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2017

2016-2017 - Information Technology Services Annual Report

Information Technology Services, East Tennessee State University

Annual Report

INFORMATION TECHNOLOGY SERVICES

EAST TENNESSEE STATE UNIVERSITY

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WELCOME LETTER FROM OUR CIO

The Office of the CIO at East Tennessee State University is responsible for the planning, policies, and frameworks that support the Information Technology Services (ITS) strategic initiatives designed to improve student experiences, teaching and learning experiences, as well as administrative and research computing. This includes leadership of the Information Technology Council (ITC) that partners with the ETSU community to make collaborative decisions regarding technology used to support students, faculty, and staff in the ethos of teaching, research, and service.

Many changes in the organization, priorities, and service strategies of Information Technology Services at ETSU have been implemented over the past year. Our goal is to provide tools, systems, and services that align with the needs and goals of our University. Our major ITS projects and initiatives support the ETSU Strategic Plan as we continue to evaluate our service and improve technologies across campus.

Recent Modifications

One of the major changes in the ITS organization was the creation of an ITS group dedicated to support research computing at ETSU. ITS put together a team of three of our most experienced, technically expert, and research-oriented employees to make up the division of Research Computing under the direction of Dr. David Currie. The research computing group began with a survey of research faculty and have used those results to develop a customized strategic plan and goals for the research computing group. In addition, they have established research data storage and backup standards, developed support for the REDCap research application, and exploring cloud services in support of high performance cluster computing.

Another initiative designed to ITS improve support and services was the reorganization and improvements for the ITS Help Desk. Help Desk technicians were moved to a central location in the library. The new location enabled new and improved services such as combining the student and faculty/staff Help Desk, accommodating walk-in traffic, extending service hours, updating the Help Desk website, and providing an online chat service as a help venue. Myra Jones is the Associate CIO and Chief of Staff and is responsible for the Help Desk, ETSU Online, Academic Technology, and Computing Technology Services.

The technologies available to all of us today provide great opportunities, but keeping our technical environment secure continues to be a challenge. Enterprise systems are constantly at risk and information assurance and security are essential. Therefore, last year ITS welcomed

Andrea Di Fabio to our team as the Chief Information Security Officer and Associate CIO. Mr. Di Fabio is responsible for information assurance and security at ETSU as well as responsibility for Network and Telecommunications, Information Systems, Systems, and Web Technologies.

Examples of other accomplishments include:

1. Modified the University's computer replacement initiative policy to enable enhanced service in the distribution and deployment of new faculty and staff computers;
2. Decommissioned all thin client computers previously deployed in computer labs;
3. Deployed Windows 10 on the new computer image;
4. Modified the Memorandum of Understanding for ETSU Online courses;
5. Established the Master Online Teacher designation;
6. Improved bandwidth and wireless access for students;
7. Implemented Microsoft 365 for students;
8. Developed and deployed a new portal system; and revision of IT policies.

The future of technology at East Tennessee State University is changing rapidly and we are changing too. It is my goal to enhance the services we will provide to the university by leveraging the best in talent, technology, and IT practice and through an approach that is not only innovative, but crafted to meet the university's distinctive needs. As we move forward, we will continue to look at additional opportunities with open source software, and cloud services. High on our priority list for the immediate future is additional increases bandwidth, and enhanced wireless access for students.

Below is a web form that submits comments directly to me. Please feel free to let me know about issues you have with information technology services on campus. But please don't stop there, I welcome the ideas and innovations from our faculty, staff, and students. With your help, we can shape the future of technology at East Tennessee State University.

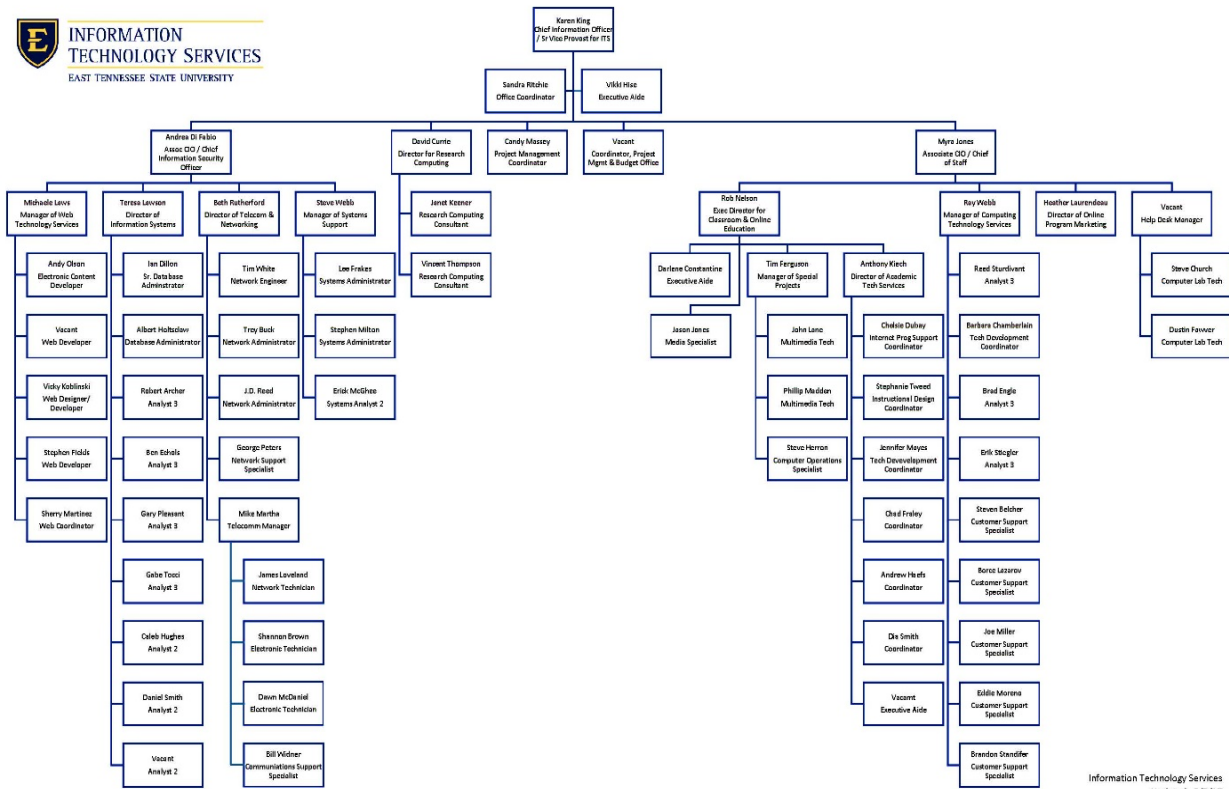I look forward to working with all of you in the future.

Sincerely,
Karen King

WHO IS ITS?

ORGANIZATION STRUCTURE

Information Technology Services
Updated: 8/7/17

CLASSROOM & ONLINE EDUCATION

People:

- 15 full time employees

Places:

- Main office located in 303 Campus Center Building and 118 Sherrod Library

Things:

- In Fall 2016, 168 hours of video per week are captured by synchronous online courses.
- Those 168 hours per week equal 2520 hours per semester of recorded video.
- ETSU faculty used Tegrity Lecture capture to record 2,196 hours in 2015-2016 year.
- Those 2,196 hours of recordings via Tegrity were reviewed 49,750 times by students.
- In Fall 2016, 383 unique online courses had a 4% enrollment increase over Fall 2015.

COMPUTER TECHNOLOGY SERVICES

People:

- 10 full time employees
- 2 – student workers

Places:

- Main office located in 401 Nicks Hall
- Support Main Campus
- Support VA Campus
- Support All Remote Sites containing ETSU equipment.

Things:

- Provide day-to-day support of hardware and software for University owned Personal Computers, Apple Computers, and Peripherals.

- Consulting and recommendations for new computer and peripheral purchases.
- Imaging, installation, and configuration of new computers and peripherals.
- Technical support, including diagnosis and correction/repair of software/hardware issues
- Recommend PC/MAC equipment standards for the University
- Testing and development of new technologies for introduction to campus community
- Configuring and maintaining print/scan services for all Canon/Ricoh multi-function copiers
- Software updates and deployment
- Security camera consulting and management

ETSU Supported Equipment:

- Over 5500 Personal Computers/Laptops
- Over 500 Apple Computer/Laptops
- Over 750 Printers
- Over 220 Security Cameras
- Over 130 Copiers

HELP DESK

People:

- 3 full time employees
- 11 part time employees

Places:

- Updated location to Sherrod Library

Things:

- Help with the following:
  - Accounts
  - Banner
  - Classrooms
  - Computers
  - D2L
  - Email
  - Gold lab

- GoldLink
- Labs
- Mobile
- Networks
- Phones
- Printers
- Security
- Software
- Television

INFORMATION SYSTEM

People:

- 10 full time employees

Places:

- Main office located in 401 Nicks Hall

Things:

- Maintain Ellucian's Enterprise Resource Planning software for administrative functions.
  - o student services,
  - o financial aid,
  - o human resources,
  - o financial accounting, and
  - o alumni services
- Information Systems works with the data custodians of these applications to set up user accounts, schedule and apply upgrades and implement new functionality.
- Information Systems also supports ancillary sites and products including GoldLink, report writing, job scheduling, document management, electronic report storage, and ETSU websites.

NETWORKING AND TELECOMMUNICATION:

People:

Networking:

- 4 full time employees
- 1 – Graduate Assistant
- 1 – Contractor employee (Full-Time) – dedicated to ResNet

Telecommunications:

- 5 full time employees

Places:

- Main office located in 401 Nicks Hall
- 170+ Telecom rooms
- 100+ Buildings
- 12 remote sites
    1. Kingsport – Allendale
    2. Kingsport – Downtown
    3. Kingsport – Valleybrook
    4. Gray – Fossil Site
    5. Greeneville
    6. Johnson City – Keystone Community Outreach
    7. Johnson City – Observatory
    8. Johnson City – Child Study Center
    9. Johnson City – Intramural Field
    10. Elizabethton – Nave Center
    11. Mountain City – CON Extended Hours Clinic
    12. Sevierville – Red Bank Road

Things:

Ethernet:

Two networks: ETSU and ETSUResNet

MetroEthernet to 12 remote sites – 100 Mbps BDH + 50 Mbps LCH host circuits / 115 Mbps subscribed

Total # network switches, routers: 600+

Number of network drops: 20,000

Estimated miles of internal cabling: 750+ miles

Estimated miles of outside plant cabling (fiber and copper): 25 miles

Wireless:

Two networks: ETSU and ETSUResNet

15 SSID's:

- ETSU
- ETSU@Child_Study
- ETSU@Gray_Fossil
- ETSU@Intramural
- ETSU@Keystone
- ETSU@Kingsport-A
- ETSU@Kingsport-D
- ETSU@Nave
- ETSU@Observatory
- ETSU@Sevierville
- ETSU@Valleybrook
- ETSUBUCS
- ETSUGuest
- ETSUGuest1
- ETSUResnet

Indoor: Available inside all academic buildings and residence halls and all supported remote sites
Outdoor: in high-density areas like the Quad, Borchuck Plaza, Soccer Field
1819+ wireless access points
Average 8500 concurrent peak authenticated wifi devices daily
Downstream throughput traffic: Average 800Mbps

Bandwidth:
Redundant Internet Connectivity: Total 2.0 Gbps (1.0 Gbps NetTN / 1.0 Gbps MtNet)
Internet 2 Connectivity via NetTN

CATV:

Total connections: 3000+

Head-End: Apogee / Campus Televideo

Channels: 114 – 76 HD / 38 SD

Voice:

Number of Phones 3000+

Analog devices: 394

Voicemail Boxes: 1500

Emergency Phones: 200 (emergency phones, elevator phones, designated emergency powered phone)

PROJECT MANAGEMENT

People:

- 1 full time employee

Places:

- Main office located in 401 Nicks Hall

Things:

- This is a new position in our reorganization of ITS.
- The Project Management Coordinator works collaboratively with ITS leaders to ensure the project management services and established methodologies are meeting their needs and the needs of the campus.
- In addition, the coordinator is responsible for defining and establishing project methods, analytics, and recommendations.
- The coordinator is also maintaining data throughout all phases of the project to ensure ITS makes project decisions based on appropriate project data.

RESEARCH COMPUTING

People:

- 3 full time staff members

Places:

- Located in 303 Campus Center Building but with a putative workspace that encompasses every research laboratory and research office on campus.

Things:

- Faculty research computing needs assessed by survey delivered by ASRL to 655 faculty in May 2016 with a 64% response rate.
- In response to requests for immediate assistance by 5% of respondents to the research computing survey, the total number of networked XP operating systems has been reduced from 89 to 28 – an effort to be continued through scheduled installation of 14 recycled computers during the upcoming rollout.
- Implemented the first "Berkeley Open Infrastructure for Network Computing" (BOINC) pilot trial at ETSU.
- Spearheading the first organized crowdsource funding effort at ETSU; in this instance for research funding – collaboration is with Research and Sponsored Programs, Advancement, University Relations, and the Research Development Committee.
- Presentations on the all new Research Computing Services have been made to more than 10 academic departments and committees.
- Managing the second and third instances of RedCap servers, but the first fully functional instance of RedCap at ETSU (including survey functions); one of our RedCap servers is for non-HIPAA data, the other is for HIPAA-secure research; currently we have 50 faculty and student accounts activated on our non-HIPAA RedCap server.
- At the behest of the Vice-Provost for Research and Sponsored Programs, we are spearheading the first organized effort to implement campus wide backup of research data and documents.

SYSTEM SUPPORT

People:

- 4 full time employees

Places:

- Main office located in 401 Nicks Hall

Things:

- Provide management
- Administration
- Hosting collocation services
- Maintain over 300 Services

WEB TECHNOLOGY SERVICES

People:

- 6 full time employees

Places:

- Main office located in 401 Nicks Hall

Things:

- Over 700 websites running on Windows and Linux Platforms using .NET and PHP
- 2 Enterprise-level content management systems
- The University-wide calendaring system
- Mobile App
- Student Portal
- Parking sensors
- University web search
- Electronic forms
- University maps
- Analytics

KEY ACCOMPLISHMENTS

Improving Customer Service for a successful University

Our achievements tell a story – of an organization committed to protecting valuable information, streamlining service delivery, and making strides to improving the way students, staff and faculty interact with Information Technology Services.

- Reorganizational plan developed and executed
- Improvements for the helpdesk
    - creating a helpdesk coordinator from existing ITS staff
    - combining the staff helpdesk and student helpdesk
    - excepting walk-ins traffic from student's faculty and staff
    - extending hours
    - Improving helpdesk website
- Developed a combined Information Technology website
- ITS policy has been reviewed
- Completed Website migration of
    - College of Public Health
    - Clemmer College of Education
    - College of Business and Technologies
    - School of Graduate Studies
- Improved Services to Faculty for creation and posting of online content
- Improved public and private access to online videos depending on the faculties' requests/requirements
- Researched, developed and implemented a Research Computing Group for the University
- Improved Technology Access Fee (TAF) management
- Decommissioned 100 thin clients
- Moved Culp Lab to the Library for easier accessibility for students
- Enhanced campus spam prevention
- Improve computer image creation and deployment process with SCCM
- Implement Windows 10 on all new PCs purchased the fall of 2016
- Effectively use SCCM for software deployment
- Distributed Adobe cloud campus wide for those who have purchased it
- Designed and implemented a more rigorous memoranda and of understanding (MOU) for ETSU online courses that encourages higher quality online courses development
- Increase fans and followers ETSU online by 28.9%
- Enhanced voicemail system
- Improved ResNet and administrative network bandwidth, throughput and application control
    - increased ResNet bandwidth to 800 Mbps with 20% first
- Improved indoor Wi-Fi - 638 APs replaced
- Improved outdoor Wi-Fi

- - Veterans Memorial Quad,
  - Amphitheater,
  - Borchuck Plaza
- Improved campus network infrastructure
- Implemented Microsoft office 365 for staff and students
- Enhanced student storage space from 500 MB to 1 GB
- Replaced Luminis 5 with in-house developed portal functionality
- Implemented federal accessibility guidelines
- Developing security training for administrative users
- Developed idle time policy
- Implemented liquid files for our drop box solution
- **Email Statistics [inbound]**

Daily Mail Statistics [inbound]
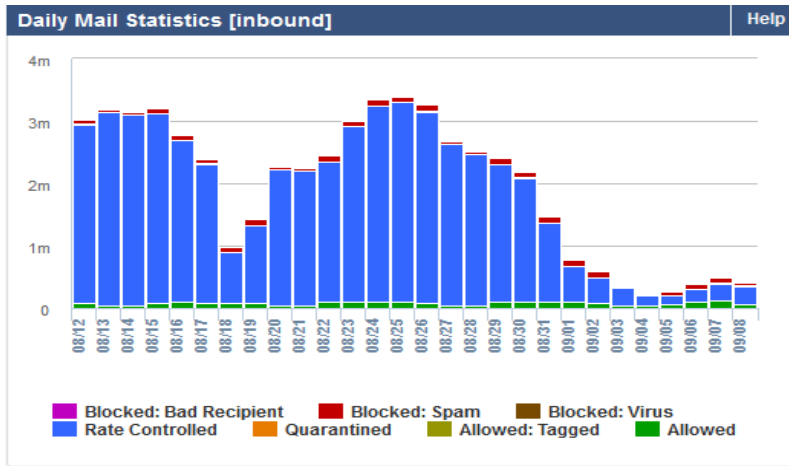
	Total	Day	Hour
Blocked	6,252,692	43,854	2,769
Blocked: Virus	193,234	2,086	73
Rate Controlled	65,590,736	287,644	12,088
Quarantined	0	0	0
Allowed: Tagged	94,370	642	78
Allowed	5,187,828	67,199	3,231
Total Received	77,318,860	401,425	18,239

NEW PHONE SYSTEM

Phone Systems – James Loveland & Mike Martha

This is to establish a baseline of our current services, instead of what we have changed. We have changed so much over the past couple of years that we essentially have all new services

ITS Telecommunications Department has effectively completed our campus wide phone system upgrade. We have migrated from a traditional analog and digital system to a Voice over Internet Protocol (VoIP) installation. Our current VoIP implementation is installed as a high-availability, redundant system that provides core voice services even in the event of major power outages. We utilize automated monitoring and alerting systems to assure that we are informed about voice service problems in real-time so that we can address and restore services rapidly.

We provide voice services including local, long distance, toll-free, conferencing, voicemail, hunt-groups and call-center agents, to nearly 3,000 phones across ETSU main campus, VA Campus and some remote sites. Voice services are provided to faculty, staff, student dorms when requested as well as over 200 life-safety phones in elevators and emergency phones.

We recently upgraded our voicemail solution to provide 1500 voicemail boxes with improved service, increased storage, and more flexible access to voice messaging. This upgrade will also allow us to offer enhanced voicemail features in the future.

Telecommunications is also responsible for providing Cable TV service to over 3000 students living on campus plus a number of classrooms, conference rooms, and offices. We are constantly working to improve CATV services and this past summer we installed a major upgrade that provides:

- 100% digital channels, 114 channel lineup.
- Increase of the number of High Definition (HD) channels from 12 to 76
- Added 3 premium Cinemax channels to the 5 HBO premium channels.
- New fully warrantied head-end equipment
- Rate freeze through 2017
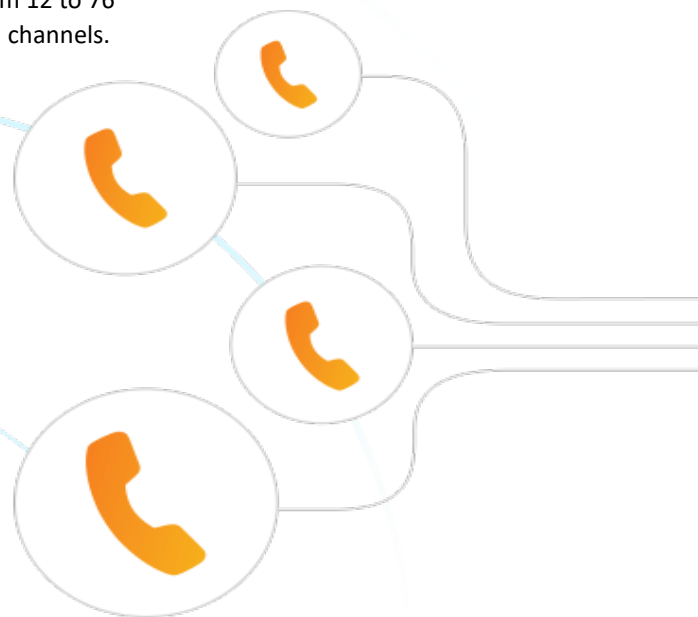
ETSU WI-FI

ETSU Wi-Fi – JD Reed / Trey Buck ed.

There are two primary Wi-Fi networks available to students and staff on the ETSU campus. In administrative buildings, the Wi-Fi network is called "ETSU" and in the residential buildings, "ETSURESNET" is available. The "ETSU" Wi-Fi network is also currently available outdoors in three high traffic areas and five additional outdoor access points are scheduled to be installed in 2016. The "ETSURESNET" Wi-Fi network is also available outdoors in some high traffic areas on the edge of campus. There are a dozen other wireless networks configured for specialized functions and for remote sites.

VA Building 119 and the new Sevierville campus are two buildings that will receive Wi-Fi in 2016. The Multicultural Center in the D. P. Culp Center and the Memorial Center (first floor, east side) are two areas that received a denser wireless deployment based on renovation or user needs in 2016. Each year, ITS works to upgrade a group of the oldest equipment to phase out single radio access points and take advantage of improved capabilities in newer models. Over two hundred access points were replaced in administrative buildings in 2016.

As new buildings are constructed, or existing areas are renovated and repurposed, a denser deployment of wireless access points is occurring over time. Network equipment and end user device capabilities are continuing to change and the ETSU wireless network is adjusting and improving to stay ahead of the growing requirements for bandwidth, interference avoidance and time sensitive communications.

ITS currently has 1819 wireless access points distributed in residential and administrative buildings across the ETSU campus and most remote sites. The majority of the installed wireless access points are dual radio, meaning they utilize two frequencies simultaneously allowing greater throughput and interference avoidance. Nine Wireless LAN Controllers are utilized to manage the access points and a Wireless Network Management Suite is utilized to manage the Controllers. These components make it possible for the ITS team to manage the entire wireless system with the limited resources available.
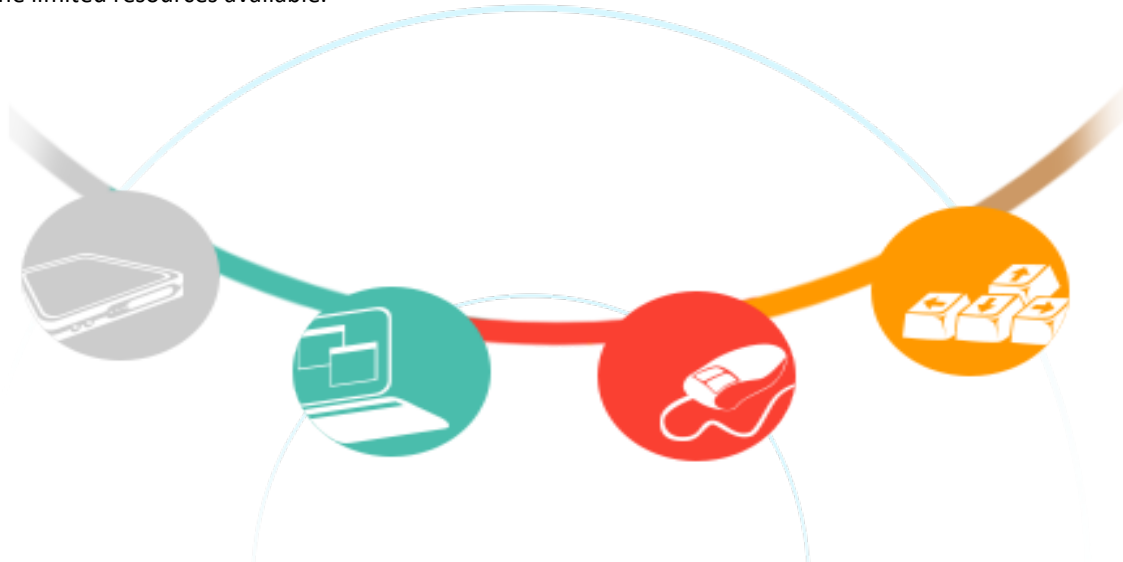
OFFICE 365

Information Technology Services migrated all accounts to Microsoft Office 365 during the past year. The move to Office 365 allowed faculty, staff and students to be part of the same email domain, which allows for improved emailing and calendaring functions. Office 365 also provides the ability to download the entire Office 365 suite to five personal computers and five mobile devices so that students have the applications they need to complete assignments both at home and at school at no additional cost to them. Faculty, staff and students also have access to 1 TB of storage space through OneDrive, which allows for easy and secure collaboration and sharing of files.

The first part of the project began with the conversion of faculty and staff mail accounts to Office 365. ITS completed a pilot project to test and refine the procedure and then began converting accounts by academic building, college, or department as most appropriate for each unit. The conversion started in October 2015 and all accounts were converted by January 2016. Email storage space was increased for all faculty and staff to 50 GB.

After faculty and staff accounts were converted the project to convert student email accounts began. Student accounts were converted from Google to the Office 365 product. This move allowed students to take advantage of all of the Office 365 benefits and enabled a simplified email address as emails were changed from student@goldmail.etsu.edu to student@etsu.edu. The change was communicated to students through email, ads in the East Tennessean, social media, digital signage, and a variety of cards and signs on campus. The official change was made on May 11, 2016.

HELP DESK

Several changes have been made to the ITS Help Desk to provide greater visibility and broaden the services provided. The most notable change is that the Help Desk has moved physical locations and is now located on the first floor of the Sherrod Library. Additionally, the computer lab located in the DP Culp Center was closed to make room for the Culp renovations so the former Student Help Desk has relocated to the Sherrod Library. The staff and resources have been combined to create one ITS Help Desk that is available for all faculty, staff and students. Combined staffing has allowed the Help Desk hours to be extended in the morning, the evening, and on weekends so that help is available when it is needed.

The Help Desk is centrally located in the Sherrod Library so that people seeking assistance can stop in with problem devices or questions. The space has been renovated to provide space for end users to receive one-on-one assistance. The Help Desk website has been updated and redesigned to provide a better experience for troubleshooting problems. Future projects include an updated ticketing system to allow end users to enter their own tickets, an online chat system for quick questions and assistance, and an after-hours service for assistance. The Help Desk staff are well trained and happy to help with big or small questions. Students, faculty, and staff are all invited to visit the Help Desk today!

TECHNOLOGY IN THE CLASS ROOM

In addition to standard classroom technology, all ETSU multimedia classrooms now have ceiling microphones installed. The ceiling microphones allow faculty to easily record the classroom lecture and discussions using Tegrity lecture capture software. Using Tegrity, faculty can record their audio lecture while capturing anything displayed on the computer. Tegrity is integrated with the university's Desire2Learn learning management system, providing students quick and convenient access to class recordings for studying and reviewing.

 Information Technology Services maintains the 197 multimedia classrooms that service ETSU students and faculty. The multimedia classrooms are designed to have similar hardware and software so that faculty can confidently use the technology tools available regardless of the room or building where each class is located. Along with a ceiling projector, desktop computer, document camera and ceiling microphone, all multimedia classrooms have standard ETSU software including statistical software and TurningPoint audience response software.
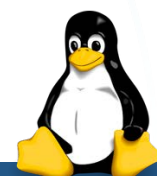
Adobe

East Tennessee State University is the first university to work with Adobe in implementing the Marketing Cloud for experiential learning. This system will provide a significant ROI for the university in terms of student recruitment and alumni donations. By implementing experiential learning in the department of Media and Communication and utilizing Adobe Marketing Cloud tools, such as Adobe Social and Adobe Target, students can be targeted and recruited for Adobe learning opportunities and alumni can be targeted in specialized campaigns.

All of this functionality requires a robust, enterprise-level platform for building, managing and deploying websites and cloud related services called Adobe Experience Manager (AEM). The Adobe Experience Manager (AEM) is a web-based client-server system for building, managing and deploying websites and other Adobe Marketing services. The infrastructure of AEM consists of a web application server, a Sling web application framework that allows for RESTful content-oriented web applications and a content repository for unstructured data. The hardware to support the AEM instance is 6 dedicated servers and a load balancer: 3 dedicated servers for a development environment and 3 dedicated servers for a production environment.

AEM Web Technology Services has been working on a pilot program to bring this platform online with three websites going live for this fall 2016 semester. A normal AEM startup takes 9-12 months from start to finish. With help from an Adobe partner, the web technology services group has been able to complete the process and have sites up and running in 4 months.

Everyone in the web technology group has gone through extensive training to get up-to-speed on Adobe Experience Manager (AEM) technology. Training has covered everything from the application server/framework setup, to configuration and coding, to the front-end/content development and styling.

The program has been successful thus far, with websites for Media and Communications, Global Sport Leadership and Digital Marketing online and running on the Adobe Experience Manager Platform. Plans are being made for utilization of this system across other areas of campus to take advantage of the power of AEM in combination with the Adobe Marketing Cloud.

CREATION OF RESEARCH COMPUTING SERVICES

The "Proposal for Better Support for Computation at ETSU 2009" was authored and presented by Istvan Karsai and edited by Phil Pfeiffer and Jeff Knisley. In the proposal, Karsai identified the need for growth of an institutional research computing culture. He noted that a change in the Office of Information Technology (OIT) structure would be necessary to fulfill research computing needs.

Two surveys in 2011 sought ETSU Faculty input into IT management and services provided to faculty through OIT and the Office of eLearning. Comments submitted with the surveys frequently referenced unfulfilled technology needs related to research. At the close of Spring 2015, ETSU Faculty received a survey authored by Information Technology Services (ITS) and implemented and analyzed by the Applied Sciences Research Laboratory (ASRL). The intent was to identify immediate IT-related research needs. The putative services examined were based on i) comments from the above mentioned proposal and surveys, ii) an online review of IT services at 22 peer institutions - a combination of those recognized by TBR/THEC (2005) and RPK consultants (2013), as well as those identified by ETSU Faculty Senate in the 2015 Strategic Research Plan, and iii) IT services provided by Oxford University and Stanford University.

Based upon the executive survey summary provided by ASRL, Information Technology Services developed the following mission statement, primary business objective, and operational goals for the new division of Research Computing Services:

Our Mission:

To provide world class IT support for ETSU researchers as they promote student research opportunities and advance knowledge in benefit of humankind. Our staff will be pleased to facilitate planning, procurement, implementation, data management, and maintenance stages of research programs.

Our Primary Business Objective:

To provide an unprecedented level of support and follow up for research faculty at ETSU. Our staff is determined to provide the highest quality of service and support for all ETSU research experiences.

Our One Year Operational Goals:

Reduce the use of XP or older operating systems from research laboratories.

Consult with research faculty submitting grant applications involving IT purchases.

Assist researchers with cloud-based backup of research data and documents.

Advise faculty that 4-year-old computers are available to be re-purposed for research.

Promote research activities through with crowdsourced funding opportunities.

Assist faculty with high performance computing needs.

Make RedCap online survey tools available to faculty.

Follow up with those for whom we provide services.