



# INFORMATION TECHNOLOGY SERVICES ANNUAL REPORT

FISCAL YEAR 2019-2020

  
Appalachian  
STATE UNIVERSITY®



# TABLE OF CONTENTS

## Table of Contents

- ◆ TOC-1.....1
- ◆ TOC-2.....2

## Office of the CIO

- ◆ Letter from the CIO.....3

## ITS' Response to COVID-19

- ◆ Faculty Senate Expresses Gratitude to ITS During COVID-19 Transition.....4
- ◆ Keep Working Website Nationally Highlighted.....5
- ◆ ITS Instrumental in Assisting.....5
- ◆ High Priority Continuity Needs.....5
- ◆ WiFi Hotspot Procurement, Configuration and Deployment.....6
- ◆ Remote Phone Access Using Jabber.....6
- ◆ Zoom Security Enhancements.....6
- ◆ Remote Computer Labs for Students.....7
- ◆ Security Defense & Monitoring For Fully Remote Workforce.....7
- ◆ Electronic Signatures.....7
- ◆ Zoom Telehealth.....8
- ◆ Mountaineer Connect Campaign.....8
- ◆ Deferred Commencement.....8
- ◆ Pass/No Credit Selection for Students.....9
- ◆ Transcript Comments.....9
- ◆ College of Education Teacher Education Application Adjustments.....9

## Students

- ◆ Streamlining Field Placement for Education Students.....10
- ◆ Electronic Financial Aid Forms.....10
- ◆ Degree Works Upgrades.....10
- ◆ Find Technology With Interactive Technology Map.....11
- ◆ Outdoor Wireless Continues to Improve.....11
- ◆ Student Cyber Security Operations Center.....11

## Faculty & Staff

- ◆ VoIP Installation is Complete!.....12
- ◆ Find IT Services Quickly & Easily.....12
- ◆ Faculty & Staff Can Keep Passwords for a Year!.....12
- ◆ New IT Service Ticketing System.....13
- ◆ Jira Ticket Information.....14
- ◆ Satisfaction Ratings.....14



# TABLE OF CONTENTS

## Faculty & Staff (cont.)

- ◆ Improved Management of Travel Expenses.....15
- ◆ Enhancing Fundraising Efforts.....15
- ◆ Web Based Solution for Medicat.....15
- ◆ Increasing Electronic Transcript Efficiency.....16
- ◆ Scholarships.....16
- ◆ Google Chat Makes Communication Easier.....16
- ◆ New IT Acquisition Process Aids in Efficiency & Security.....17

## IT Governance

- ◆ Governance Updates.....18

## Periodic Comprehensive Review

- ◆ PCR Updates.....18

## Infrastructure

- ◆ Infrastructure Updates.....20

## Security

- ◆ Two-Factor Authentication.....21
- ◆ Windows 10 Update.....22
- ◆ Security Training for Secure Data Environments.....22
- ◆ Cisco AMP Helps Detect System Compromises.....22
- ◆ Fraudulent Email Scam Handling.....22

## IT Staff Highlights

- ◆ Beth Pouder Retires, Jason Grubb New Enterprise Applications Director.....23
- ◆ ITS Staff Shout Outs.....23
- ◆ Much Loved IT Consultant, Charles Davis, Retires.....24
- ◆ Every Member of One IT Area Receives Staff Shout Out.....24

## Looking Forward

- ◆ Digital Workflows.....25
- ◆ Finance Data Mart Upgrades.....25
- ◆ Storage Expansion.....25
- ◆ Configuration Management Database.....26
- ◆ All Appalachian Faculty, Staff and Students to Join DUO in 2020.....26

# OFFICE OF THE CIO

## LETTER FROM THE CIO

When I think of 2020, the first thing that crosses my mind is clarity of vision. Everyone wants 20/20 vision. Information Technology began this year with vision and purpose, looking forward to new and exciting opportunities to continue adding to the value proposition we bring to campus. By mid-March the fog of a global pandemic allowed us to barely see a day or two in front of us. Campus was emptying and the technology challenge of moving everyone off campus into a new virtual world was just beginning. Over the next couple of months the obstacles we faced and overcame began to redefine Information Technology Services as we once knew it.

As the fog began to lift, it became clearer that our horizon was still in sight and many of the foundational technologies we had been working to build were beginning to pay dividends. Our VoIP deployment was just finishing up as we began moving campus to a work from home model. Offices were able to seamlessly transition their phone based business processes with little disruption. Our Pulse VPN service provides a secure tunnel for processing secure data transactions and has laid the foundation for a new standard in data security. Computer labs took on a new look as we moved them into a virtual cloud space ensuring students would have access to the software resources they needed, while providing the safest possible environment in which to learn.

By the end of May, our path forward was beginning to take shape again. We were able to focus less on the immediacy of the day, and look further out to where we were going. The pandemic would certainly affect our route, but the destination was beginning to brighten up. We were wrapping up our first full year with a new service desk platform, and were gaining a clearer understanding of how to manage IT tasks and projects, as well as beginning to prioritize campus demands. We completed an internal/external review of our operations, shining a light on areas of success, as well as, areas for improvement. This will be the foundation for our continuous improvement plan focused on IT governance and operational efficiencies.

Late this Summer ITS worked with Faculty to gain support for a DUO 2 factor solution for protecting institutional accounts. The world has taken a renewed interest in our reliance on technology, and those wishing to exploit this reliance are hitting us hard and with more sophisticated attacks. DUO is just one of several security based initiatives we will look to build out this Fall, as we look to provide a more secure computing environment for all.

The long hours and hard work put in by the ITS team and this University to bring students back to the safest possible learning environment must be commended. We should all be proud of the dedication and commitment shown by the Faculty and Staff to overcome the challenges and solve the problems created by this pandemic. As we wrap up the Summer and I begin to look forward toward the Fall, one thing in 2020 has come into sharp focus.

The long range view from the Top of the Mountain has never been clearer.



*David Hayler*  
*Chief Information Officer*  
*and*  
*Associate Vice Chancellor*

*David*

# ITS' RESPONSE TO COVID-19

## Faculty Senate Expresses Gratitude to ITS During COVID-19 Transition

At its April 27, 2020 meeting, the Faculty Senate unanimously approved a resolution that expressed the faculty's gratitude to Information Technology Services and the Center for Academic Excellence for their hard work and invaluable professionalism in helping the faculty to transition online and fulfill the institution's academic mission.

The resolution reads as follows:

*Whereas, the Information Technology Services (ITS) staff has swiftly upgraded vital University systems to support faculty and students in the face of substantial COVID-related changes to normal operations, including:*

- *Building Withdrawal and Pass/No Credit grading options for courses*
- *Building software infrastructure to support virtual commencement*
- *Purchase and deployment of HotSpot, laptop, tablet devices to enable faculty remote teaching*
- *Expanding the capacity of virtual laboratory environments;*

*Whereas, the Center for Academic Excellence (CAE) staff has also acted swiftly to provide faculty with new or upgraded services and tools to enable and improve our remote teaching efforts, including:*

- *54 workshops in the extended spring break week that served nearly 600 faculty*
- *Researching and enabling proctored browser and monitor applications for remote instruction*
- *Managing and upgrading the Zoom web conferencing system that, in the last month, has seen 35,408 separate meetings involving 282,726 participants*
- *Managing and upgrading the AsU Learn course management system that, in the last month, has seen 1,259,473 separate sessions from about 18,000 daily users involving over 12 million-page views.*

*Be it resolved that the Faculty Senate adopt the following statement of gratitude:*

***The Faculty Senate, representing the faculty at large, wishes to extend a sincere statement of gratitude to the staff and leadership of the Center for Academic Excellence (CAE) and Information Technology Services (ITS). Your behind-the-scenes efforts the past 6 or so weeks have helped us to do our jobs better in the new and challenging environment caused by COVID. We appreciate the time you have given, the consideration you have demonstrated, and the professionalism you have exhibited.***

# ITS' RESPONSE TO COVID-19



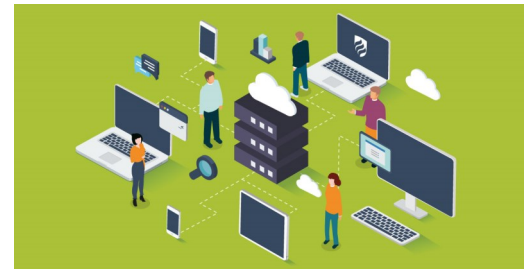
KEEP  
WORKING

## Keep Working Website Nationally Highlighted

In May 2020, [EDUCAUSE](#) highlighted [App State ITS' Keep Working website](#) in their [Remote Working Continuity Plans](#). Many campuses were facing the disruption of routine work and/or academic functions due to prolonged/indefinite campus or building closures due to COVID-19 at that time. EDUCAUSE provided a few examples of institutions offering resources to work or teach a class from off campus, which highlighted App State's ITS Keep Working website.

## ITS Instrumental in Assisting High Priority Continuity Needs

ITS staff provided assistance to campus partners to help manage the rapid acquisitions of critical new IT services needed to respond to continuity needs. This assistance included covering contract evaluations, RFPs, and risks & compliance reviews for both on-premise and cloud services.



## Rapid Expansion of VPN Services



Before the move to remote teaching and work, ITS provided Pulse Secure VPN services to a small number of Faculty and Staff. ITS recognized the need to rapidly expand these services as quickly as possible. Over a two week period, ITS expanded this service to support up to 2500 connections from 150 previously. Additionally, to help users quickly make use of the service, ITS deployed the Pulse Secure VPN client to all managed desktops and laptops, including ones being used remotely. This saved our users a step in the process of connecting to Campus networks.

# ITS' RESPONSE TO COVID-19

## WiFi Hotspot Procurement, Configuration and Deployment

ITS purchased 60 hotspot devices to assist faculty and staff to teach and work remotely due to COVID-19, impacting how and where faculty and staff teach and work. ITS also assisted Upward Bound with the procurement of 28 hotspot devices to provide students participating in the Summer Academy a stable internet connection since they could not attend in person. All devices were configured with an AppState SSID and password for secure connectivity. These hotspot devices allowed faculty and staff to work and teach remotely that would not have been able to work remotely otherwise.



## Remote Phone Access Using Jabber



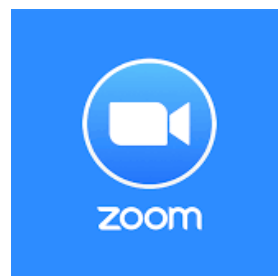
CISCO JABBER

Part of the campus wide VoIP based phone system is a feature called the Cisco Jabber client. The Cisco Jabber client allows users to have access to their Office Phone number remotely for making and receiving calls and accessing voicemail. Before the COVID-19 crisis, remote phone access was rolled out to only a select few who had requested it. The intention was to roll this service out Campus wide at some point.

***Within a 1 to 2 week period, this service was fully deployed to all faculty and staff working remotely, allowing them access to their office phone.***

## Zoom Security Enhancements

Zoom meetings are being used more than ever due to the majority of faculty and staff working remotely. ITS and CAE worked together to enhance protection of Zoom sessions from risks like "Zoom bombing." This team implemented enhanced protection measures and worked to ensure campus was made aware of security best practices when utilizing Zoom to sustain University operations.



# ITS' RESPONSE TO COVID-19

## Remote Computer Labs for Students



uDesk Labs are online labs that students and faculty can use to access University provided software. At the start of the COVID-19 remote teaching, ITS began the process of expanding the number of remote computer labs available through our uDesk platform. To meet the

expected need as quickly as possible, ITS looked at currently available resources. A plan was then developed to temporarily reassign resources to increase the number of Remote Computer Lab sessions that could be provided to students. This effort allowed ITS to increase our Remote Computer Labs for students from 200 to 950. Additionally we expanded the applications available on the platform, including for the first time, support for graphic intensive software. All this work was completed in a 2-3 week period!

## Security Defense & Monitoring For Fully Remote Workforce

The ITS Security and Infrastructure teams completed roll-out of endpoint detection and response software for all University-owned computers. This software has allowed for enhanced cyber-protection of University faculty & staff computers while working from home.

## Electronic Signatures

DocuSign is an e-signature application allowing users to sign legally binding contracts and documents online. With the onset of closing of campus buildings and government mandated stay-at-home orders, a new demand for electronic signatures quickly was needed by many campus entities.



On April 1, DocuSign management migrated from Student Affairs to ITS. Under this new structure, ITS now serves as the primary support resource for new campus users. ITS has worked with areas including Advancement, College Access Partnership and Athletics to set up accounts and provide support.



# ITS' RESPONSE TO COVID-19

## Zoom Telehealth

Campus health care providers needed a video conference solution that is secure and compliant, particularly during the COVID-19 shutdown. ITS has worked with campus health care to provide a video conferencing solution that is HIPAA compliant with 256-bit AES encryption, and allows locally recorded session review for our healthcare providers. ITS has helped to develop a process to designate users and areas that need Zoom Telehealth and review designation periodically, provision Zoom Telehealth to those areas, and train, communicate and support those areas. Areas that will use Zoom Telehealth include Interprofessional Clinic, Psyc Clinic, Communication Disorders, Music Therapy, Counseling for Faculty/staff, Social Work Consultations, Healthy Aging & Adult Health, Nutrition Services, Healthy Aging & Adult Health Counseling & Psychological Services Center, as well as Student Health.



## Mountaineer Connect Campaign



Mountaineer Connect is a program that allows faculty and staff to connect with current students and provide care and support, as well as collect any questions and feedback they may share. With the sudden closure of campus, keeping in touch with our student population became more urgent and important.

ITS partnered with Mountaineer Connect to provide a list of all undergraduate, degree-seeking students that were enrolled in Spring 2020. This list was used to call each student to connect with them. Approximately 16,000 students were called. All questions are routed to the appropriate campus areas/departments for follow-up.

## Deferred Commencement

Any student who graduated in Spring 2020 or Summer 2020 is eligible to attend the December 2020 commencement ceremonies. ITS developed a way for students to sign themselves up and their family members who plan to attend the December commencement ceremony through Banner. Students are also able to update the address they want to have their diploma mailed to through August 30, 2020.



# ITS' RESPONSE TO COVID-19

## Pass/No Credit Selection for Students

ITS developed a page in Self Service Banner for students to elect whether they wanted to take the standard letter grade option for their Spring 2020 courses or take the Pass/No Credit option. In total, students chose to replace their regular letter grade with the Pass/No Credit option for approximately 9,000 grades.



## Transcript Comments



Working with the Registrar's Office, ITS was asked to place the following comment on all students' transcripts for Spring 2020. "A global health emergency during this term required significant course changes. Unusual enrollment patterns and grades could reflect the tumultuous time, not necessarily the student's work." This comment was applied to all 18,000 students taking classes during the Spring 2020 semester.

## College of Education Teacher Education Application Adjustments

Partnering with the Reich College of Education, ITS worked to modify the current Teacher Education Program Application, which temporarily ignored test scores and reduced the GPA requirement. The COVID-19 RCOE Teacher Education adjustments are temporary fixes that will allow students to apply to the program without the need for test scores and a slightly lower GPA requirement. ITS moved quickly to get these adjustments made in the wake of COVID-19 and will be ready to revert to pre-COVID-19 criteria for applicants.



# STUDENTS

## Streamlining Field Placement for Education Students



Working with the Reich College of Education of Field Experiences, ITS has implemented InPlace software to help streamline the 1,200-1,500 field placements per semester and facilitate compliance with state teacher licensure requirements. InPlace is a centralized platform for RCOE to house documents required for student teaching placements, such as applications, health forms, clearance checks, district paperwork requirements, criminal background check status, resumes, and cover letters.



## Electronic Financial Aid Forms

In November, 2019, Financial Aid transitioned to a fully online platform for the 2020-2021 academic year. Students are able to view and complete their financial aid forms electronically, eliminating printing, signing, faxing and mailing. The new platform streamlines the verification process and increases data security.

## Degree Works Upgrades

Degree Works is a popular advising and degree audit tool that helps students and their advisors successfully navigate curriculum requirements. Several upgrade enhancements took place this year to keep this software up to date and for improvements requested by Faculty, Advisors and Associate Deans.



# STUDENTS

## Find Technology With Interactive Technology Map

Find IT services



Find outdoor wifi, public computer labs, and active learning classrooms on the interactive campus map.

Ever wonder how to find WiFi locations, public computer labs or active learning classrooms? In collaboration with University Communications, ITS now provides an [easy to read technology map](#). Many thank you's to University Communications for working so hard to bring this new tool to campus!

## Outdoor Wireless Continues to Improve

The wireless canopy on the campus of Appalachian State University expands each and every year. Additional hardware was purchased and installed this year to increase the speed and availability for both indoor and outdoor WiFi for our faculty, staff and students.



## Student Cyber Security Operations Center



Appalachian State Computer Science Students have had the opportunity this year to gain operational skills and hands-on experience via the establishment of a newly formed Student Cyber Security Operations Center. The SCSOC is a dedicated space for a select group of Appalachian Computer Science students and the ITS Office of Information Security Professionals to work collaboratively to enhance cyber protection of the University while also providing invaluable learning experiences for the students.



# FACULTY & STAFF

## VoIP Installation is Complete!

The VoIP (Voice Over Internet Protocol) multi-year project was completed this year. VoIP provides a unified communication platform with enhanced features to replace Centrex phone lines and has proven to save the University a considerable amount of money each month. In addition, ITS developed an in-house software solution this year to track the phone numbers, phones, moves, adds, and changes in the VoIP phone system. There are currently no products on the market to fill this void, so ITS created Phone Reg.



## Find IT Services Quickly & Easily

Information about our IT services and software offerings can be found online in the [Technology Applications and Software Catalog \(TASC\)](#). Users can find information about services and software features, the intended audience, and how to access the services. The TASC has been updated to integrate with our new Service Desk solution (JIRA) and our Service Catalog Groupings have been aligned based on the Educause Categories to allow for benchmarking against other Universities. A Service Catalog Governance Group was created this year to oversee and approve changes to the IT Service and Software Catalog.

## Faculty & Staff Can Keep Passwords for a Year!

ITS announced in February, 2020, that users who enrolled in 2 factor authentication (DUO) could keep their passwords for 365 days! In addition to the convenience of keeping passwords longer, DUO protects password and direct deposit information. Phishing and scam attempts are becoming more sophisticated, and can fool even the most vigilant person. DUO adds a second layer of protection. See more about DUO in this report under IT Security or visit [2fa.appstate.edu](https://2fa.appstate.edu).



## Faculty Effort Reporting Made Digital

Effort reporting automation has replaced the paper process for faculty effort reporting, which is required for compliance, with Banner Administrative and Self Service pages. This change has replaced an entirely paper process to a completely digital process.

# FACULTY & STAFF

## New IT Service Ticketing System



A major project that ITS completed this year was the implementation of a new service desk which replaced Tech Excel. Jira Service Desk has improved efficiency for reporting technology support requests and provides knowledgebase articles that allow users to find answers to many of the questions they are seeking. Jira Service Desk has been very well received by faculty and staff on campus. **Over 17,000 tickets** were closed this year through Jira Service Desk.

### Jira Service Desk Requests by Status



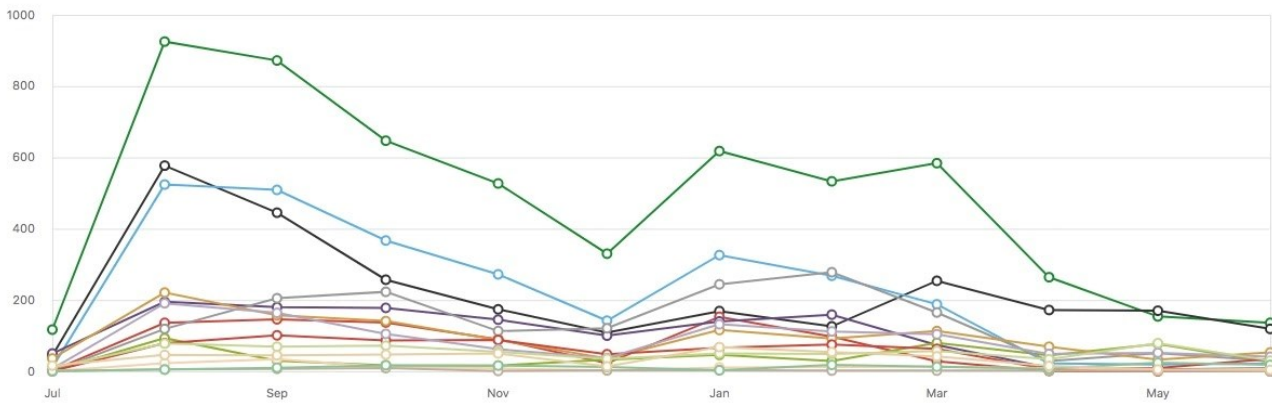
### Support Phone Calls

- 11,140 calls to the help desk in 2019-2020
- 3,291 calls since teleworking began
- 3,684 calls to walk-in technology support center
- 1,002 calls since teleworking began

# FACULTY & STAFF

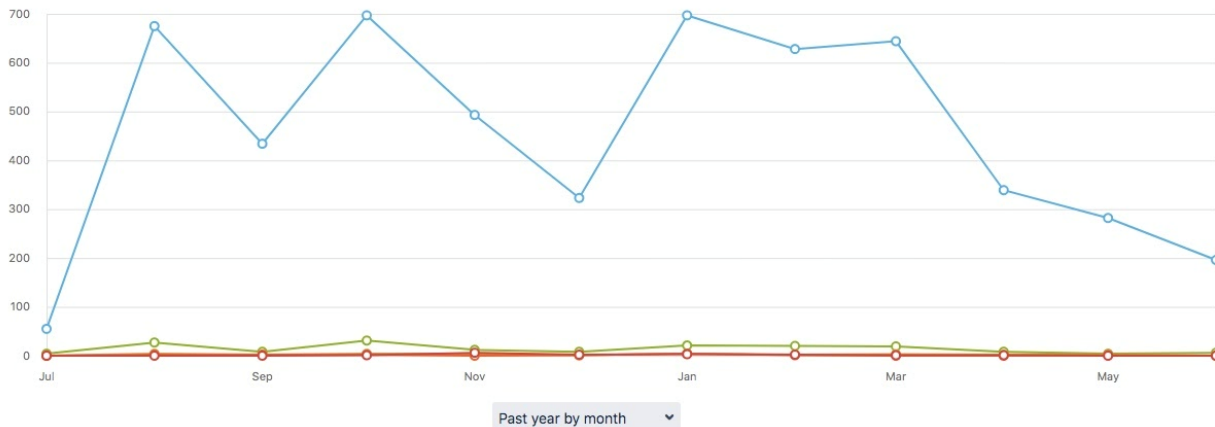
## Jira Ticket Information

- 21,158 tickets resolved in Jira Service Desk by all of ITS
- 12,232 tickets resolved in Jira Service Desk by IT Support Systems
  - 5707 - Desktop Support Services
  - 2616 - Help Desk
  - 2670 - Walk-in Technology Support Center
  - 1244 - Copier & Print Services



## Satisfaction Ratings

**Customer Satisfaction: 4.9 Average Rating out of 6,007 Reviews**



# FACULTY & STAFF

## Improved Management of Travel Expenses



A multi-year partnership with Business Affairs includes the implementation of a web-based travel & expense management system called Chrome River. This system improves travel authorization routing and simplifies expense reimbursement as well as saving paper, time and effort for the users.

Employees use a travel card, which eliminates the need for most reimbursements. An electronic system for travel authorizations replaces the former paper travel authorization system. Incorporating this web-based software eliminates the need for cumbersome pen and paper travel authorizations and reimbursements.

## Enhancing Fundraising Efforts

Working extensively with Advancement, two major projects were completed this year to enhance fundraising and engagement efforts:



- Banner Advancement Self Service was replaced this year with Reeher, a third party integration project. Reeher provides a one stop portal for the development team and support staff in University Advancement to enhance the fundraising efforts of the University. ITS was the first Banner institution in North Carolina to perfect the process and have been running without any issues for over three months! Overall runtime has been reduced from 8 hours to 1 hour, which reduces processing resources and positively impacts other jobs running during this time.
- iModules is a solution used by Advancement for alumni fundraising. Due to implementation requirements by iModules, ITS worked this year to incorporate the existing data calculations and modified the communication mechanism to be performed via Web Services.

## Web Based Solution for Medicat



Medicat software is a web-based application that helps mental health providers assess and manage information regarding substance misuse and related mental health challenges. ITS moved Medicat from a local source to a web-based solution, which allows users to benefit from additional features that are unavailable using the locally sourced solution.



# FACULTY & STAFF

## Increasing Electronic Transcript Efficiency



Last year, ITS implemented eTranscripts to allow students to request transcripts at any time. This year, a new solution, Brainware was implemented. Brainware improves the review and evaluation of 60K transcripts annually by the Office of Transfer Articulation and Admissions. Brainware imports transcripts, reads them, then extracts them and pushes all pertinent information to Banner student records.

### Benefits include:

- Eliminates the need for manual sorting and keying data entry
- Decreases evaluation time
- Provides prospective, admitted, and current students quicker access to credit evaluation
- Anticipates prospective students to commit sooner
- Gives users the capability to extract, classify, and validate

## Scholarships

Working with the Scholarship office, ITS provides a daily extract of student data and updates Banner with award information into Blackbaud Award Management (BAM) previously known as Academic Works. BAM aids in scholarship applications, awarding scholarships, and stewardship/donor relations.



## Google Chat Makes Communication Easier



# Chat

Over the summer of 2020, ITS transitioned the campus from Google Hangouts to Google Chat. Google Chat makes it easier to chat directly with a co-worker or communicate with entire teams at once.

Whether in a one-to-one chat or a dedicated group workspace now called Rooms. Google Chat makes it easy to collaborate with teams in an organized way. Google Chat is integrated with our other G Suite tools including Google Docs and Google Meet for online meetings.

# FACULTY & STAFF

## New IT Acquisition Process Aids in Efficiency & Security



Following ratification of the [IT Acquisition Standard](#) earlier in 2019, ITS launched two formal IT Acquisition Request forms in August 2019 for both Software and Services, and Hardware.

These [online request forms](#) were created to:

- Streamline IT acquisitions
- Ensure acquisitions are compatible with infrastructure and available resources
- Obtain cost effective solutions
- Ensure solutions meet accessibility standards
- Reduce the risk of security threats and vulnerabilities
- Increase efficiency and reduce duplication of services

To help with the acquisition process we created an [IT Standard Purchases website](#) giving users guidance on what to buy and when to submit an acquisition request. We also presented this new process and associated resources at the University's monthly Finance and Administration Updates meeting.

Examples of new acquisitions include both free and quite costly purchases. Renewals with a significant change, such as a new vendor, expansion of services, and hosting changes, should also submit a request.

# IT GOVERNANCE

In 2019-20, **60 new IT Projects were created & 37 IT Projects were completed**

A new IT Service Management solution, Jira, was purchased last year and significant progress was made this year in implementing it for ITS and our campus.

Project Management is a piece of this solution and **Jira Software for IT Project work** was rolled out, along with operational and service desk work, in ITS.

Working with the Infrastructure and Systems Jira Group, we developed a process to represent IT Projects in Jira through **Epics**, with project work linked from each individual area's Jira project.

Basic IT Project elements were identified that we want to capture to **associate University strategy to IT Projects**, these include:

- Project Need
- Benefit
- Approach
- Completion Criteria
- Strategic Pillars

Related to our IT Project Work in Jira, Enterprise Applications, Infrastructure and Systems, PMGO, and OIS adopted the Agile framework, Scrum, and began "**work sprints**" that last two weeks and allow teams to focus on the delivery of functionality or other work product every two weeks.

Project Reporting – ITS now has **live dashboards** that are shared with ITS, IT Governance Groups and the Provost Council so all parties see the same automated IT Project Reports and IT Acquisition Reports.

Academic Affairs, Business Affairs, and Student Affairs leadership groups are meeting quarterly to **prioritize IT Projects** in their area. Their prioritization is visible on our IT Project Dashboards. These meetings and project prioritization let us align our IT efforts to meet University division needs, and have conversations about their desired IT capabilities.

We developed and published a **simplified process** for creating IT Projects, that incorporates IT Acquisition requests.

With COVID-19, we published a **Virtual Project Management Tips** website.

**What's Next?** With increasing IT Project visibility, leadership is seeking a way to easily view the progress, status and any project obstacles in Jira and/or Confluence. And of course, we are also working to understand teams' capacity so we can better match work to team capacity.

# PERIODIC COMPREHENSIVE REVIEW

IRAP (Institutional Research, Assessment & Planning) is requiring that all units at Appalachian State University conduct a Periodic Comprehensive Review by 2022.

Benefits of the PCR include examining mission, goals, outcomes, resources, activities, strengths, and areas for improvement.

With the help of the University of North Carolina at Greensboro, ITS completed this review in February of 2020. Included in their review was a PCR Executive Summary and Continuous Improvement Plan (and associated information) signed by the CIO, reviewed by the Provost, and submitted to IRAP.





# INFRASTRUCTURE

## Upgrades & Replacement of Aging Equipment

- With our students working remotely for much of the spring and summer semesters, ITS upgraded our uDesk (remote desktop) solution to provide remote desktops and remotely accessible computer labs to our faculty, staff and students from home. This upgrade will also show a performance boost as well.
- In a coordinated effort with Business Systems, ITS implemented the first Banner 9 self service modules which included General and Employee Self Service.
- Banner Servers were migrated from aging Sun hardware to Linux virtual machines. This effort will improve performance, reduce upgrade risks, minimize downtime and decrease license costs.
- In the past year, ITS upgraded all Oracle databases to the highest level supported by their connected application. The Oracle database architecture was completely overhauled with the goal of reducing cost and maximizing availability. Implementing Oracle's latest clustering technology will provide high availability and disaster recovery capabilities never before possible. The new system also promises significant performance improvements and will be completely implemented in production by December of 2020.
- Using Virtual Memory Systems, ITS is planning to replace Luminis 4.1, which is running on old Sun hardware that needs to be retired. Benefits included significant cost savings, as well as increased opportunity to integrate other applications, and more migration to the Cloud.
- SQR (Structured Query Report) is a programming language designed for generating reports from database management systems. Our SQR compiler requires an older Linux version that lost support at the end of 2019. As such, existing SQR jobs were evaluated for security and priority. ITS spent considerable time this year rewriting our SQR jobs to allow them to continue their functionality.
- To provide an additional layer of security for our Enterprise Resource Planning (ERP) and ancillary systems, ITS implemented encrypted communication between our Oracle databases and systems that connect to those databases.



# SECURITY

## Two-Factor Authentication (DUO)

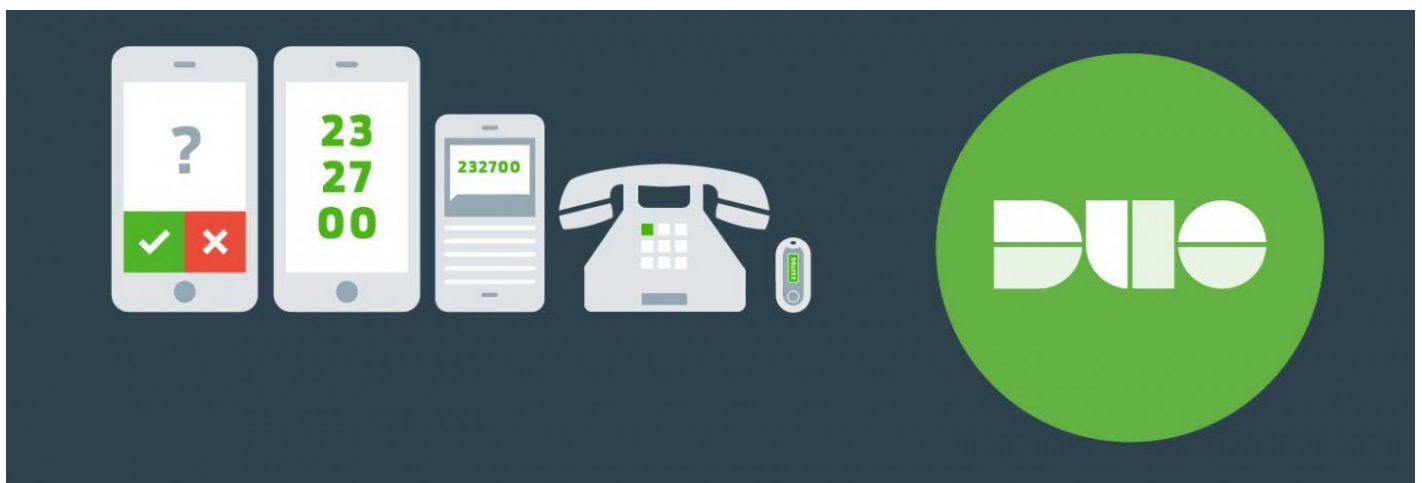
A major multi-year project for ITS has been the rollout of DUO 2-factor authentication (2FA) to our campus. Two-factor authentication protects users' systems by requiring two separate forms of identity verification for access, making it virtually impossible for anyone to compromise your account without having both pieces of the puzzle. 2FA is an industry standard, best-practice method for securing accounts. The North Carolina Office of Information Technology has developed a mandate for state agencies to adopt this security technology, and all UNC campuses have 2FA initiatives in place to be using this technology by the end of 2018.

2FA secures your account against threats such as compromises caused by malware and phishing attacks. Even malicious actors who obtain your password will not be able to access your account.

Staff working in areas with sensitive data have had their accounts protected with DUO 2-factor authentication for two years now. All new employees, both faculty and staff, are required to enroll in DUO during their first password change.

All new students going through orientation are also automatically enrolled. The Faculty Senate has proposed that all faculty be using 2FA by the end of 2020. Current students will be included this Fall. An added incentive to using 2-factor authentication is that users can keep their password for 365 days!

For more information, visit [2fa.appstate.edu](https://2fa.appstate.edu).



# SECURITY

## Windows 10 Update

ITS has completed an update of campus computers to Windows 10 operating system. This was done in a phased approach to create a more secure operating system and a uniform environment. In order to complete this project, ITS invested in new computers, fulfilled support requests to upgrade to Windows 10, and upgraded remaining computer labs to Windows 10.



## Security Training for Secure Data Environments



All areas on campus that deal with confidential and sensitive data are required to participate in online security training. Twenty two departments participated this year with over 400 staff members completing the “Securing the Human” training.

## Cisco AMP Helps Detect System Compromises

ITS acquired Cisco AMP this year to provide a modern way to prevent, detect and respond to system compromises, regardless of where the system is located. Signature analysis (large virus databases on each endpoint) and traditional network-detection mechanisms are insufficient to detect modern system compromises. Basic network control is insufficient due to systems regularly not being on campus or being able to move to the visitor network.



## Fraudulent Email Scam Handling



The ITS Security Operations Team has responded to thousands of email scam attempts and helped students, and faculty/staff avoid victimization through direct outreach assistance.

# ITS STAFF HIGHLIGHTS

## Beth Pouder Retires, Jason Grubb New Enterprise Applications Director

After 19 years of service to Appalachian State University, Beth Pouder retired from her post as Director of Enterprise Applications. During her time as Director, Beth has been invaluable in the leadership of her team in providing faculty, staff and students with applications that assist them in their daily activities on campus.



Beth and her team have accomplished many milestones during her tenure, including the most recent major project of decommissioning the outdated Banner system, and implementing Banner 9.

We thank Beth for the many years she has served our campus.

We also congratulate Jason Grubb for taking the helm as Interim Director of Enterprise Applications, then after a national search, Grubb accepted the position as Director of Enterprise Applications. Jason brings with him a wealth of knowledge and experience as he has served as an IT Manager and Applications Specialist in previous roles. Jason holds a Master's Degree in

Computer Science from Appalachian State University, and has been employed with the university for over 20 years. Jason will provide the leadership required to move Enterprise Applications, ITS, and the University forward in the years to come.

## ITS Staff Shout Outs

ITS staff members received more than 100 Staff Shout Outs from their campus colleagues in 2019-2020!





# ITS STAFF HIGHLIGHTS

## Much Loved IT Consultant, Charles Davis, Retires

ITS would like to congratulate Charles Davis on the many Staff Shout Outs he has received for his excellent computer customer support to faculty & staff! Charles is always willing to go the extra mile to provide his customers with computer assistance in a timely, professional manner, all while keeping a smile on his face. He truly loves helping others & it shows in his daily interactions with students, faculty & staff. Charles began his career at Appalachian State in November 2006. He will retire in March of this year. He has thoroughly enjoyed his career here at AppState. His only regret is that he didn't find this profession sooner.



We thank Charles for his many contributions to AppState ITS and wish him the very best in his retirement and know that no matter what his future plans may be, he will always be helping others & making them smile.

## Every Member of One IT Area Receives Staff Shout Out



L-R: Jeremy Wallace, Tamara Lamont,  
Bill Gulliver, Linda Herron, Chad Morgan

Congratulations to the DASH/BARS (Database & Banner Administration, Reporting & Support Group), as each member recently received a Staff Shout Out from members of the campus community. Each month, multiple ITS staff receive Staff Shout Outs for their exemplary customer service to our campus. The entire DASH/BARS group have gone above and beyond to assist their customers and further the mission of the university. They were monumental in the deployment of Banner 9, among many other IT projects that improve campus

applications. To learn more about the many roles of the DASH/BARS group, visit <https://its.appstate.edu/about/central-it/enterprise-applications> .



# LOOKING FORWARD

## Digital Workflows



Earlier this summer, ITS conducted a review of workflow processes on campus which could be automated, and requested input from campus stakeholders who use these processes. After an evaluation of several workflow applications, the Next

Gen Dynamic Forms solution was selected and approved for purchase.

Next Gen Dynamic Forms is a hosted application which provides libraries of templates for higher education forms and workflows. It allows non-technical staff to compose their own forms and processes, including e-signatures. These workflows will use campus Single Sign-On authentication, and allow integration with ASU's Banner system.

This project is currently in the early implementation stage, and will include collaboration with Next Gen Web Solutions' staff in creation of five initial workflows.

## Finance Data Mart Upgrades

Finance Data Mart is a system where requested financial data is transferred to the System Office for the UNC Campuses. ITS has completed two Phases of upgrades, with Phase 3 taking place this fall. Phase 3 will involve a higher level of validation and add reporting requirements. Upgrading Finance Data Mart will streamline financial data that is transferred to the System Office.



## Storage Expansion



Electronic storage for critical University services continues to be a priority for ITS. Over the Summer and through the Fall of 2020, ITS will be expanding our storage platform. Once this expansion has been completed, we will more than double our storage capacity for a total of 242TBs.

# LOOKING FORWARD

## Configuration Management Database



ITS is in the process of acquiring and rolling out a much needed Configuration Management Database (CMDB). A CMDB is a repository storing information about an IT environment. It includes all our IT assets (both end user and enterprise) and the relationships between them. A CMDB can be an essential resource for managing the cost of IT resources, and improving the quality and performance of IT services.

## All Appalachian Faculty, Staff and Students to Join DUO in 2020

ITS is in the process of acquiring and rolling out a much needed Configuration Management Database (CMDB). A CMDB is a repository storing information about an IT environment. It includes all our IT assets (both end user and enterprise) and the relationships between them. A CMDB can be an essential resource for managing the cost of IT resources, and improving the quality and performance of IT services.



Information Technology Services  
APPALACHIAN STATE UNIVERSITY