CIO ANNUAL REPORT

Information Technology
Department Accomplishments
and Project Updates

INFORMATION TECHNOLOGY

2018-2019 Annual Report

1 John Marshall Dr.
Huntington, WV
25755

IT staff at Mobile ID Launch, April 2019

New IT Staff Members, June 2019

TABLE OF CONTENTS

"It's never about the technology...it is all about people and how technology empowers people to achieve."

FROM OUR CIO

Dr. Edward Aractingi
Chief Information Officer

As we look back on the past year and think about the upcoming year we are embarking on, we reflect on the achievements we have made and use what we learned during the past year to plan for continued innovation to move our institution forward.

This past year was exceptionally full of exciting achievements. We have made significant progress towards our key strategic goals. We renewed our commitment to keeping students at the center of our work and empowered faculty and staff to stay productive and achieve the best.

Last year, I challenged our team to bring the most impactful technologies to our campus and to not look at the easy solutions, but rather to embrace change. With this charge, they undertook any task that would support our university, regardless of its difficulty. Our team was up to the challenge!

In this report, I share with you the great achievements that our team has completed in the past year and I highlight some of the projects that have made an impact on our students, faculty, and staff.

We completed projects that hit important milestones like Multi-Factor Authentication for all Marshall students, protecting them and their data from identity compromise. We concluded the first overhauling upgrade to Banner since its initial introduction to the university in the late eighties.

We also moved our classroom, event scheduling, and optimization to the cloud-based AdAstra tool in a step that not only controlled cost but allowed revising and enhancing our old scheduling process.

We are proud to be one of the first six schools to offer students and employees the ability to put their campus IDs on Apple iPhones and Watches, a move that symbolizes our commitment to students.

I am also happy to point out some of the projects that are underway. We launched the first student-focused, campus-wide, analytics project. Dozens of university personnel are collaborating to build comprehensive, data-driven, decision-making dashboards and spark a data culture.

There has never been a time where our role in technology has been as important as it is today. We are extremely excited about the opportunity to support our university's mission and goals to improve student successes and experiences, cultivate research, and expand the quality of our academic programs.

OUR MISSION

The Information Technology Organization at Marshall University provides and creates an evolving, reliable, innovative, integrated and service-oriented information technology environment that empowers, enhances and engages the academic, support and research activities of the University by delivering effective IT products and services that help students, faculty, and staff to achieve Marshall University goals.

OUR STRATEGIC GOALS

• Strengthening Security and Privacy

• Digital Transformation of Teaching and Learning (Technology in the Classroom and Online)

• Reliable Infrastructure (Wired, Wireless, Voice, Data, Internet)

• Improving Efficiency in Business Processes (Administrative Systems, Automation)

• Supporting Research Computing and Cyber Infrastructure

• It Staff Professional Development and Retention and IT Organization Structure

• Fostering Data-Driven Culture Through Analytics and Business Intelligence

• Improving Student, Faculty and Community Engagement

• Fiscal Responsibility and Financial Stewardship

DIVERSITY & INCLUSION

We believe that our strength comes from our diverse backgrounds and differences and that diversity and inclusion enrich our thinking, nurture creativity, and drive innovation.

Marshall University's Division of Information Technology promotes a working environment that fosters acceptance and mutual respect. The supportive culture at the Division of IT cultivates diversity and embraces inclusion, specifically the individuals historically under-represented in technology like Women, African-Americans, American-Indians, Hispanics, Asians and immigrants. We focus on personal growth for members of our community regardless of their background.

We are committed to offering equal employment opportunities for all individuals regardless of race, color, gender, religion, age, sexual orientation, national origin, veteran status or disability.

GUIDING PRINCIPLES

The guiding principles are values set by the University CIO to guide the IT department in all conditions regardless of changes in the short-term strategies or long-term goals.

- **Our Focus:** People First

- **Our Drivers:** Innovation and Creative Thinking

- **Our Methodology:** Collaboration and Partnerships

- **Our Commitment:** Staff Growth

- **Our Mission:** Alignment with the university's goals

- **Our Culture:** Diversity and Inclusion

- **Our Identity:** Community Engagement

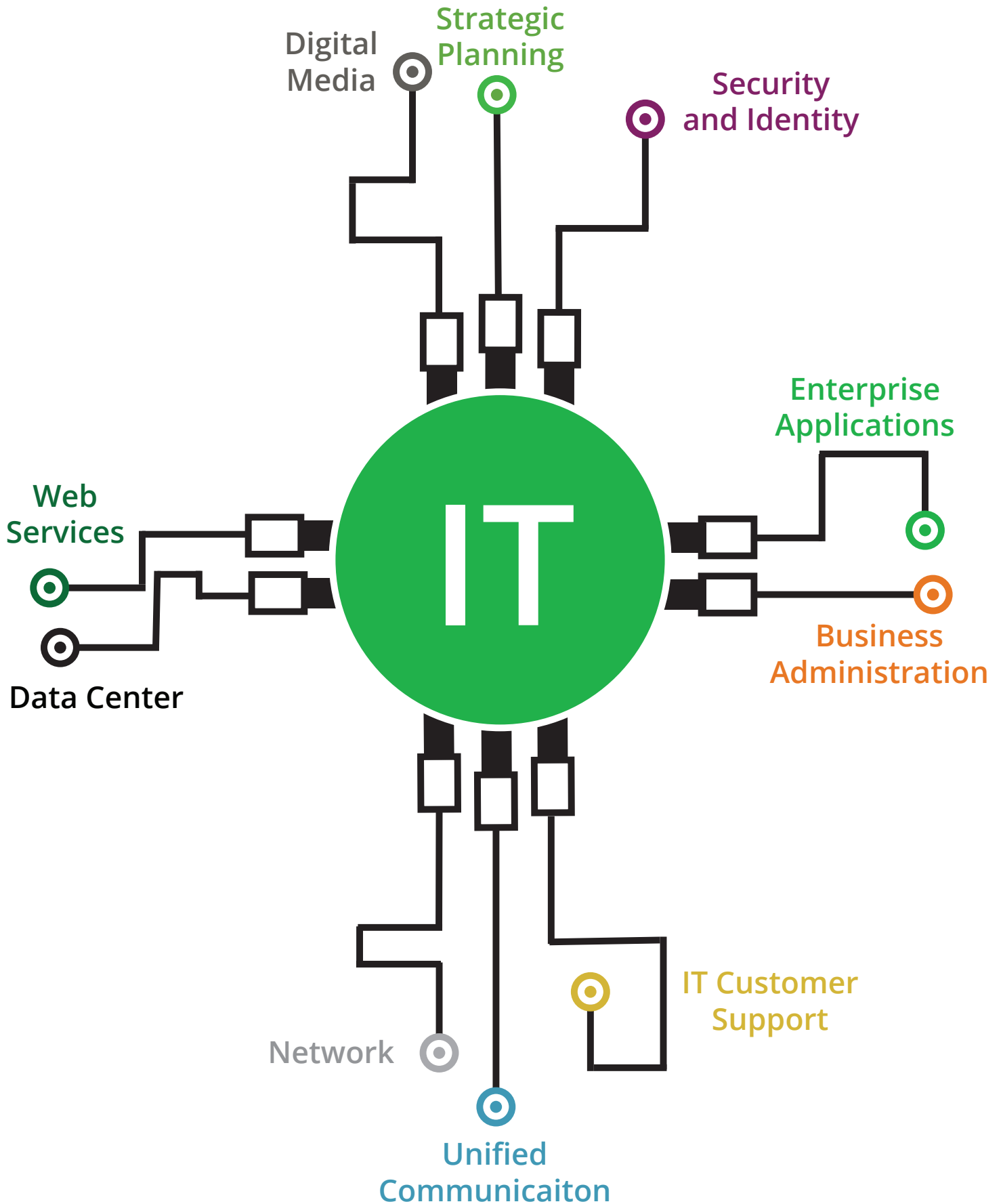**IT PROVIDES SEAMLESS, SECURE ACCESS**

to information resources in all forms through a reliable and robust infrastructure

IT ENGAGES IN COLLABORATIVE RELATIONSHIPS

acting as a trusted partner who anticipates needs and responds with innovative solutions

IT SERVICES MAP

Digital Media

Strategic Planning

Security and Identity

Enterprise Applications

Web Services

IT

Business Administration

Data Center

Network

IT Customer Support

Unified Communicaiton

Security & Identity

1
- Identity Management
- Roles and Access Control
- Credential Management
- Campus ID Cards
- Intrustion Detections

Digital Media

2
- Video Streaming & Production
- Lecture Captures
- Digital Signage

Strategic Planning

3
- Risk Management
- Governance
- IT Policies & Procedures

Data Center

4
- Cloud Computing
- Servers/Storage
- Research Computing

IT Customer Support

5
- Computer Spaces (LABS)
- Classroom Technology (TECI)
- IT Service Desk

Enterprise Applications

6
- ERP (Banner)
- Banner Student
- Banner Financial Aid
- Banner Finance
- Business Intelligence

Web Services

7
- Learning Management Systems
- Web Developement and Design
- University Portal

Business Administration

8
- Budgeting
- Procurement
- Human Resources
- Cost Analysis

Network

9
- Wifi
- Wired Network
- Internet

Unified Communication

10
- Mail
- Phone
- Chat
- Video Conferencing

OPERATIONS

IT runs large and complex operations to support the university 's various infrastructure and services. The areas that we cover include the network, voice, data, internet, email, web, storage, research computing, video media, learning management systems, and numerous applications.

In the following few pages, we give you some insight into some of our services and illustrate the scale and volume of those services.

DATA CENTER

The Marshall University primary data center, located in Drinko Library, is a state of the art facility with 1800 square feet of raised floor with redundant cooling (60 tons) and uninterruptable power supplies (150 KVa) housing compute server, storage and networking equipment for the entire university. It supports six rows of equipment cabinets of moderate equipment density. The Data Center is secured with access control system, motion detecting cameras and monitored with temperature, humidity, airflow and sound sensors.

459	**868TB**	**124**
# OF VIRTUAL SERVERS	AMOUNT OF DISK STORAGE	# OF PHYSICAL SERVERS

EMAIL

IT provides web and mobile access to Marshall email powered by Exchange and Office 365. Our email security measures in place have identified over 40% of email traffic as spam or phishing.

58%
AVERAGE % OF LEGITIMATE EMAILS PER DAY

7572
EMAIL INBOXES

351,008
AVERAGE # EMAILS RECEIVED PER DAY

WEB

IT utilizes the WordPress publishing platform, that allows the creation of university webpages that communicate and maintain the university brand.

139,522
OF ACTIVE DAILY WEB VISITORS

11,219
AVERAGE # OF MARSHALL.EDU WEBSITE VISITORS

MOBILE

As online resources and technology applications for learning increase, students need mobile devices not just to communicate, but also to learn. Our data indicates our campus users connect on campus to resources mainly with mobile devices including, phones, laptops, and tablets, and often connection from more than one device concurrently.

3-5
NUMBER OF CONNECTED DEVICES PER USER

3860
PEAK NUMBER OF ACTIVE MU MOBILE USERS

PHONES

Marshall's unified communications solution integrates all of our communication needs. Managing state of art telephony services that integrate into a unified communication solution allows the for better communication and collaboration.

~319,356
AVERAGE NUMBER OF CALL MINUTES PER MONTH

~4000+
OF MANAGED PHONE DESKSETS

SERVICE DESK

The IT Service Desk provides the entire University community with technical support services on a variety of issues and platforms. Technical assistance is available around the clock in-person, on the telephone, or online via email and live chat.

5988
UNIVERSITY MANAGED COMPUTERS

335
AVERAGE # WALK-INS FOR ASSISTANCE/MO.

386
AVERAGE # SERVICE DESK TICKETS/MO.

WI-FI

We realize how connectivity, and especially WIFI, is important to our students and faculty; therefore, the University invested in a pervasive WIFI project covering all academic units and residence halls, including a dedicated access point device in each dorm room.

7766
AVERAGE # OF ACTIVE WIRELESS CLIENTS

100%
CORE ACADEMIC BUILDINGS COVERED WITH PERVASIVE WIFI

2994
WI-FI ACCESS POINTS

COMMUNITY ENGAGEMENT

WOMEN IN TECH

OUT OF **8** NEW HIRES, **4** WERE FEMALE

PUBLIC SERVICE

Each year, IT employees participate in several volunteer initiatives and community service opportunities on campus and off campus.

T·I·E·R·
Technology Innovation, Exploration & Research Lab

STUDENT INTERNSHIP LAB

2X
THE # OF INTERNS DOUBLED IN 2018

> " Interning at MUIT encouraged me to grow in development knowledge as well as social and professional work areas, and I'm thankful for the experience MUIT gave me to use in my future career.
> **- Scarlett Scarberry, CIT Student** "

2018-2019 PROJECTS

Every year we review and update our strategic goals and launch initiatives to meet key objectives for the year. Every project we undertake is aligned with one or more objectives and business drivers. We carry out numerous projects; some are initiated from IT for campus-wide strategy and others are driven by department needs. We follow a comprehensive and structured process of implementation with cross-functional teams. We use proven project management methodologies in collaboration with various groups from different areas, bringing diverse expertise and perspectives. The next few pages highlight some key projects introduced this year as well as current and upcoming projects.

Upgrades

- Banner 9
- Exchange 2016
- Wordpress upgrade
- Blackboard Learn to Software as a Service migration
- Move Barracuda Spam Filtering from on-prem to the cloud

Community Engagement

- Presentations on Women In Tech (WIT) at the WV Game Developers Expo & AIDE Cybersecurity Conf.
- Volunteer for Habitat for Humanity, city of Huntington and other community organizations

Security

- Banner Social Security Masking
- Banner privileges annual review process automation
- Off-site Banner Cloud backup.
- Multi-factor authentication
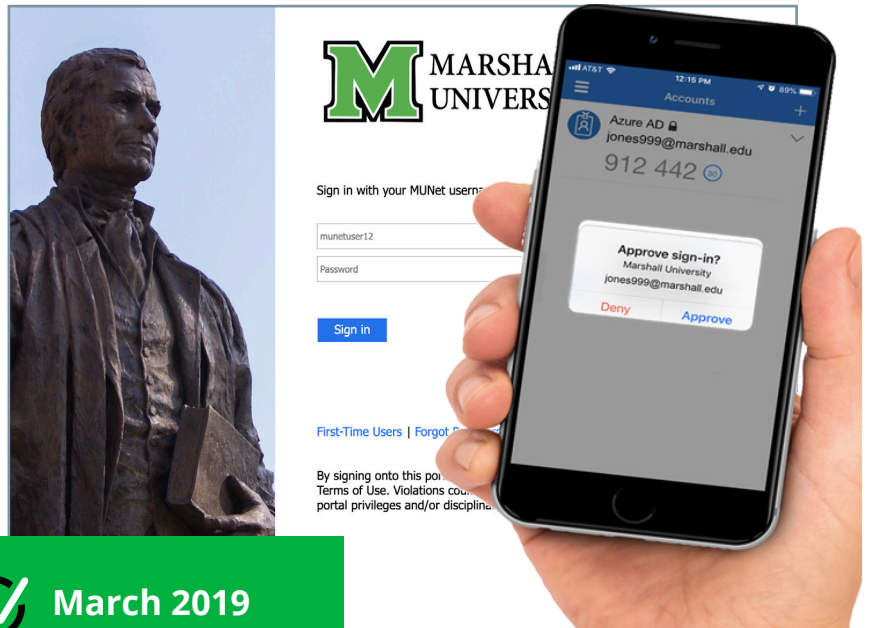
New Implementation

- ChromerRiver Travel & Expense system
- AdAstra scheduling system
- Adobe Creative Cloud Suite

MULTI-FACTOR AUTHENTICATION

Increased protection for all university accounts

Goals Alignment
• Reduce Risk
• Improve Service Quality
• Protect University Brand

✓ **March 2019**

Threats from phishing scams, malicious software and compromised passwords are constantly increasing and pose an immediate risk to your privacy and the security of University data. Marshall University has implemented a new Multi-Factor Authentication (MFA) system that is required for all students and employees. 15,000+ accounts have enrolled since January 2019.

> " IT has been proactive in guarding the security and privacy of users and data by implementing MFA along with an aggressive response to ongoing phishing campaigns. Their state-of-art patch management program and self-testing of our systems, MUIT is providing extraordinary veil to the entire university.
> - **Bill Gardner, Professor of DFIA** "

BANNER 9 UPGRADE

The most significant upgrade since introduction

January 2019

Goals Alignment

- Increase Efficiency
- Reduce Risk
- Improve Service Quality

At the beginning of 2019, Marshall University upgraded the Banner ERP system from version 8 to version 9. Banner 9 employs a new web-based architecture that replaced the older java-based client architecture. The new Banner 9 architecture is more flexible and supports a wide variety of devices, from smart phones to desktop PCs. Also removing the java dependency on the user's computer, has greatly reduced support issues involving a user's PC. Ellucian will continue to update the functionality of Banner 9 and move forward with their plans of updating the Banner Self Service architecture to the new web framework.

> " Upgrading sounds simple, but impacts almost every university business process. IT handled this in a careful stepwise fashion, making sure to keep all informed. As a BOC member, testing, successes and issues were shared along the way. Thanks to the ongoing stewardship, this upgrade was relatively pain-free. "
>
> **- Elizabeth Hanrahan, Banner Oversight Committee**

MARSHALL MOBILE ID

One of the first in the country to offer this cutting-edge experience

✓ **April 2019**

Goals Alignment

- Enhance Student Experience
- Reduce Risk
- Improve Service Quality

Marshall University students, faculty and staff can now add their Marshall Mobile ID cards to Apple Wallet, and use their iPhone and Apple Watch around campus. By simply placing their iPhone and Apple Watch near a reader where physical campus IDs are accepted, they can enter residence halls, the Rec Center, buy lunch, make purchases at the university bookstore, print documents, and more. Marshall Mobile ID allows users to load their Marshall ID card onto their mobile device to replace standard MUID campus card with a digital ID on smart phones or Apple Watch.

> " *Switching to Marshall Mobile ID has made it extremely convenient and easy to utilize my phone for all of my MUID needs. Accessing the study center after hours and making purchases on campus is now effortless.* "
> - **Gage Childers, DFIA Student**

NEW SCHEDULING SOFTWARE

Increased improvement in business process efficiency

December 2018

Goals Alignment
- Increase Efficiency
- Improve Service Quality
- Control Cost

Meeting a growing demand for better classroom and space utilization as well as increased efficiency and reporting, IT worked with the Registrar's office and Facility Scheduling to implement a new space management scheduling software. This service allows the registrar's office to more efficiently utilize classroom spaces and process reports quicker for the entire University.

> " The move to the new scheduling software was a seamless transition for our team. Working with the IT department, has allowed our office to reap the benefits of optimizing campus spaces.
> - **Billy Biggs, Associate Registrar** "

HIGH PERFORMANCE COMPUTING UPGRADE

Cluster Redesign and Installation of a Modern Collaborative HPC

Goals Alignment

- Support Research
- Improve Service Quality
- Support University Brand

✓ **June 2019**

Photo: Mike McDade

IT has made it a priority to support research and promote the use of research computing resources. Through various NSF funded grants, IT has offered Marshall faculty high performace computing resources and high speed networking like the newly deployed 10G ScienceDMZ. The upgraded HPC system embraces HPC community standards and Open Source tools provide a flexible research environment and streamlined cluster management.

> " IT provides support to us through a cyber infrastructure strategy that is geared to support research across the campus, and provides a critical resource to researchers campus-wide. The IT team is always highly responsive to our needs with a high level of expertise that enables us to perform cutting-edge bioinformatics research.
> - **Dr. James Denvir, Professor of Biomedical Sciences** "

BUSINESS PROCESS OPTIMIZATION

Automation and Re-engineering university business processes
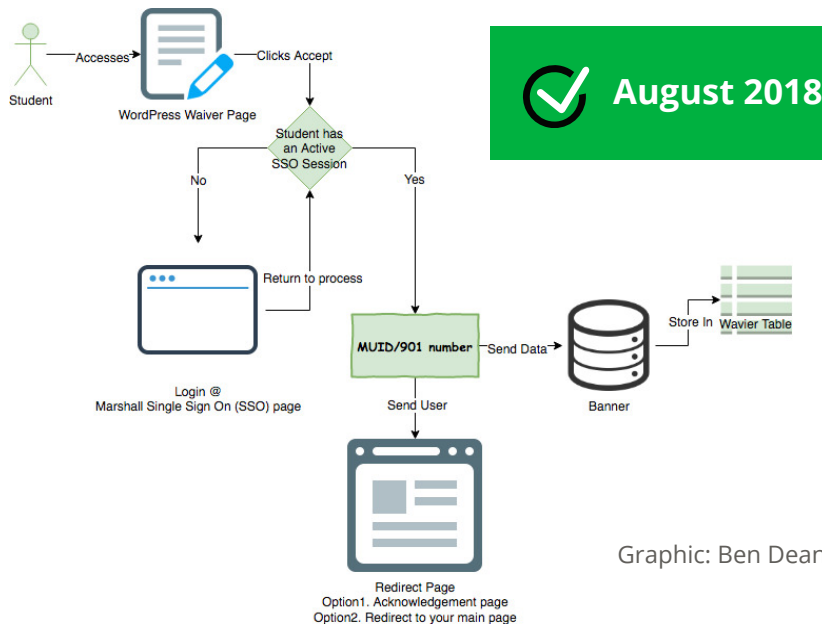
Graphic: Ben Dean

August 2018

Goals Alignment

• Reduce Risk
• Improve Service Quality
• Support University Brand

Our team has started automating manual processes and reviewing existing models to re-engineer inefficient business activities and/or move paper-based forms to an electronic format. Hundreds of forms were processed electronically this year. In some occasions, moving tedious paper forms online reduced long wait times for students by allowing them to conduct certain tasks remotely. Moving the Rec Center waivers digitally eliminates the need for incoming students to wait in line. Additionally, by integrating the photos taken at the ID office with the Rec Center, there is no need for another picture to be taken which improve student experience when they first come on campus.

> " This service allowed us to create an environment that is truly student-centric by utilizing web-based facility waivers and student ID photo sharing with the institution. Overall, I couldn't be more pleased with the help of IT to assist Campus Recreation.
> - **Bob Holub, Director of Campus Rec** "

UNDERWAY PROJECTS

Current, Planned and Upcoming Projects

Contact Center

A campus-wide consolidated contact center for managing students, faculty and staff calls, emails and text in a unified and modern way.

Student Analytics

An advanced and comprehensive analytics platform for all student data. This platform allows functional teams to create interactive reports.

Service Management Enhancement

We are revamping our ticketing and service request management system to incorporate best service-focused standards like ITIL and COBIT.

Next Generation Firewall Upgrade

We are in the process of evaluating cutting-edge next-gen security firewall to add application-level protection with intelligent and proactive system.

External Risk Assessment

We are in the process of conducting an external security risk assessment and network penetration testing including social engineering to determine our risks and threat levels.

On-Demand Training

We are migrating Lynda Campus to LinkedIn Learning, giving Marshall users access to more professional development options with badges.

REPORT PREPARATION:
Scarlett Scarberry, Design
Azyn Chahryar
Crystal Stewart

@marshalluit   @marshallu_it   @marshallu_it   @marshalluit