new systems coming to campus are thoroughly evaluated by Information Technology for security and to ensure that they will function in William & Mary's technological environment. Once evaluated and purchased, they come back through IT for implementation and integrations with our core systems.

In 2017, many new systems came to William & Mary. One that touched every single faculty and staff member at the university was the new Cloud-based email system. Aging on-campus Microsoft Exchange equipment was reaching its end-of-life. With the Business Innovation Initiative being a guiding consideration, the decision was made to move to the Cloud. Director of Academic & Technology Support Services Mike Murphy acknowledged, "Moving email to the Cloud allows us to manage less hardware on campus and still provide email service at an economical cost to the College."

Microsoft Office 365 was ultimately chosen to be the new email system for faculty and staff. "Our reliance on Microsoft Exchange and Outlook is already established.

Moving to Office 365 for email was the least disruptive option available," Murphy said.

Even though there was only minimal disruption to users, it was a big project for W&M IT. Planning for the move to Microsoft Office 365 commenced in early 2017. Individual mailbox migrations started in July and finished in November. Mailboxes migrated nightly (averaging about 84 mailboxes per night) and in the end all 5,866 mailboxes along with 9.6 terabytes (TB) of data were moved to the new system.

With new systems come new ways of doing business. Microsoft Office 365 brings with it a suite of new web applications. With them, faculty and staff will gain new ways to store and organize files, and collaborate with one another. Some Office 365 web applications became available as soon as the mailboxes moved to the new system. Other Office 365 web applications will be released throughout 2018.

MOST ACTIVE EMAIL USAGE DATE SINCE MOVE TO OFFICE 365:

November 27, 2017

34,049
EMAILS SENT

155,701
EMAILS RECEIVED

DATA MOVED TO OFFICE 365:

9.6 TB moved

BETWEEN
July 26, 2017 – November 29, 2017

PLATFORMS FOR ACCESSING OUTLOOK 365 EMAIL

Number of users per platform in a 30-day period

1586

Outlook (Windows Client)

219

Outlook (Mac Client)

1977

Outlook on the Web

429

Outlook App for Mobile Devices

1259

Other Apps for Mobile Devices

187

Mac Mail App

67

IMAP4 App

TRANSFORMING TRAVEL

A new software system called Chrome River is transforming how travel expenses are processed at William & Mary. Chrome River lets travelers keep track of expenses online, with helpful features such as the ability to store pictures of receipts. Reimbursement approvals are routed automatically through a web-based workflow and deposits are automatically generated. The system was in development throughout 2016 and 2017 and was rolled-out to three pilot groups in October of 2017. Additional groups have been added each month. The system is slated to go live to the entire campus in May of 2018.

A NEW SYSTEM FOR CONTRACT MANAGEMENT

W&M IT helped Procurement select the new Cobblestone contract management system in 2017. Business Services Manager Kathleen "Kitty" Smith, who served on the selection committee, said "The benefit of Cobblestone is that it has an outward facing portal that is open to anyone. It's more transparent." She also notes the time-saving efficiencies. "Now that anyone can pull their own reports, that will save system administrators a lot of time and effort."


CLASSROOM EQUIPMENT UPGRADES

Over half of the classrooms on the W&M campus — 56 of them to be exact — got an equipment upgrade in 2017. New touchscreen control panels on the classroom podiums replaced older button versions, and the media switches behind them were also upgraded.

The upgrades included a new feature called AirMedia. AirMedia allows anyone in the room to wirelessly share the screen of their laptop or mobile device to the classroom projector system.

AirMedia helps instructors jump quickly between different devices during a lecture (like going between a presentation on a laptop and a demonstration on a tablet). Or a student could share his/her own laptop screen with the entire class from where they sit, without having to plug in to wires from the classroom podium.

In addition to the equipment upgrades, an enhanced remote device-monitoring system was installed in classrooms, allowing W&M IT's Classroom Support team to troubleshoot problems with AV equipment in a quicker and more efficient manner.

 *56 W&M classrooms now have AirMedia, which allows anyone in the room to wirelessly share the screen of their laptop to the classroom projector system.*



PENINSULA CENTER SET-UP



Over the summer of 2017, the Peninsula Center, part of the Mason School of Business, was relocated. In a span of two weeks, W&M IT moved and installed all of the IT and AV equipment to the new Peninsula Center. This included running 1000 feet of network cable and 480 feet of speaker cable, mounting 11 TV monitors, and installing 4 ceiling projectors.

PANOPTO - LECTURE CAPTURE SYSTEM

Panopto is an easy-to-use tool for recording multiple events including in-class lectures, presentations, and tutorials. The videos can be easily distributed to students through Blackboard.




2016 – 2017 Panopto Stats:

6,360 Users	1,520 Folders	8,215 Sessions	153,112 Views
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ZOOM - VIDEOCONFERENCING SYSTEM

Zoom is a cloud-based conferencing solution that provides both video and audio conferencing, mobile collaboration, screen sharing capabilities, and online meetings.

Fall 2017 Zoom Stats:

 549 Meetings	 2,551 Participants	 TOP LOCATIONS United States Australia United Kingdom China Ethiopia Argentina
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LAUNCHING A FULLY ONLINE ED.D. PROGRAM

At the beginning of the Spring 2017 semester, W&M IT assisted the William & Mary School of Education with its launch of a fully online, partially synchronous, Ed.D. program.

The first cohort in the program is a group of school officials from Miami-Dade County, Florida, who are studying subjects such as program evaluation, action research, data-driven decision making, leadership, and policy. They are utilizing Blackboard and the videoconferencing tool Zoom to bridge the distance between Florida and Virginia.

Academic Technology Manager John Drummond explains why the convenience of a fully online program is useful. "Fewer people with established careers have the ability to attend class on campus. For those who do not want to pause their career in order to advance their education, this program is a valuable tool."

 *Read more at: <https://goo.gl/uGNVam>*

BLACKBOARD MOBILE APPS

Have you seen the new Blackboard mobile apps? Instead of one app, there are now two new apps available, one for students and one for instructors. Both come with features that help students and instructors interact with their courses while on-the-go.



SPOTLIGHT: ERIC WALTER Manager Of High Performance Computing

Besides being the well-respected manager of High Performance Computing (HPC) at William & Mary, Eric Walter has gained notoriety recently for the work he has done outside of W&M, namely with the Mid-Atlantic Research Infrastructure Alliance (MARIA) and the National Science Foundation (NSF).

Walter has been involved with MARIA's Research Computing Technical Committee (RCTC) since it started in late 2015. It is focused on sharing experiences and combining efforts in research computing for the Mid-Atlantic Region. One of the main initiatives for the MARIA-RCTC in 2017 was the creation of a Major Research Instrumentation proposal for simplifying research with protected and secure data. Walter was a partner on the grant.

To promote the visibility of HPC in Virginia, the members of MARIA-RCTC shared a booth at an annual supercomputing conference where they presented information about HPC at each member institution. Walter has also been acting as the bi-monthly conference call organizer and has led the discussion on many of the calls.

Walter will soon become W&M's campus champion for XSEDE (the NSF-funded group which organizes access to supercomputer centers across the US). As such, he will help local researchers get and use resources at US supercomputing sites. If that wasn't enough, Walter has also agreed to become W&M's representative for the Education Advisory Board's upcoming Research Computing Functional Collaborative. He's certainly keeping busy!



HIGH GROWTH AT HIGH PERFORMANCE COMPUTING (HPC)

William & Mary's High Performance Computing (HPC) team had a busy 2017. To start, it was a record publication year for HPC. There were 28 articles published that acknowledged HPC resources and/or guidance from the HPC staff (compared to 13 articles in 2016).

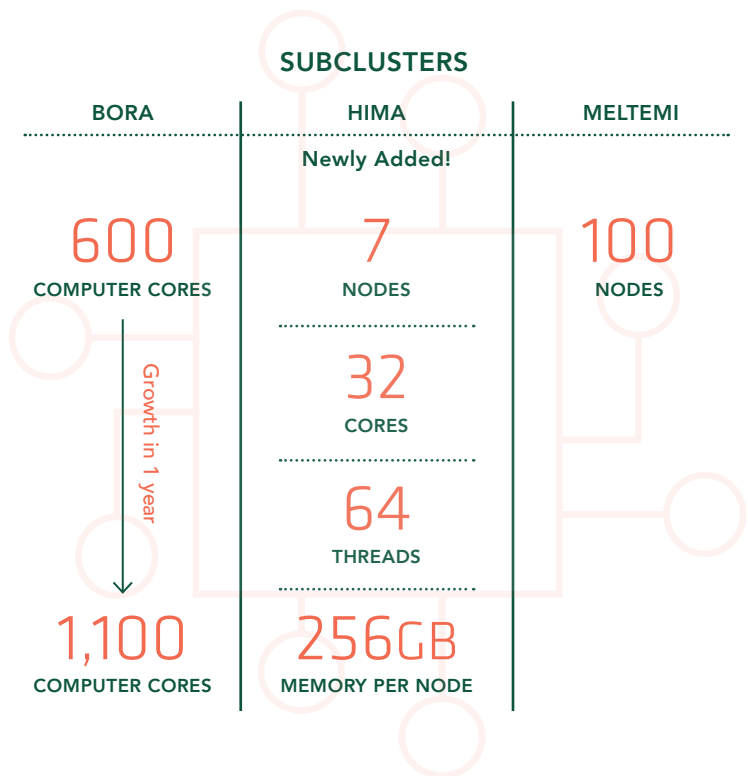
There were also important infrastructure improvements in HPC during 2017. Thanks in part to a contribution from the economics department, SciClone's "Bora" subcluster (its preferred distributed-memory parallel workhorse) grew from 600 computer cores to 1100 cores over the course of the year.

Also, a new sub-cluster named "Hima" was added. Geared towards shared-memory parallel jobs, Hima was purchased with contributions made by faculty in the computer science and applied science departments. Hima consists of 7 nodes with 32 cores / 64 threads and 256 GB of memory per node.

HPC also rolled out a new 100 node Intel Xeon Phi subcluster, named "Meltemi," which was the result of a National Science Foundation Major Research Instrumentation grant obtained by Professor Konstantinos Orginos in the physics department.

There was also an addition of over a half a petabyte (PB) of disk space to the SciClone cluster. Part was used to create a high-performance parallel scratch space and the rest was added to the regular storage pool.

Finally, a new LTO-7 tape backup system was purchased. This will allow for about 2 PBs worth of data to be backed up to tape, a 4-fold increase over the previous tape library.



WIFI IN THE SUNKEN GARDEN

Have you noticed that your Wi-Fi connection in the Sunken Garden is stronger? "We realized that the Sunken Garden needed its own wireless Internet access points due to the amount of activity and events held there," said Network Engineer Norman Elton. However, the wiring and boxes for the access points had to meet the university's strict architectural standards for outdoor spaces.

In Spring of 2017, W&M IT installed new wireless access points along the perimeter of the Sunken Garden in discreet green boxes and connected them to underground wiring. "One of the advantages of the access points is that nothing had to be disturbed in order to install them. The wiring is not visible to anyone," explained the head of the project, Network Manager Scott Fenstermacher. The result: optimal Wi-Fi service while you enjoy your time outdoors.



Read more about the project: <https://goo.gl/NnkAHf>



Boxes that hold the wireless access points were painted green in order to blend into the bushes along the Sunken Garden.



LAPTOPS TO GHANA

For the 6th year running, decommissioned W&M laptops were donated to a school in Ghana as part of W&M IT's ongoing support of the William & Mary student organization, Student Partnership for Aid and International Development (SPAID), and their partnership with Humanity and Community Development Projects - Ghana (HCDP GHANA).

This year's trip to Ghana, led by W&M seniors Kat Shaub and TyDazia Talley, took 30 laptops (hand-carried by SPAID members) to their final destination of Adaklu Senior High School in Ho, a city in the Volta region of Ghana. The laptops will be used for research projects, test preparation, and to provide access to online resources for students at the high school. Pictured is the hand-off between SPAID/HCDP and the Adaklu Senior High School officials.



W&M student leaders Shaub and Talley (center - wearing red scarves) presented laptops to the Ghanaian students. The "Acknowledgement" banner in the background shows pictures from the previous 6 years of donations. It was hand-delivered to W&M IT from Ghana, and we now have it proudly displayed in our staff common area.



NEW WALK-IN SPACE FOR THE TSC

The Technology Support Center (TSC) has a new walk-in service area in Jones 201 as of March 2017. The new space includes a walk-up counter, a waiting area with comfortable seating, and additional seating for customers at each of the five technician work spaces. There is also an area with ready-to-use computers for customers, which is especially helpful for those with account issues. "Having the extra space to work one-on-one with customers has greatly improved the experience of visiting the Technology Support Center," said TSC Manager Brian Persinger.



The friendly faces of student technicians Adam Carpenter (left) and Daniel Ricks (right) greet customers as they enter the new service area of the TSC.

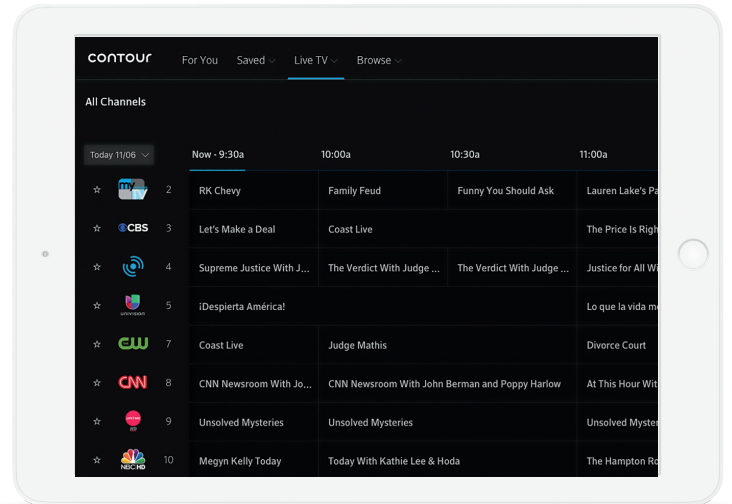
DIGITAL CABLE TV

The W&M Cable TV system was converted to a digital signal in January of 2017. The conversion required television sets across campus be Clear QAM/ATSC compliant, or use separate Clear QAM tuners, to access the new digital network. With that requirement met, the W&M community (especially students) are now enjoying Cox's high-definition programming and a growing line-up of 116 channels!

With the digital service, also came Campus Contour. The Campus Contour app allows students to stream cable television on their computer, smartphones, and tablets. "Both the regular campus cable and Contour come from Cox, just through different kinds of networks," said W&M IT's CATV Engineer Dave Shantz. "The quality behind each one should be identical with maybe a second or two delay on Contour."

"Contour is a game changer," said Chief Information Officer Courtney Carpenter. "Most students would prefer to watch cable television from their mobile devices, anyway." W&M student Manjari Kumarrapan '18 concurred by stating, "I use Campus Contour so I can watch Bachelor in Paradise episodes as soon as they come out. I'm too afraid of spoilers to wait for the next day."

Access Campus Contour by going to tv.wm.edu while on the W&M campus.



Cable television stations are now accessible to W&M students on their mobile devices and computers via an app called Campus Contour.



Read More: <https://goo.gl/cPFQxj>

ROYAL GEORGIAN PAPERS

Nearly a half-million British royal documents are being digitized for the Georgian Papers Programme. The project, launched by Queen Elizabeth II, who has twice visited William & Mary, is a partnership between the Omohundro Institute, William & Mary, the Royal Collection Trust, and King's College London.

The first phase of the program culminated in 2017 and included 33,000 digitized documents. The papers were physically scanned in England, and then William & Mary staff and student workers transcribed them and tagged the images with searchable and descriptive metadata. IT provided hosting and storage for working copies of the papers as they were being transcribed.

The Georgian Papers website in America:
georgianpapers-us.wm.edu



Read more about W&M's involvement with the papers:
<https://goo.gl/WjsNCz>



The website used to transcribe and store working copies of the Royal Georgian Papers is hosted by W&M IT.

Transcribe the Georgian Papers

An ongoing project with the Georgian Papers Programme partners to transcribe this historic collection of documents relating to the Georgian monarchy.

LOG IN

LEARN TO TRANSCRIBE

BROWSE PROJECTS



Current Progress

245 of 8106 Pages Transcribed

999 Documents Imported

[View full report](#)

W&M IT REACHES 20-YEAR MILESTONE

In the Fall semester of 1997, William & Mary's Information Technology department was officially formed.

The four departments that reported to the Associate Provost for Technology Dennis Aebersold (Educational Media Services, Telecom, Computer Center, and the Help Desk) came together to form what we now know as W&M IT.

IT's 20th birthday was celebrated at a department-wide gathering on November 15th in Jones Hall. Chief Information Officer Courtney Carpenter spoke about the time of IT's formation, sharing his own personal perspective and memories. The staff was then surprised with a video presentation that included birthday greetings from other departments and individuals from around campus.

Thanks to everyone who contributed to IT's 20th birthday celebration video!



Birthday greetings came from all corners of the William & Mary campus.



View the video at: <https://youtu.be/8w4tYvOhFjU>



Here is what the Computer Center looked like in 1997.



Twenty years ago, Courtney Carpenter, the current Chief Information Officer for W&M IT (right), and Network Manager Scott Fenstermacher (left) gave a presentation announcing the new campus-wide network.



A common piece of technology from 1997—the good old floppy disk!



This 1997 news article, published by William & Mary News, talks about the new organizational structure implemented by Dennis Aebbersold, the Associate Provost for Technology at the time.



Read the full article from the W&M Digital Archives <https://digitalarchive.wm.edu/bitstream/handle/10288/19840/WMN19971030>.

William & Mary IT staff that were present twenty years ago during the merger also shared their memories at the gathering. Business Services Manager Kitty Smith recounted that various members of staff at the time were worried what the merger might mean for their own jobs and that all four departments had to learn to work together. "It turned out okay, but as with anything it took a lot of work to get where we are now," Smith said.

Video Conference and CATV Engineer Dave Shantz remembered the differences in technology twenty years ago. The main web browsers were Mosaic, Netscape, and Lynx. Google did not yet exist. Floppy disks were one of the main ways to store and transfer data, and cable TV was brand new on campus. Technology was much more complicated back then. As Shantz described, "Attaching to a network printer twenty years ago could drive people stark, raving mad."

Staff also shared artifacts that have been saved over the years. Several old pictures from that time period were on display – many were of the Computer Center, which housed IT infrastructure. Other technology related items were brought to the gathering, like an old student bill and a floppy disk. News articles and emails related to the merger were also shared.

Over the course of the past 20 years, the turmoil from this transition has dissipated. The departments have grown together as one and have shared many accomplishments. The merger laid a foundation for technological development at William & Mary and paved the way for systems like Banner, Blackboard, wireless Internet access, Microsoft email, and the VoIP phone system. The department also consistently receives high marks on campus-wide surveys in measures like customer service, which is a top priority for Carpenter. "I couldn't ask for a better outcome after 20 years," he said.

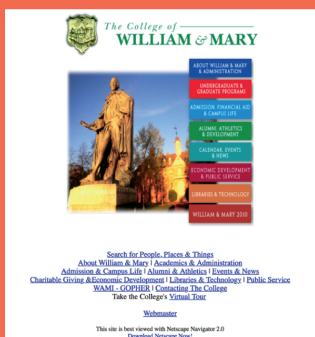
"Realizing that existing staff resources are inadequate to support the technology needs of the College, Aebbersold has begun an extensive review of the three divisions that comprise information technology to determine ways that their services can be better streamlined to meet the computing needs of faculty, students and staff. One of the biggest changes already made has been to bring all the engineers in technology services, the computer center and telecommunications under one centralized authority. Aebbersold added that further restructuring of the organization must happen." – William & Mary News, October 1997 edition



IT department employees gathered on Nov. 15 to share memories about the past 20 years. This is the committee responsible for organizing the event. Left to right: Melissa Rouette, Melissa Marshall, Patty Cox, Melissa Palacios, Gayle Deuell, Ray Newhouse.



Chief Information Officer Courtney Carpenter recounted the story of how IT formed in 1997, and then praised the staff for the quality of service provided by IT since that time.



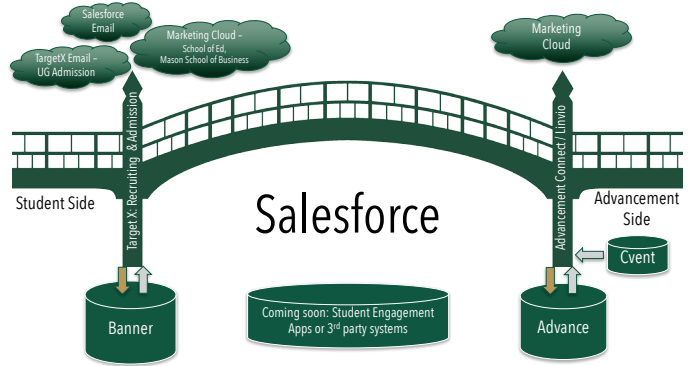
The W&M website looked like this twenty years ago! (Courtesy of the Wayback Machine)

CONSTITUENT RELATIONSHIP MANAGEMENT

The Salesforce Constituent Relationship Management (CRM) system is designed to help William & Mary constituents like students, faculty, staff, alumni, parents, corporate partners, volunteers, and friends engage effectively with the university.

Like the iconic Crim Dell bridge, the Salesforce CRM provides a “span” for data from one side of the student experience to the other. The piers on either side of the bridge represent the two main organizations within Salesforce: the Student organization (for recruiting and admissions) and the Advancement organization (for development and engagement).

The implementation of the Salesforce CRM is a multi-year, strategy-driven effort being undertaken by the university, with IT at the helm. Throughout 2015 and 2016, work primarily focused on building the foundation for the Student and Advancement piers. With a firm foundation on both sides, the bridge itself is now being built. And 2017 was a landmark year for the “Building Bridges” project. Several components of the CRM went live and are now in use.



More CRM information available at: crm.wm.edu

ADVANCEMENT SIDE

ADVANCEMENT DATA TRANSFERRED TO SALESFORCE IN 2017:

4,238 | EVENTS

577,357 | EVENT REGISTRANTS

1,376 | CAMPAIGNS

4,046,359 | CAMPAIGN INVITEES

443,528 | CONTACTS
(384,059 household accounts)

1,255,911 | CONTACT ADDRESSES

SALESFORCE DATA RUN STATS

OVER 500,000

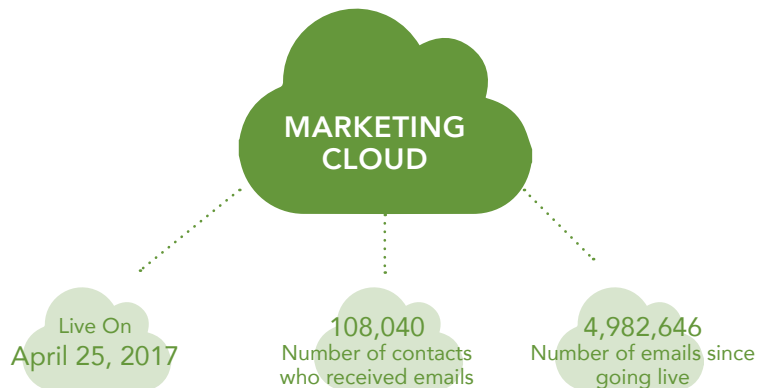
Rows of data are touched each night during integrations

Integrations consist of:

63 individual tasks

Average run time is about:

35 minutes



STUDENT SIDE

GRADUATE SCHOOLS

- >> Applications went live on August 1, 2017 for:
 - School of Education
 - Graduate Arts & Sciences
 - School of Marine Science/VIMS
- >> Application reviews (Decisions) were implemented for:
 - School of Education
 - Graduate Arts & Sciences
 - School of Marine Science/VIMS
- >> Decision letters went live for:
 - School of Education (Acceptance, Deny, or Waitlist)
 - Arts & Sciences (Acceptance only)
 - VIMS (Acceptance only)
- >> Kick-Off for the School Of Business took place in November 2017 and is anticipated to go live in the summer of 2018.



1,210

Graduate school applications started in 2017

SYSTEM USERS	
W&M IT provided training and support for:	
GRADUATE ARTS & SCIENCES	
45 Admins	122 Faculty Users
SCHOOL OF EDUCATION	
5 Admins	45 Faculty Users
VIMS	
4 Admins	52 Faculty Users
REGISTRAR	
6 Users	

WHAT'S NEXT?

- Mason School of Business will go live
- Feedback on processes and changes
- Undergraduate Admission: Coalition Application
- Undergraduate Admission: Common Application for Transfers
- Moving official documents for matriculating graduate students
- Needs assessment for Student Experience

WHAT'S NEXT?

- Additional integrations from Advance to Salesforce for constituent activities, education, and employment to aid in data segmentation for marketing
- Expand usage of Marketing Cloud and Linvio Events to other Advancement units on campus
- Explore and evaluate replacement of Advance system

LINVIO EVENTS

Small to medium sized events without much complexity

JULY 31, 2017

Went live

223

Number of events since going live

7,854

Number of registrants

CVENT EVENTS

Large events like Homecoming and Charter Day

JULY 31, 2017

Went live

24

Number of events since going live

7,867

Number of registrants

SYSTEM USERS	MARKETING CLOUD	LINVIO EVENTS
W&M IT provided training and support for:	58 Users	46 Users
		32 in Advancement, 14 from other departments at W&M

DATA INTEGRATIONS FOR THE CRM

Data integrations are required to make systems “talk” to one another. Many different types of data integrations are required for data to flow between the Salesforce CRM and William & Mary’s two primary information systems, Banner and Advance.

STUDENT SIDE

The following data integrations between Banner and the CRM were either newly built, modified, or supported in 2017:

STANDARDIZED TEST SCORES TO CRM

Eliminates the need for paper test scores and manual data entry

- GRE
- TOEFL

8,000 test scores were loaded in 2017 after the integration was built.

CRM TO BANNER INTEGRATIONS

Synchronizes data between CRM and Banner to avoid double entry and support institutional reporting

- Personal Information (including calculation of residency status)
- Applications for admission
- Standardized test scores
- Prior college enrollment history
- Parent data daily integration for deposited students (allows timely communication to parents after an applicant commits to W&M)
- Documents for matriculated students (provides electronic access to documents that become part of the student record)

BANNER TO CRM INTEGRATIONS

Allows admissions offices to work within the CRM but have access to necessary Banner information

- Banner IDs and application decisions
- Academic program and status information for matriculated students

ADDITIONAL INTEGRATIONS

IT created over 25 manually-run integrations for specific data movement and support was provided for data mapping and CRM data collection.

ADVANCEMENT SIDE

CVENT TO CRM INTEGRATIONS

Cvent is one of two event tools used by Advancement. Cvent has the capability to support very complex events. The other event tool is an app called Linvio that resides within the Salesforce CRM.

Data in Cvent is synchronized with the data in Linvio to create a single repository of event management data.

- Events, any sub-events, and all information regarding the events
- Invitations and all invitee information
- All primary registrants and guests
- Any new contact information on primary registrants and guests such as emails and addresses
- All payments required for events

ADVANCE TO CRM AND VICE VERSA

A two-way integration allows data to be collected in either system and sent to the other. For example: information about alumni, parents, and friends collected through Advance (the information system for Advancement) is synchronized with the CRM via integrations, and vice versa. This provides accurate information in both systems.

- Contact data
- Address data
- Affiliation to W&M (alumni, parent, etc.)
- Communication methods (email, telephone, social media)
- Name changes or new salutations
- New or updated “opt-ins” or “opt-outs”

A one-way integration (from CRM to Advance) is used to collect all event information from Cvent and Linvio including events, sub events, invitations, invitees, registrants, and guests.

Another one-way integration (from Advance to CRM) is used to update custom fields for segmentation, which are updated in the CRM when they are updated in Advance.

MARKETING CLOUD TO CRM

Marketing Cloud is a solution used for personalized and conditional mass communication through email. As communications are sent through Marketing Cloud, data is collected and automatically pushed to the CRM showing who received what email and any detailed result information.

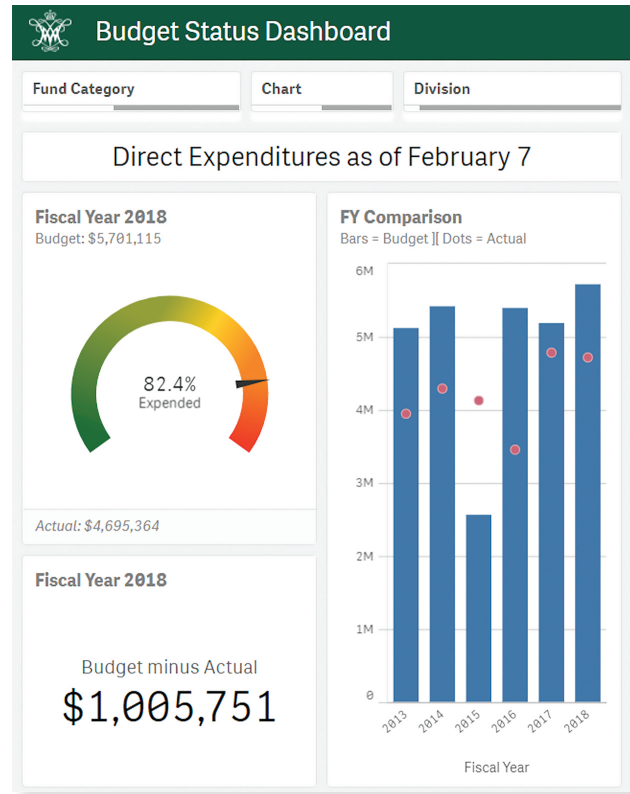
QLIK DATA VISUALIZATION

Qlik Sense (pronounced “click”) is a data discovery tool that enables users to access data from multiple sources at a speed far greater than other reporting tools used at William and Mary. In 2017, W&M IT created governed libraries of Finance, Human Resources, and Student Banner data to be used in many data discovery applications.

Two Qlik Applications were published this year: the Budget Status App (pictured), which allows users to track budgets and expenses, discover trends and anomalies, and quickly make year-by-year comparisons, and the Academic Advising App, which is used to easily identify those in need of guidance with regard to meeting degree requirements.



Qlik’s visual format enables quick access to key data points.



COMING IN 2018

QLIK REPORTING

Work that was started in 2017 to build and deploy Qlik apps will continue through 2018. There will be a concentrated effort to replace reports built in Discoverer, a reporting product that has reached end-of-life. Data Management staff will work to build the Qlik data models and corresponding apps to replace the Discoverer reports as a top 2018 priority.

DATA GOVERNANCE

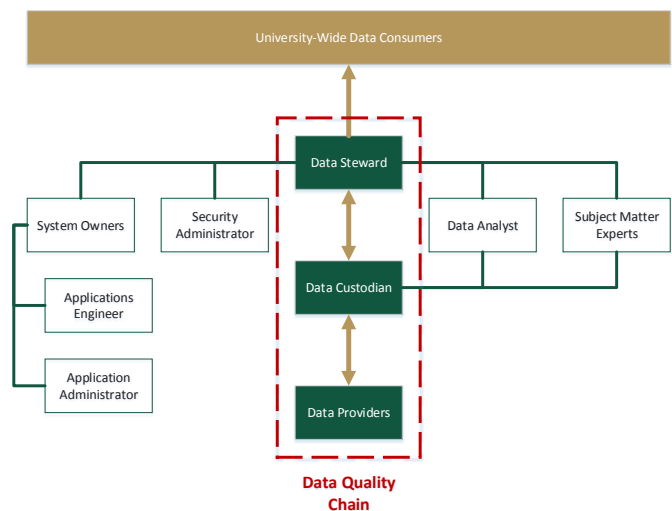
In 2017, the Data Governance Working Group was formed to address data governance, quality, and integrity issues within the university data systems. This group consists of data stewards and data experts from across the university and is led by W&M IT’s Director of Data Management Rachel Pace.

Discussions have thus far included:

- Data Governance Roles and Responsibilities
- Data Classifications
- Data Retention
- Destruction Policies
- Data Quality Issues



This chart depicts the data stewardship roles at William & Mary and outlines the data quality chain between data providers and data consumers. Image Credit: Jeremy Martin




ROLES

- >> **DATA STEWARD**
Responsible for the overall data governance for a primary function or constituency.
- >> **DATA CUSTODIAN**
Charged with the execution of policies for the management of data and metadata in a particular system or focus area. Should be subject-matter experts for their functional area.
- >> **DATA PROVIDERS**
Generate data in various forms to be consumed or used by the university.

EXPANSION OF VPN

GlobalProtect, the new Virtual Private Network (VPN) for the William & Mary community, allows secure access to W&M resources and services while off campus. The VPN was initially used to communicate with international students coming from countries with firewall-blocked access to the Internet. However, GlobalProtect took on an expanded scope in 2017. The service is now available to all W&M faculty, staff, and students, which is especially helpful for those traveling abroad.

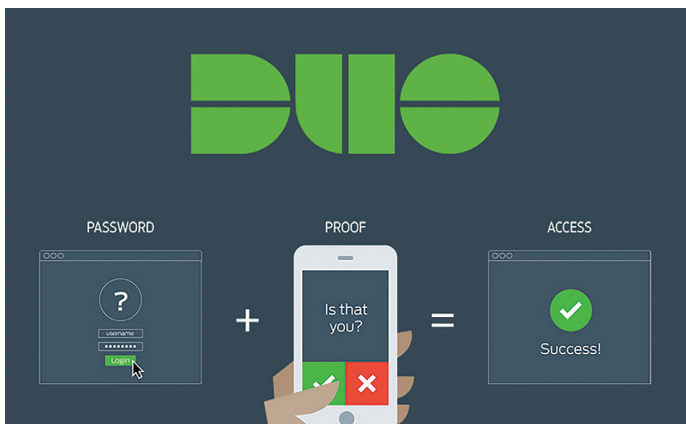
 *Secure access to W&M systems is especially critical for faculty, staff, and students traveling internationally.*



DUO - TWO FACTOR AUTHENTICATION

Duo is a two-factor authentication service that provides an additional level of security when accessing William & Mary services. Duo has been successfully employed on the GlobalProtect VPN and since then it has been gearing up for more wide-spread use. In 2018, Duo will be used to access Banner Admin when Banner 9 is implemented and it will be evaluated for use with other services that could benefit from an additional layer of protection.

 *Duo's two-factor authentication system is a powerful key to keeping W&M systems secure.*



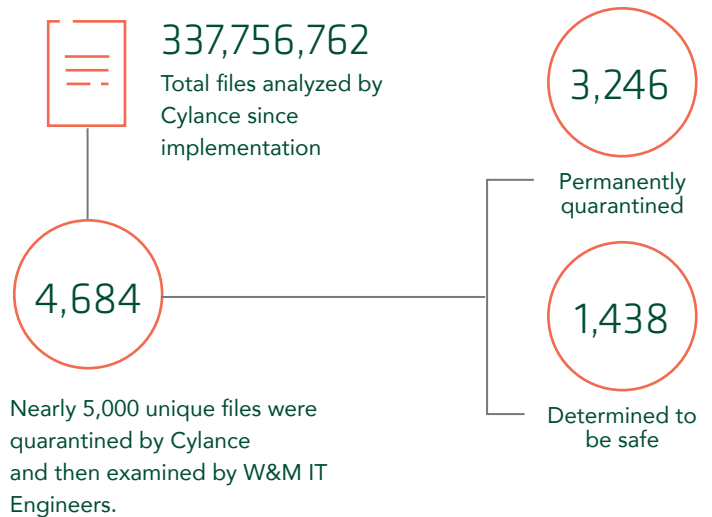
CYLANCE - A NEW SECURITY SOFTWARE FOR W&M



In 2017, Cylance Protect replaced Sophos Antivirus as the enterprise virus protection system at William & Mary. Cylance Protect is a cloud-based security service that analyzes executables in real time. It identifies and quickly

quarantines files with abnormal or suspicious behavior. The database also catalogues known good or excluded executables, allowing them to execute in a normal manner.

Cylance was first used by those on the SecureNet network (for staff members who work with sensitive data) and was rolled-out to the entire campus in August of 2017. It has proven to be extremely effective and is generally unobtrusive.



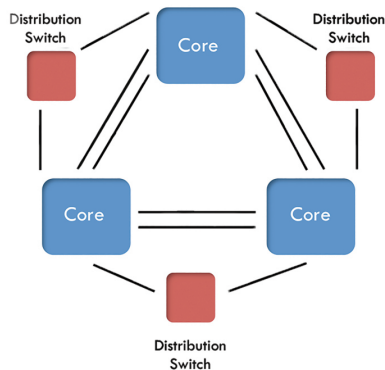
COMING IN 2018

SECURITY TRAINING

W&M IT will implement an online security training series for W&M faculty and staff that work with sensitive data. The training course consists of a mix of selected modules from the SANS Securing the Human platform and an online presentation tailored specifically to a William & Mary audience. The training will be distributed by W&M's new administrative learning management system, Cornerstone, leveraging its features to deliver content and track completion rates.

NETWORK UPGRADE

W&M IT began upgrading the W&M network in 2017. The network's three core routers (located in Jones Hall, Swem Library, and Blow Memorial Hall), two edge routers, and five distribution switches are being replaced as the older equipment reaches its end-of-life.



The Core Routers Triangle

The previous routers could handle 10 gigabits per-second, but the upgraded routers can handle up to 40 gigabits per-second. More gigabits mean more bandwidth, which provides more speed for downloading, streaming, and using the web.

This upgrade prepares the campus network to one day deliver a bandwidth four times the size we have now. "I like to say it's the next generation of the network," said Network Engineer Clarke Morledge, describing the potential expansion in network capacity. "It allows us more capabilities to do things in the future."


The upgrade is currently underway and set to conclude in the summer of 2018.

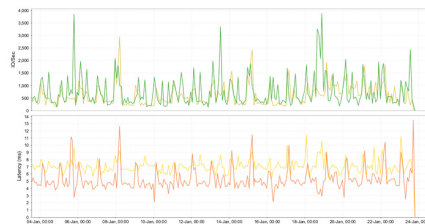
 Read more <https://goo.gl/y53QXo>

PERFORMANCE UPGRADE FOR STORAGE

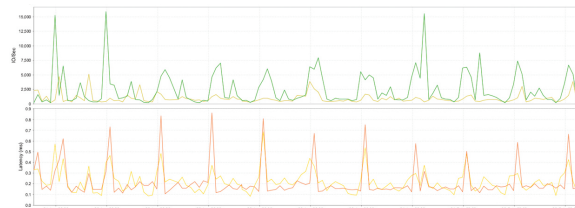
W&M IT upgraded to a new network storage system on January 24, 2017. The upgrade replaced spindle drives with solid state drive storage, which greatly enhanced performance.

System statistics show that input/output (the speed of communication between the storage system and computers) increased dramatically after the upgrade and the corresponding response time (latency) dropped radically as well. The network storage system is now providing a consistently fast experience to users in the W&M community. You might have noticed this performance improvement when retrieving and sending files to the G: Drive or H: Drive.

 Early stats show the difference in performance before and after the January 24th upgrade. Previously, input/output topped-out at 4,000 MB per second. It now reaches 15,000 MB per second. Latency is shown by the spatial difference between the yellow and orange lines. There was a wide difference prior to the upgrade and a minimal difference afterward.



BEFORE



AFTER

SUMMER RENOVATIONS

As the number of students on campus decrease during the summer, the number of building construction/renovation projects increase. W&M IT was involved in several such projects in 2017.

Richmond Hall

The biggest renovation project for W&M IT was Richmond Hall, formerly the Days Inn on Richmond Road. The William & Mary network was extended all the way to the off-campus location. All the rooms were then wired for wireless and wired Internet access, and cable TV. Networking closets, door access points, and security cameras were also set up around the building and configured for use.


Blow Memorial Hall

There were also minor updates in Blow Hall as W&M IT was working to replace the generator in the telephone switch room.

Landrum Hall

W&M IT helped prepare the Landrum residence hall for the major renovation project to come in 2018 by moving telecommunications equipment out of Landrum Hall and relocating it.



 Network Engineer Jeff Jolly goes up on a lift to install a security camera at Richmond Hall.

 Read more <https://goo.gl/6cBxKN>

CELL PHONE SAVINGS FROM IT

On July 1, 2017, the university implemented a new policy for managing cell phones for designated employees, moving to the use of stipends rather than university-owned wireless cell phones or devices. Cost savings in W&M IT alone have been significant.

COST SAVINGS:

Service Costs Savings: \$340/month

Average cost FY 2015-2018 - \$2,380 /month

Current IT stipend cost - \$2,040 /month

Equipment Savings: \$8,735/year

Average cost FY 2015-2017 - \$10,250 / FY 2018 - \$1,515

Accessories Savings: \$1,850

Total Cost FY 2015-2017 - \$1,850 / FY 2018 - \$0

STAFF TIME EFFICIENCIES:

Hours per month saved: 28.75

The time was previously used for ordering equipment, setting up accounts, maintaining and reviewing Verizon bill, ordering accessories, tracking orders, and reconciling SPCC.



Cost savings from the newly-implemented cell phone policy have been significant.



CORNERSTONE - PERFORMANCE MANAGEMENT

William & Mary's new performance management system, Cornerstone, took the paper-based employee evaluation system and moved it online. Lots of paper has been saved in the process.

PAPER SAVINGS (OCT. 2016 – DEC. 2017)

PERFORMANCE EVALUATIONS		PERFORMANCE PLANS	
33,690	1,123	5,710	571
PAGES SAVED	Complete Evaluations	PAGES SAVED	Complete Plans
The average paper-based evaluation is about 10 pages (assuming 3 copies per evaluation)		The average paper-based plan is about 5 pages (assuming 2 copies per plan)	

CORNERSTONE - ADMINISTRATIVE LEARNING MANAGEMENT SYSTEM

Cornerstone also includes an administrative learning management system, which was officially launched in March 2017.

9,247 COMPLETED TRAININGS
Includes instructor-led training, online training (W&M curriculums and Lynda.com), materials, training hours, tests, etc.

FACILITATING VENDOR PAYMENT PROCESSING

W&M IT's Applications Engineer Scott Hayes built a self-service tool that allows W&M staff to quickly access the university's vendor-related data. Look-ups provide data-like ID numbers in both Banner and Cardinal (the state's financial system), residence status, state/local funds designations, and budget approver names. Previously, only Accounting Operations teams could access this data, due to restrictions within the Banner system.

Director of Accounting Operations Ruth Gilliam has reported that questions about vendors coming in to her office have reduced significantly since the tool has become available. "It has become a great resource for departments on campus when completing Vendor Payment Requests and has helped to minimize mistakes," she said. "This tool is a data bridge between the campus and accounting teams, yielding a more efficient process to all involved."

MODERNIZING SIGNED DOCUMENTS



DocuSign is bringing electronic signatures to William & Mary.

With DocuSign, users can sign their documents securely online from anywhere with an Internet connection. In 2017, DocuSign was introduced to campus via the VA-4 tax withholding form. Anyone accepting employment at W&M or updating their tax status, used a DocuSign form embedded in Banner Self-Service to complete the task – totaling 1,162 completed DocuSign "envelopes" (aka packages of forms). With this initial foray into electronic signatures being a success, even wider adoption of the system is expected in 2018.

STATS:

Completed DocuSign "Envelopes"



WHAT'S NEW IN THE CLOUD

- | | |
|---|--|
| Campus Labs
TribeLink (Student Orgs) | DocuSign
Electronic Signatures |
| Campus Labs
Outcomes (Student Assessment) | Duo
Two-Factor Authentication |
| Campus Labs
Baseline (Student Assessment) | Email
Microsoft Office 365 |
| Chrome River
Travel Management | FAMIS
Facilities Management |
| Cornerstone
Learning Management | Raiser's Edge
Mason Finance |

BANNER 9

W&M IT has been working for over a year to upgrade the infrastructure needed for Banner 9, and we are happy to say that we are ready to start the move! And the timing couldn't be better. Vendor support for the current iteration of Banner Admin (Banner 8) is being terminated at the end of 2018, making the move to Banner 9 Admin Pages a necessity. User adoption will be gradual through 2018 as offices using Banner Admin transition away from Banner 8 and into Banner 9. The transition is expected to conclude in October of 2018 at which point the focus will shift to Banner Self-Service and new Banner apps that will deliver new functionality to the William & Mary community.

 | *Learn more about Banner 9: <https://goo.gl/RyqQw5>*

DATA MANAGEMENT

As CRM marketing and events adoption increases, data storage capacity in the Salesforce platform is being stretched to its limits. During 2018, data archiving and access options of these Salesforce data will be explored and implemented. More broadly, IT will begin to define the infrastructure of a data repository for reporting and analytics.

AMERICA TO GO

W&M IT will be assisting the Office of Procurement to implement America to Go, a web-based, managed catering platform for food ordering and expense management. With this product, end-users place online orders with local caterers. The system will apply William & Mary business rules while the order is being placed.

ELLUCIAN ETHOS PLATFORM

In 2018, Software Systems and Data Management staff will begin to investigate the integration and workflow functionality in the Ellucian unifying platform, Ethos. With the Ellucian Ethos workflow tool built on the platform, Ethos will provide a more streamlined process to integrate data and tie systems together.

EXPANDED ROLE FOR TICKET SYSTEM

The Cherwell IT ticketing system has provided service management to W&M IT for seven years. In 2018, W&M IT will expand the footprint of Cherwell by redesigning existing IT processes and developing parts of the system that have not previously been utilized at W&M. This includes features such as an enhanced service catalog, knowledge base, change management system, and maintenance trackers.

BUILDING PROJECTS

W&M IT will be involved in the construction/renovation projects of the following buildings:

- Alumni House
- Dillard Sceneshop
- Integrated Science Center (Phase 4)
- Kimball Theatre
- Landrum Hall
- Performing Arts Quarter
- Shenkman Jewish Center
- Wellness Center
- West Utilities Plant

SALESFORCE CRM

In 2018, a new governance structure will be put in place to support existing and future CRM functionality. During the year, discovery of how the CRM will support the student experience will begin. As we do this, we will continue to enhance and build Admission and Advancement functionality.

ADMISSION:

While providing continued support to admissions offices that have implemented the CRM, W&M IT's CRM team will work with the business school to bring application, application review, and communications functionality live for multiple business programs. Undergraduate admission will bring the Coalition Application and the new Common App Transfer Application into production. W&M IT will define integrations for applicant decisions to Banner and movement of official documents for matriculating graduate students from CRM to Banner Document Management (BDM) with implementation scheduled in early 2019.

ADVANCEMENT:

Adoption for both the Marketing Cloud and Linvio has grown extensively in 2017. In 2018 we will expand that adoption to offices outside the central Advancement organization. To improve and expand population segmentation capabilities, additional bio information from Advance will be integrated.

 | *More CRM information available at: crm.wm.edu*



