

 East Carolina University

2015-2016

Year in Review

Information Technology
and Computing Services



A MESSAGE TO THE ECU COMMUNITY

On behalf of ECU's Information Technology and Computing Services (ITCS) department, it is my pleasure to present the 2015-2016 Year in Review on Information Technology (IT). Highlights from the past year include...

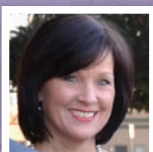
- ▶ transitioning from OneStop, ECU's student services portal introduced in 2000, to **Pirate Port**, which offers an updated interface with customizable "widgets", easier access to Piratedrive file storage, and course registration, among many other vital services.
- ▶ continued implementation of the **Kronos time-tracking software system** across the entire university spectrum. Currently, there are 3,000 users on Kronos. The entire university will be completed in October 2018. Kronos significantly simplifies administrative timecard-tracking, data entry, and leave approval processing and improves fiscal compliance.
- ▶ implementation of a **print quota** to improve the process of managing student printer use, reduce printing waste, and better control printing costs. Overall, printing was reduced by 40%, with 96% of students printing less than the allotted quota. Costs were reduced by approximately \$300,000.
- ▶ meeting our goal of **99% uptime**, with less than 1% unplanned downtime for the infrastructure of critical systems, the network, Banner, Exchange, and the primary Web site. We will be adding Tier 1 Storage as a critical system that we measure beginning in FY17.
- ▶ improving the standards of **IT accessibility of Web sites** and content by partnering with Disability Support Services and other cross-campus entities to revise the Web regulation to use the W3C Web Content Accessibility Guidelines 2.0 as the ADA (Americans with Disabilities Act) requirement for official and unofficial ECU Web pages.
- ▶ **upgrading learning platforms**, including **Blackboard** and **SabaMeeting**, and transitioning students from Turning Technologies to **Turning Point Cloud** for classroom audience response activities.
- ▶ implementing **TeamDynamix**, an application that integrates Service Desk Management and Project Portfolio Management into one combined system. TeamDynamix will help the university effectively monitor service activities, optimize staff and resources, and provide robust reporting capabilities.
- ▶ improving ECU's WiFi service through the implementation of **eduroam (education roaming)**, a secure, world-wide roaming access service developed for the international research and education community. Students, faculty, and staff will begin connecting to eduroam in fall 2016.
- ▶ completing **the Distributed Antenna System (DAS) in Dowdy-Ficklen Stadium**. The DAS improves cellular coverage for customers with service providers contracted with the university's DAS provider. The DAS has the capacity to provide coverage for 50,000+ users in and around the stadium.
- ▶ working with the Chancellor's Executive Council to establish an interim **Data Governance Regulation** to provide a solid framework for the overall management of the availability, usability, integrity, and security of data used throughout the institution.



As stewards of the university, we strive to be an enabler for our students, faculty, staff, and clinicians through the appropriate, efficient, and innovative use of technology.

Don Sweet

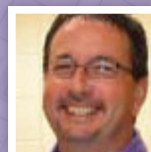
*Chief Information Officer
East Carolina University*



Sue Stox
Executive Assistant
to the CIO



Wendy Creasey, EdD
Director, Academic
Technologies



Ray Drake
Director, Systems and
Applications Support



Martin Jackson
Director, Network
Services



Skip Kirby
Director, Strategic
Information Services



Zach Loch
Director, Enterprise
Information Systems



Jack McCoy, EdD
Chief Information
Security Officer



Hector M. Molina
Director, Central
Project Office



Wanda Sandeford
Business Officer,
Finance and
Personnel
Administration

LEADERSHIP

ITCS strives to develop and deploy a secure, reliable, and cost-effective information technology environment at East Carolina University. ITCS staff work together to care for the university's technology systems and services, and to ensure quality support is provided to the ECU community. As a full-service IT department, we provide support for teaching, research, learning and productivity tools for students, faculty, and staff through the effective use of information technology including:

- ▶ **Academic Technologies** – provides leadership and support to the university including a Service Desk for the university; our teams provide support through consulting and hands-on assistance for educational platforms, audio visual and classroom technology, video conferencing and telemedicine, student computer support and labs, online systems, multimedia creation and communications, and university Web platforms.
- ▶ **Enterprise Information Systems** – provides leadership on a wide array of administrative systems, the development and support of the university application portal, and provides state-of-the-art document management technologies.
- ▶ **Finance & Personnel Administration** – provides support and administration of budgets and financial reporting, billing of telecommunication devices, the university switchboard, personnel and payroll, and purchasing and inventory.
- ▶ **Information Security** – serves as an advisor to university leadership on information security management strategies and works collaboratively with all university divisions and partners on information security issues with enterprise impact. The Information Security Office coordinates IT risk management for the university and serves as the official information security point of contact for federal, state, and industry agencies.
- ▶ **Infrastructure Services** – provides technology leadership on the design and support of voice communications and enterprise wired and wireless network infrastructure including storage infrastructure for the enterprise.
- ▶ **Central Project Office** – in partnership with team leaders, coordinates high-impact and high-risk IT projects in collaboration with technical and functional managers, subject matter experts, vendors, and users throughout the ECU community.
- ▶ **Strategic Information Services** – ensures the security, integrity, and availability of ECU's mission-critical data; enables data-driven decision making in support of the university's mission, strategies, and objectives; and promotes effective management and strategic use of institutional data.
- ▶ **Systems and Application Support** – provides technology leadership and support of desktop technologies, the administration of enterprise applications, enterprise systems and operations, operational security, and the university data centers.

Knowledge

We are life-long learners, utilizing emerging technologies and skills to effect positive change and capitalize on opportunities.

Relationships

We embrace teamwork, open and honest communication, working across departmental boundaries with the strength of our diversity as we foster collaborative, supportive and empowering relationships.

Ethics

We employ the highest ethical standards to guide our decisions and actions as we meet and then exceed our commitments.


Well-Being

We are committed to the personal and professional

development and achievement of the individual in an environment where everyone is a valued member, treated with respect, encouraged to contribute and recognized and rewarded for his/her efforts.

Service

We provide excellence in customer service to meet and exceed the needs of our students, faculty, staff and larger community.



We aspire to build an organization with committed and skilled people accountable to and serving students, faculty, and staff; streamlined processes making it easy to work with us, do our jobs and deliver results; and innovative technology that is the right technology for the right reasons.

- ITCS Mission

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54,500
IT Help Desk request
and chats increased **281%**
from 1,400 to **4,000**

39,000
phone calls received
after clients selected
an option

Over **94%**
of these calls
were answered

285,500
OpScan sheets
scanned in the
Walk-In Help
Desk

21,700
OpScan sheets
scanned on
Health Science
Campus

5,450
Sets of tests
scanned

740 campus
computers
replaced

Pirate Techs resolved
6,635
student requests

70,000
request for services
or support since
2004

...in
45
Computer
Labs

103,000
viewed
videos

4,600
users are taking
advantage of
Lynda.com
training

7,000
watched
hours

15,000
instructional
video presentations
recorded

**Lecture
Capture
Technologies**

375,300
presentations were
viewed by multiple colleges
across campus

100
Captured and
Edited Videos

850
Video Teleconferencing
Events Managed

1,060
presentations
were recorded
in the Global
Classroom

33
Countries video
conferencing for
the Global
Understanding
program

62
Partner
Universities
Events
Managed

884
Wordpress
supported
sites

1,760
Wordpress
supported
users

**Business
Intelligence/analytics
environment
(ecuBIC)**

Since
2009...

300
reports developed
and deployed by
non-ITCS
departments

5 Million
report executions

10,000
deployments

ITCS

By the Numbers

600
Department
Web sites

33,300
CommonSpot
Web pages

89,000
Images

53,400
Documents

**Software
Download
Center**

3,130
Microsoft
Downloads

Processed
6,400
Software
Downloads

270
attended
ITCS-led
training
sessions

1,070
Faculty have
MyWeb

1,700
Students have
MyWeb

Service requests
increased by roughly
35% from 40,003 to **53,946**

In 2002 there were on
average **6** servers per
standard server rack in
the data center.
Now the typical server racks
house **25 -28** servers per rack

The **Virtual
Computing Lab (VCL)**
provides access to
58 applications and
6 virtual desktops.
In FY16, applications
were launched
a total of
8,569 times.

32 MILLION
documents in
Document Imaging System,
representing **3,000** filing cabinets
worth of documents and
2.25 terabytes
of electronic storage

Since **Yammer's**
inception,
5,700
members have...

...created
400
groups

...Sent
50,400
messages

...uploaded
2,360
files

ABOUT US

ECU employs 225 central ITCS staff and there are approximately 120 decentralized IT (non-ITCS) staff in units across campus. Approximately 120-130 students are employed within ITCS and distributed across colleges in IT positions during the academic year.

We have a very skilled staff with **certifications** in many technology areas. It is no easy feat for IT staff to effectively and efficiently deliver the wide array of technology services, resources, and support the university community requires. Our staff must continually advance their knowledge and skills to meet current needs, while concurrently researching and developing roadmaps for implementing future technologies. To manage these challenges, our staff attend **IT conferences, user group meetings, and networking events throughout the year for information exchange and professional development.**

The ITCS Staff Council coordinated our third annual **Bring Your Child to Work Day on August 5, 2016**. This event presented an opportunity for ITCS staff to introduce their children to the field of IT. Children participated in hands-on activities and toured the operations area to see ITCS staff monitor the network and primary data center. In all, we hosted 27 guests ranging in ages from 5-18 years old. The older children toured ECU's School of Dental Medicine.



IT GOVERNANCE

Throughout the year, we work with information technology committees comprised of representatives across campus, relying on members' input and guidance when implementing new technologies, policies, and practices.

The **Information Resources Coordinating Council (IRCC)** is the primary IT Governance committee at ECU and has representatives from all areas of campus. A few highlights this year that were discussed and approved by the IRCC include:

- ▶ reviewing the **classroom technology standard updates**. There will be a change in the lectern in rooms to improve accessibility. Teaching labs and seminar rooms may receive a basic level of technology as resources and needs allow.
- ▶ piloting **Captiva**, a scanning tool and OCR (Optical Character Recognition) auto index that does hands-off matching. After adding a workflow module, a few departments will pilot the tool, with plans to eventually roll out to the entire university.
- ▶ implementation of **OnSSI**, a clinical and proctoring recording solution.
- ▶ amending the university's **Social Media Regulation** by adding a revision to provide more detail regarding the role of administrator. The revision also stresses the importance of planning for continued operation of a site should the current administrator vacate their position.
- ▶ **sharing information regarding replacing Sedona** as the university's faculty activity reporting system. Requirements for a new system included a standardized, well-defined, diverse structure with single sign-on features and customizable annual reporting options.
- ▶ formation of an **IT Accessibility Committee** to prioritize goals and document university progress in regard to IT accessibility. A charter was presented to the Provost and to the Chief Information Officer (CIO). This committee will provide governance on IT accessibility.
- ▶ **adding a Pirate Techs student computer support location** in Joyner Library. This will provide a location in a busy area frequented by students. We will also be able to expand our hours by offering evening and weekend support.

Highlights from the **Web Oversight Committee** (a subcommittee of the Information Resources Computing Council) include:

- ▶ revising the **Web regulation** to use the W3C Web Content Accessibility Guidelines 2.0 as the ADA (Americans with Disabilities Act) requirement for official and unofficial ECU Web pages.
- ▶ implementing **Siteimprove**, which allows ECU Web site administrators to identify misspellings, broken links, and determine Web accessibility issues with detailed fix explanations.
- ▶ approving the addition of a **"Nondiscrimination/Title IX" link** to the ECU home page that represents the university's new "Notice of Nondiscrimination" policy.

A few highlights from the **Clinical Information Systems Committee (CIS)**; a subcommittee of the IRCC) include:

- ▶ enhancing the review process to include applicable Business Associates Agreements (BAA) and ensure the system owner is engaged in the approval process.
- ▶ reviewing 47 systems with a healthcare component to ensure compatibility with existing healthcare information technology systems while promoting operational efficiency, limiting storage of patient information outside of the university's designated Electronic Health Record (EHR) system(s), and ensuring both patient and university data are protected within the scope of applicable university policies, government regulations, and state laws.

The **Kronos** Executive Steering Committee guides the Kronos project at ECU that is sponsored by Dr. Rick Niswander, Vice Chancellor for Administration and Finance. Steering Committee membership includes representation from across campus and incorporates employees at a variety of levels within the university. Kronos has been adopted by the university as the time, attendance and leave keeping system of record for employees who track time, as well as employees who are granted or earn leave. Currently, there are 3,000 users on Kronos. The Kronos Executive Steering Committee has approved Kronos Clocks for all major campus buildings. ECU is one of few, if not the only, higher education institution that is implementing Kronos across the entire spectrum, including student employees.

The **Administration Information Systems Committee** is currently planning the timeline for Banner XE, which will modernize Banner for all campus users.

The **Distance Education and Learning Technologies Committee** (Faculty Senate) approved Blackboard Standard Operating Procedures for Access to Blackboard. They provided formal faculty advice on the updates to the Web and Social Media Regulation. Additionally, they provided input on the continued use of Blackboard.

ASSESSMENT

ITCS surveys the ECU community for feedback and satisfaction with technology services and resources. These surveys are comprehensive and focus on (1) satisfaction with IT services, systems, and applications; (2) use of technology tools and systems; and (3) technology and training needs. In addition, once an online Help Desk request is closed, users are surveyed on customer service satisfaction. In 2015-2016, overall **customer service ratings** remained consistent from previous years, with ratings for timeliness, knowledge, quality of service and ability a 4.8 (scale of 1-5), where 5 is excellent. Courtesy ratings were an average of 4.9.

This year, survey results provided valuable feedback through customer comments. Overall, 82% of students said the technologies used in their courses were very effective or effective, while 94% of students say ECU technology services and resources are important to their academic activities, and 77% were satisfied with IT services. Similarly, 95% of staff and 97% of faculty say ECU technology services and resources are important to their business or academic activities, while 91% of staff and 94% of faculty were satisfied with IT services.

The 2015-2016 survey responses reinforced the need to:

- ▶ provide an online solution to the current audience response devices. Response: we will pilot a mobile-only polling solution. This will provide a more cost-effective solution than the current clickers with subscription model.
- ▶ develop new layers of the online campus map. Response: we plan to add campus dining options to the map, as well as an entertainment layer.
- ▶ provide an efficient tool for students to submit video assignments and incorporate feedback. Response: we will pilot VoiceThread. The VoiceThread platform has features specifically for student recording assignments, student feedback and threaded discussion using video, audio and text. VoiceThread integrates with Blackboard and can also be used for standard lecture capture.
- ▶ create an updated, more user-friendly interface for several services. Response: a new version of the Software Download Center was implemented in August 2016. We continue to explore alternatives for PiratePanel, and Pirate Port is continuing to make changes based on community feedback.
- ▶ continue to test and investigate alternative Web conferencing tools that provide Blackboard integration. Response: we will pilot and test Blackboard Collaborate.

- ▶ improve the university WiFi service. Response: in fall 2016, we will implement eduroam as the new wireless network for students, faculty, and staff. This implementation will no longer require the campus community to navigate through additional interfaces to access the Internet while maintaining appropriate security.
- ▶ continue to expand wireless. Response: in FY17, we will double the amount of funding provided to increase wireless access points and additional funds will support upgrades to the wireless infrastructure.
- ▶ distribute communications in a variety of formats to ensure students know the location of the Pirate Print kiosks and all computer labs via the ITCS Web site. Response: we will solicit input from SGA (Student Government Association) regarding the location of more color printing.

This year, Classroom Technology feedback was received through multiple surveys, including a survey distributed by the Office of the Registrar. The surveys collected information to help understand how assigned classrooms met faculty's teaching needs and identify future recommendations for improving classroom technology, as well as any new technology faculty would like to see integrated into the classroom.

We shared this feedback with the departmental resources who manages the AV technology identified in the survey. Since receiving the survey results, short-term action items were resolved where possible (e.g. repairing a piece of technology). Long-term projects (e.g. classroom remodels), were evaluated to include in future project planning. The input we received helped drive the discussion on the next set of classroom standards. To support faculty use of classroom technology, we developed new classroom instructional cards for placement in each classroom. We continue to share information each semester about using lecture capture, video conferencing, and wireless projection to faculty teaching in classrooms with those technologies.

STUDENT PRINTING

ECU implemented a print quota to improve the process of managing student printer use, reduce printing waste, and better control printing costs, while ensuring that educational printing needs are adequately met.

Implementation of the print quota resulted in a 40% reduction in printing overall, with 96% of students printing less than the allotted quota.

Notably, 76% of the students who printed, printed less than 1/2 of the quota (\$10.00 or less); 54% of students who printed, printed less than 1/4 of the quota.

Costs were reduced by approximately \$300,000, which was reallocated to provide support for additional educational projects.

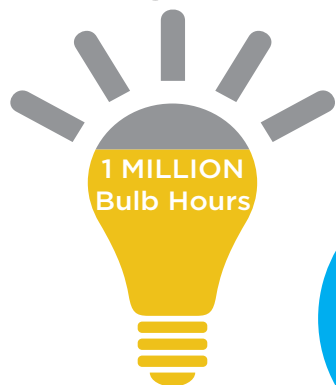
With input from the Student Government Association (SGA), we increased the annual quota from \$25 to \$30, giving each summer session \$5 of quota (quota was only provided if registered in summer courses).

Of the actual users of the print management system, 70% of students said that the quota met their printing needs.

Based on feedback, we will add more color printing to campus and continue to distribute communications in a variety of formats to ensure students know the location of the Pirate Print kiosks, location of general computer labs, and how to determine the location of all campus labs via the ITCS Web site.

Expenses for student printing are paid by the Student Educational and Technology Fee.

FY16 Printed the Equivalent of...



40% LESS than last year

BEYOND TOMORROW: ECU's Strategic Plan

In support of the Administration & Finance Division's mission to provide efficient, effective, value-added service that contributes to the achievement of the university's objectives in the **2014-2019 Strategic Plan "Beyond Tomorrow"**, we have focused on projects in three key areas as part of the Administration & Finance plan: **Accessibility, Global Understanding, and Telemedicine.**

We completed several projects in support of the university's efforts in Global Understanding and Telemedicine. We will continue to support our global partners, and collaborate with telemedicine staff to help them actively plan and budget for the technology and infrastructure requirements to deliver telemedicine to external sites.

Accessibility

"The success of our students is the ultimate measure of our university. We will support excellence, expand opportunity, and celebrate achievement." - Beyond Tomorrow, ECU Strategic Plan

As part of our commitment to improve accessibility, ITCS partnered with the Office for Disability Support Services to initiate an Information Technology Accessibility Committee with the responsibility of advising the university on IT Accessibility. The overarching goal of the committee is to provide governance on Information Technology Accessibility and provide equitable access to all students, faculty, and staff to technology and information. This committee will review the state of Information Technology Accessibility at ECU and develop and prioritize goals, and monitor and evaluate the progress made on goals annually.

As we continue to support IT Accessibility, we are committed to:

- ▶ increasing the number of educational offerings on accessibility and technology every year
- ▶ collaborating with the IT Accessibility Committee to annually assess our progress and to develop goals;
- ▶ developing diverse and targeted communications and education offerings on how to ensure digital content is accessible; and
- ▶ reducing the number of Americans with Disabilities Act (ADA) non-compliant Web pages on ECU servers every year. Our efforts began with departmental Web

sites and we have transitioned 12,312 departmental Web pages as part of this redesign effort to ensure Web pages are ADA compliant. We are continuing to transition the remaining Web pages. Last year, we updated the ADA requirements of our existing Web regulation to strengthen the requirements for official and unofficial ECU Web pages. In addition, we purchased a software tool that searches for non-compliant Web sites, enables easy remediation, and includes additional training for campus.

On the ITCS annual survey, faculty and staff were asked if they had access to sufficient accessible technologies and resources. Survey results indicated that 90% of faculty and 94% of staff have access to sufficient accessible technologies and resources. Face-to-face training, Lynda.com courses, and online resources are available to faculty and staff to help develop and share accessible course and Web content.

SAFEGUARDING ECU'S COMPUTERS, NETWORK, AND DATA

2016 Top 10 IT Issues – Issue #1: Information Security – Developing a holistic, agile approach to information security to create a secure network, develop security policies, and reduce institutional exposure to information security threats – EDUCAUSE Review, vol. 51, no. 1

The university's **Data Center is a highly-controlled environment** that consists of multiple layers of physical security including 24x7 on premise monitoring and several layers of ECU 1 Card badge access for secured areas. Though highly secure, we continually improve the Data Center's overall security posture to protect the university. As part of that continuous improvement, we **deployed video surveillance** to all server rooms within the Data Center this past year. All activities within the server rooms are captured on video, recorded, and monitored 24x7 by Data Center operations staff.

We strive to not only protect ECU's physical technology infrastructure, but also electronically protect the university's systems and data, while developing risk management practices and educating the user community on information security standards and individual responsibilities.

This past year, ITCS:

- coordinated the **development and formal approval of an Information Security Regulation** for the university. This regulation defines the responsibilities of all employees for protecting ECU information and the responsibilities of departmental leadership for managing information security within their respective units. The underlying premise of the regulation is that information security is an essential business function of every ECU department, and one that is far more about people than technology.
- **developed information security standards and best practices** for ECU, and published this guidance to the ECU Web site to assist employees and departmental leadership with fulfilling their information security responsibilities.
- **received leadership approval of and support for required information security training** for all employees. Once developed, this training will become part of the employee training record, and

will ensure that employees are aware of their basic responsibilities for information security.

Operational Security engaged in the following initiatives in FY16:

- **assessed 111 IT product applications** for university departments to determine adherence to security standards.
- **implemented semi-annual sensitive data scans** of enterprise servers.
- assisted with **external PCI audit remediation** to ensure ECU's credit card business is in compliance with industry requirements.
- improved the **call flow process for users who have their account credentials compromised** to ascertain if any sensitive data was stored in their email account.
- created an **incident response plan** for handling high-risk information technology-related incidents.
- **switched from FTP to FTPS**, a secure file transfer protocol, on enterprise Web servers including MyWeb, PiratePanel, and WWWFTP.
- continued to work diligently on **risks identified in our risk assessments**.
- began requiring the use of **2-factor authentication technology**, which requires ITCS technical staff to enter a PIN (generated by mobile phone app or a hardware dongle) as well as their PirateID and passphrase to access protected resources.

BEHIND THE SCENES

Infrastructure Upgrades

Strategic focus areas for ITCS in FY16 included Data Center capacity planning and management, compliance efforts, information security, virtualization and network performance.

As the campus grows, it is crucial to replace aging infrastructure technology and bring it to a new standard. In FY16, ITCS completed a significant, multi-year project to **replace our older storage hardware**. Our technical staff migrated critical production services to new equipment to minimize disruption of services and impact to users. In the event of unplanned network outages, we will be able to restore services quickly and without any impact on application databases.

As part of this storage equipment upgrade, we **added nearly 1 petabyte (1,000 terabytes) of storage** that includes data security, maximizes storage efficiency, and enables advanced connectivity. This new storage is over 10 times faster than our older storage.

We introduced a **multi-tier infrastructure design** into the primary Data Center, which allows for the separation of servers based on their function and required access. This allows us to isolate critical sensitive resources and control all network connectivity to and from these systems. This separation lessens our exposure to unauthorized access and provides a greater level of security.

Additional efforts to **modernize our infrastructure and ensure optimal performance with uninterrupted network connectivity** include:

- ▶ **enabling full IPv6 functionality** with improved security features, enough IP addresses to ensure never running out, and improved mobility capabilities.
- ▶ **adding much-needed cooling capacity** and redundancy to the telecommunications room in the primary Data Center, which serves as the network hub. This project included upgrading a 3-ton air conditioning unit to a 5-ton system, and installing a backup 5-ton unit should a primary unit fail.
- ▶ **implementing a new software-defined networking solution** in portions of the Data Center to allow for application-focused network deployments with integrated security features and a high-speed core.
- ▶ **replacing numerous firewalls** that were near end-of-life to improve the protection of university resources.
- ▶ **installing additional Data Center network switches** to provide faster network speeds.

Additional projects completed this past year include:

- ▶ **upgrading the VMware virtualization software**, and restructuring our virtual server environment to provide maximum performance. We increased our server capacity which allows us to support more high availability systems across our two Data Centers in Cotanche and Brody. A third-party vendor completed a **formal assessment** of our virtual infrastructure, focusing on the design, configuration, operational processes, and security. The overall conclusion was that our environment is in the upper echelon based on design, security, and operational processes.
- ▶ continuing to **replace hardware for the university's Banner environment**. Due to the size and scope of the replacement effort, this project spans multiple years and is divided into two phases. Phase I includes moving databases to a new server and switching from Solaris to the Linux operating system. This phase is well underway with completion slated for September 2016. During Phase II, we will replace the application tier hardware. The application tier replacement is currently in the design stage. Our goal is to build an internal private cloud that will allow us to virtualize the existing Banner application servers while also providing us with the flexible infrastructure to meet our planned migration to the new Banner XE architecture.
- ▶ continuing to **replace the aging hardware powering ECU's Banner Data Warehouse**. After researching options and conducting performance testing, ITCS selected and implemented Oracle's Database Appliance for the hardware replacements. This direction exceeded all replacement criteria in delivering a capable platform that exceeded the performance demands and saved the university a projected \$700,000 over a 5-year period on maintenance.

To accommodate the heavy and growing reliance on WiFi service on campus, in FY16, ITCS refreshed hundreds of network switches across campus and installed infrastructure cabling to increase network bandwidth for users, new technology-enhanced classrooms, IP cameras, access points, fire alarms, burglar alarms, HVAC monitoring, and electrical system monitoring.

We deployed the new wireless guest network (ecu-guest) and guest sponsor portal providing ECU sponsors and guests with an easier and more user friendly way to obtain a guest account.

In addition, we:

- ▶ added state-of-the-art wireless access points to Gateway Hall to provide 100% coverage.
- ▶ installed or upgraded wireless access points in nearly 30 locations to increase coverage/capacity.
- ▶ added networking to approximately 12 new buildings or renovated locations.

We **upgraded InformaCast, part of the university's Emergency Notification System** used to deliver alerts and notifications to all university VoIP phones, outdoor speakers, and internal building speakers. This upgrade will allow us to maintain our system of notifications even in the event of a Data Center outage.

We **upgraded all Unified Communications systems** to enable feature enhancements.

We **completed a PCI (Payment Card Industry) network redesign** for meeting ECU business purposes and PCI compliance standards.

ITCS currently **manages over 100 databases**. The volume of Institutional Data, driven primarily by the increase in third-party applications and the replication and consolidation of data in support of enterprise reporting and analytics, is rapidly approaching 10 terabytes. This amount of data would be equivalent to any one of the following:



5 MILLION single-spaced typewritten pages



1 MILLION phone books



19,000 regular CDs
2,500 DVDs

ITCS staff completed the Distributed Antenna System (DAS) that has the capacity to provide coverage for 50,000+ users in and around Dowdy-Ficklen Stadium.



DEVELOPING CONTEMPORARY SYSTEMS

Each year, we undertake projects to enhance our students' academic lives and overall college experience to ensure that every student has the best possible chance for success. This past year, we:

- ▶ **implemented College Scheduler**, which allows students to generate course schedule options and plan around work, study times, or extracurricular activities.
- ▶ fully **transitioned to Pirate Port**, which replaced OneStop, the university's Web portal since 2000. Pirate Port offers a fresh new interface for students and gives ITCS a solid foundation to start building advanced services.

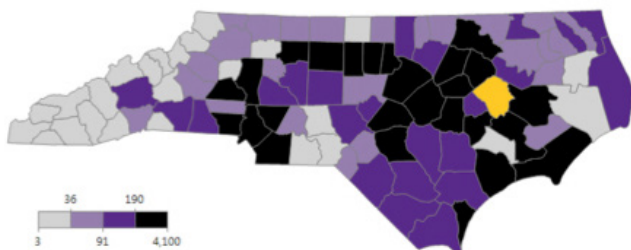
ITCS partnered with the Registrar's Office and the Graduate School to **complete the first in a series of interactive dashboards that present enrollment statistics** from a number of perspectives, including student level, college, program, and course section. These dashboards are delivering instant insights into Institutional Data, enabling deans and department heads to arrive at more informed, timely and strategically-aligned decisions.

ITCS **conducted an extensive evaluation of available hardware systems which resulted in the recommendation and ultimate adoption of the Oracle Database Appliance (ODA) as the new host platform for all business-critical Oracle databases.** This enables consolidation of support, predictable and improved database performance and a reduction in overall support costs. Blackboard and Operational Data Store (ODS) databases have since been migrated to the ODA environment, resulting in a savings, to date, of over \$150,000 in vendor and hardware support costs.

In conjunction with their migration to the ODA platform, the **Blackboard and ODS databases were upgraded to the latest release** of Oracle's database management software. This is indicative of ongoing efforts to enrich the university's data environment by implementing new/upgraded technologies that deliver enhancements across security, performance and overall feature sets.

East of NC I-95: 12,129

In the Spring 2016 term, 51% of North Carolina resident students were from counties east of Interstate 95. Students from all 100 North Carolina counties were enrolled in the Spring 2016 term.



Oracle's Advanced Security software is another example of new technology that is currently being implemented on all

Oracle databases. This software enables encryption of data at rest.

ITCS also had an opportunity this year to **use database disaster recovery plans in a massive database disaster recovery for both SQL Server and Oracle.** This exercise involved the recovery of over 30 databases, representing a volume of data that exceeded 4 terabytes. The recovery was a complete success – 100% of the data was successfully recovered.

The Enterprise Analytics team released improvements to **ECU's Analytics Portal** that make exploring the university's public data more efficient. These improvements include: better login capabilities, enhanced performance, the ability to view multiple reports, modern browser support, and multiple report layouts.

Institutional Planning, Assessment and Research has published the university's first **dynamic Fact Book.** This new, more interactive design provides an expanded set of statistics for the university's student, faculty and staff populations.

In May, the Chancellor's Executive Council approved an interim **Data Governance Regulation.** This regulation provides a high-level framework that formalizes the management of Institutional Data as a strategic asset. The resulting data governance initiative will enable the university to deliver on an important responsibility contained within the institution's strategic plan, Beyond Tomorrow:

"Our data will be recognized system-wide for its accuracy and reliability and as a basis for advanced analytics and institutional decision-making."

The **Doubloon Giving Club** recognizes donors to the university and the consecutive years of giving. ITCS provided the program that generates giving years which allows University Advancement to simply pull a report on demand.



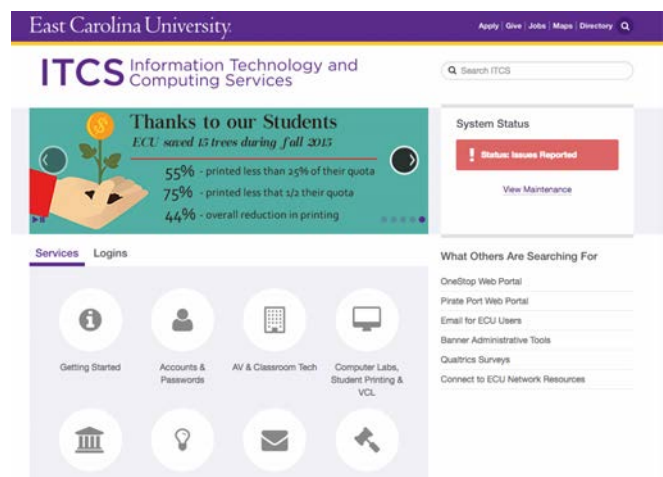
ITCS worked with Graduate School Admissions to complete an interactive dashboard that provides comprehensive up-to-date enrollment information.

EFFICIENCY AND EFFECTIVENESS IN OPERATIONAL DELIVERY OF SERVICES

The challenge of improving delivery of our information technology services has never been greater. We continue to work diligently to provide the highest service quality while maintaining or reducing costs and meeting the ever-changing requirements of the university community. This past year, many of our projects focused on offering new systems and services to improve administrative business functions; the technology assistance our students rely on in regards to computer repair and software troubleshooting; and the methods through which we provide crucial information to users. For example:

- ▶ we implemented **TeamDynamix**, a solution that integrates Service Desk Management and Project Portfolio Management into one combined system. TeamDynamix will help the university effectively monitor service activities, optimize staff and resources, and provide robust reporting capabilities. Team Dynamix will serve a customer base of approximately 29,000 students and over 5,000 faculty and staff. In this system, we anticipate receiving more than 50,000 service requests annually that will be serviced by 400+ technicians, including technical support provided by distributed IT in the colleges.
- ▶ Pirate Techs Student Computing Center (formerly ACE) now performs hardware repairs covered under **Safeware**. Safeware is a third-party insurance that provided additional accidental damage coverage.
- ▶ we enhanced **Degree Explorer**, a Web site that displays information about ECU majors and career opportunities available for chosen majors. This information is extracted from the undergraduate and graduate catalogs and collected from departments across campus. This project added functionality to the existing Degree Explorer Web site.

- ▶ we implemented a **new Web site design for ITCS**. The new design is in a service catalog format that creates a continuity of design and information with the new service desk management system.



Campus Maps facilitate navigation of ECU for visitors and others on campus. This past year, we developed new layers of the **campus map** based on input from campus, adding locations for emergency blue lights, technology-enhanced classrooms, student computer labs, updated parking, bus routes, residence halls, dining, and Kronos time clocks in addition to pulling building information from our space planning inventory.

ITCS purchased a log monitoring solution, Tripwire, to aggregate disparate system logs into a centralized repository where automated events could be correlated and analyzed, and alert notifications could be sent for actionable events. The **Tripwire Log Center** implementation plan initially targeted the Brody School of Medicine's HIPAA systems for monitoring compliance; however, over the past year, ITCS began systematically deploying this software to the broader enterprise systems.

Our **VoIP Technology Refresh** project is underway. This project is actively replacing our VoIP telephones with new models that include color display, additional line capacity, and faster gigabit uplink speeds. The team has migrated over 1,500 users over to the new phone models. This project is scheduled to continue over the next 2 years, concluding when all devices have been upgraded.



ITCS student employees assisted staff with upgrading VoIP phones across campus as part of an extensive modernization project.

ITCS coordinated with the Division of Academic Affairs, Division of Administration and Finance, and Brody School of Medicine to **procure and install 1,446 workstations** to replace aging systems across campus.

Email has been enhanced this year with new features, including...

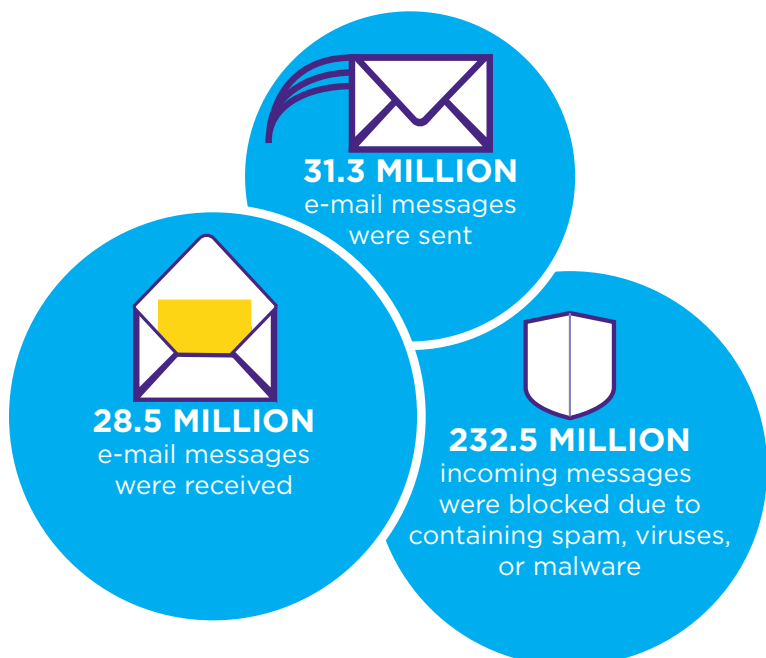
- **Data Loss Protection (DLP)** technology for automated encryption of email containing sensitive data sent external to the university.

- **upgraded email vaulting software** in preparation of the move to the next version of Microsoft Exchange.
- **improved default delivery transport of email** to enhance the security of emails between ECU and external entities.

As part of yearly disaster recovery preparedness activities, ITCS formally reviewed the ITCS recovery procedures and **successfully executed recovery testing for 20+ critical systems**. The disaster recovery testing scope included Banner, Blackboard, Active Directory, Exchange, Enterprise Storage Systems, the ITCS Virtual Infrastructure and Network Services.



Pirate Techs Student Computing Support staff are now able to help students troubleshoot computer problems in a third location, Joyner 1019, during extended hours.



ENHANCING ACADEMIC TECHNOLOGIES

2016 Top 10 IT Issues – Issue #2: Optimizing Educational Technology – Collaborating with faculty and academic leadership to understand and support innovations and changes in education and to optimize the use of technology in teaching and learning, including understanding the appropriate level of technology to use – EDUCAUSE Review, vol. 51, no. 1

Throughout the student experience, from applying to ECU, to registering for courses, to using a device connected to the campus network, technology is available to support success. Collaboration tools for working in groups, technology help services when something breaks, and classroom technologies to help students learn are among ITCS's top priorities.

We **upgraded several learning platforms** this year. The **Blackboard upgrade** included browser support for the Microsoft Edge browser, changes to the Announcement availability default setting, Content Editor support of HTML5 audio and video playback in Chrome and Edge, and improved Discussion Board navigation. **SabaMeeting updates** included support for El Capitan, Mac users can now upload PowerPoint files directly from their computer, and PowerPoint files created in 16:9 can be imported directly into SabaMeeting. The **Turning Technologies** upgrade to Turning Point Cloud changed the registration process for students, which now requires a Turning account. Students that had used Turning Technologies clickers in Blackboard within the last three years were provided time limited Turning accounts at no cost.

We partnered with the Office for Faculty Excellence and provided planning and instruction for the **30-hour Teaching with Technology (TWT) interactive workshop**. The workshop agenda included several learning platforms: Blackboard, Mediasite, SabaMeeting, Turning Technologies clickers, OneDrive for Business, an accessibility checklist and examples of custom solutions developed by the Multimedia Center. Participants concluded the session with a presentation describing how they plan to implement a new technology or teaching strategy as a result of attending the TWT workshop.

We provided support and are serving as a resource to the Division of Academic Affairs project team on the replacement of the **Student Perception of Teaching Survey (SPOTS)**, a course evaluation system.

We currently support over 450 technology-enhanced classrooms and spaces plus 9 additional rooms in the Coastal Studies Institute located on Roanoke Island. This

year, we upgraded or refreshed technology in 22 rooms specifically requested by colleges, and approximately 10 centrally-scheduled spaces in Bate, Brewster, Joyner East, and Austin. More than 100 computers in classrooms across campus were upgraded. Additionally, we upgraded existing lecture-capture systems (Mediasite) distributed in the colleges.

Our goal is for classroom technology systems to have an 8 to 10-year life cycle with minimal maintenance. We have standardized on blue laser projectors that use less power and do not require lamp replacements. These projectors have a life expectancy of 20,000 hours vs. a lamp life expectancy of 2,000 hours on current projectors.

We provided system design and project management in several new facilities projects. The Brody Executive Conference Room technology design and the technology portion of the project was managed by ITCS. This is a state-of-the-art facility with video conferencing, surround sound, and multiple viewing facilities. The Ross Hall 4th floor technology design was completed this year and will include instructional onsite and/or video conference audio visual systems once installation is complete. The West Campus Student Center construction is under way. ITCS will design all the audio visual functionality for this building. East Campus Student Center is a consultant-led design where ITCS is representing ECU to provide standardization and project management assistance.

We continued to develop the student readiness project for Bioethics and Interdisciplinary Studies faculty and presented it to the Distance Education and Learning Technologies Committee to determine if the project could be scaled to benefit all distance education students. As a result, the project team developed a tool to assess student readiness and provide general feedback.

ITCS: THE YEAR AHEAD

Fiscal Year 2017

In the year ahead, we plan to complete numerous projects that will enhance our technology offerings, accommodate the growth of our user community, improve our security, and enhance user experiences. A few major projects we would like to share with you are centered on improvements in our infrastructure, our services, and our security.

To maintain and improve our infrastructure, we will

- ▶ increase the size of email mailboxes and discontinue email archiving;
- ▶ collaborate with ECU Facilities to plan for the future expansion of the Cotanche Data Center;
- ▶ increase data storage for researchers and other campus users on Piratedrive, a private data storage cloud that is highly secure and automatically backed up;
- ▶ increase our network capacity by 20% in the next 2 years by continuing to roll out 10G and 40G network infrastructure;
- ▶ upgrade our Internet and dorm firewall equipment to keep pace with the increased demands by students with multiple devices on the network;
- ▶ redesign ECU wireless networks to improve functionality;
- ▶ implement a new method, eduroam, for onboarding the ECU community to the ECU network;
- ▶ implement Phase II of the Banner hardware replacement project, and build an internal private cloud that will allow us to virtualize the existing Banner application servers while also providing us with the flexible infrastructure to meet our planned migration to the Banner XE architecture;
- ▶ expand outdoor wireless in student-centric locations;

To advance our access to data analytics, we will

- ▶ upgrade the analytics infrastructure tools and software;
- ▶ implement a Data Governance Regulation;
- ▶ provide a new analytics ecosystem that will combine Excel reporting, mobile reporting, KPIs (Key Performance Indicators), and ad-hoc reporting into one environment.

To improve our support of student success and faculty teaching, we will

- ▶ provide access to Microsoft OneDrive for Business, 1 terabyte of storage in the cloud that will enable easy faculty and student collaboration;
- ▶ offer support in adopting Universal Design for Learning and developing accessible course content;
- ▶ implement new time saving features for faculty posting content in multiple Blackboard courses;
- ▶ pilot Blackboard Collaborate, a Web conferencing tool;
- ▶ implement Blackboard Outcomes for tracking of student assessments;
- ▶ implement VoiceThread, a tool for student video assignments and individualized instructor to student feedback;
- ▶ add a new tool within Blackboard to assist in the process of mapping, collecting, analyzing, and reporting on student learning outcomes;
- ▶ upgrade numerous classrooms and labs across campus to the latest standards to improve access to technology and the ability to be more dynamic in the classroom.
- ▶ pilot Blackboard Ultra, a new updated Blackboard interface;

To improve our campus services, we will

- ▶ continue to integrate our new Service Desk Management System, Team Dynamix, into our work flows which includes services across the institution, change management, asset management, knowledge management, and ensuring the successful adoption of the tool.

To improve our security, we will

- ▶ develop and launch an online training course for all ECU employees that is incorporated into the new employee orientation training requirements and completed within 30 days of employment;
- ▶ provide security refresher courses to be completed by current employees at least once every 2 years;
- ▶ establish a new information risk management framework and toolset based on ISO 27005, an

internationally recognized framework for information risk management;

- ▶ guide department directors on integrating information risks into their departmental risk-management processes.

To improve administrative systems, we will

- ▶ implement the Banner Grants and Contract module to improve tracking of funding and invoice processes
- ▶ release Advisor Central to enable students to schedule meetings with their advisor and the Speech Communications Center
- ▶ integrate automated retention schedules into our document imaging system.

- ▶ Implement the new Residency Verification system from CNFC.

The CIO's office is continuing to build a partnership and a plan for the "Purple Cloud". The "Purple Cloud" will utilize IBM managed services (contracted through ECU). This partnership will generate and support eastern North Carolina's regional development by providing cloud-based computing services to local businesses and small startups. All such services would be between ECU and the customer and involve a sub-contract with IBM for specific services as appropriate. As baby boomers retire and as it becomes continuously difficult to attract and keep talented IT staff, our strategy for the future may include contracting with vendors such as IBM to provide specific managed services. We anticipate a plan to be fully executed by Spring 2018.

In Conclusion...

"After reading this Year in Review, I continue to be extremely proud of the many projects that are successfully completed that have a direct impact upon the productivity and service to all units within ECU. One of ITCS's Core Values is:

"Service (Goal: Catalyst for Positive Change): We are committed to providing excellence in customer service to meet and exceed the needs of our students, faculty, staff and larger community."

The dedication, quality of work and loyalty of ITCS staff to East Carolina University is simply excellent and I am proud to work alongside each and every individual.

-Don Sweet, CIO

Questions and Feedback

If you have questions about the major undertakings listed in this report, please contact a member of our ITCS leadership team. Your questions and comments help us better understand the needs of everyone at ECU who uses our services.



Information Technology and Computing Services
252.328.9000 www.ecu.edu/itcs