UCONN

INFORMATION TECHNOLOGY SERVICES

Strategic Plan Annual Review and Progress Report

July 2019

Information Technology Services (ITS) published our five year strategic plan in 2014, and we annually report on our progress meeting the goals outlined in the plan. This is the last annual report for the existing strategic plan, and after gathering feedback from the community, we are preparing the 2019 – 2024 plan that will set the direction for IT systems, services, and capabilities for the next five years. The goals from the 2014 plan have remained relevant and effectively guided our delivery of central IT systems, services, and capabilities for the past five years, and elements of these goals will persist in the new plan.

Below are initiatives that ITS completed between September 2018 – June 2019.

GOAL 1

Pursue IT solutions that empower members of our community to successfully, productively, and securely engage in all of their institutional roles as individuals.

Support

A primary way our community interacts with IT at the University is through formal and informal support channels. We have been re-examining support services from the perspective of our community and making deliberate choices that will better target the current and emerging needs of our community.

ITS Help Center: The ITS Help Center is our IT support nexus. It was relocated to a position adjacent to the public computer lab in Babbidge and redesigned to emphasize both accessibility and immediate assistance. We are in the process of moving all fulfillment activities to the center and are actively expanding its role to provide immediate assistance to the community wherever practical.

KnowBe4: Security threats to personal and institutional information are an ongoing risk. Informed, individual judgement is a powerful element in preventing security breaches and compromises. ITS began offering KnowBe4, a video library covering an extensive range of IT security topics, through the security.uconn.edu website. Faculty and staff can access the videos at any time, and institutional units can also request active training campaigns for customized courses.

Software

ITS provides and manages university-licensed software via software.uconn.edu.

Adobe Creative Cloud (CC): ITS negotiated with Adobe to purchase bulk CC licenses from a channel partner and offered them to undergraduate students this past fall semester at reduced rates and with more flexible terms. This program was successful so ITS began offering annual CC licenses at the reduced rate to faculty, staff, and graduate students at all UConn campuses, including UConn Health, via the storefront on the software website.

Antivirus Solutions: Products should be used for both their expressed purpose and in the manner that the vendor intended. This approach ensures performance, reliability, and supportability and produces the best overall experience for all parties. In line with this stance, ITS strongly recommends that all university-owned devices remain current with all updates to maintain the highest level and most up-to-date protection available. We pursued this strategy when assessing antivirus protection on university=owned macs. Starting with version 10.11, macOS includes XProtect, a built-in technology to detect, block, and remove malware. Because XProtect obviates the need for a third-party antivirus product, ITS opted to discontinue ESET Endpoint Protection and to communicate to Mac users the importance of running the latest OS and remaining current with updates.

Communication Tools

Phone conferencing bridges: ITS made an alternative to a toll free phone conference line through Verizon available through our WebEx online web conferencing tool. This service is included in our WebEx licensing and does not generate a departmental bill when utilized.

GOAL 2

Pursue IT solutions under the guidance of our academic partners that facilitate effective research, enrich teaching and learning, and enhance institutional competitiveness for extramural funding.

ITS Scantron self-service service: ITS introduced new self-service Scantron test scoring stations outside the ITS Help Center in the Library. We maintained both the traditional drop-off service and self-service

stations for two semesters. Instructors responded favorably to the change, and in particular, liked that they could directly control when exams were graded and retained possession of the sheets at all times. Based on this feedback, ITS discontinued the drop-off service once the spring semester concluded.

Accessibility on HuskyCT: To help instructors ensure that the content posted on HuskyCT is usable for students with disabilities, ITS, the Center for Excellence in Teaching and Learning (CETL), and the Center for Student with Disabilities (CSD) evaluated Blackboard Ally. This product measures the accessibility of content in HuskyCT, alerts the instructor to accessibility issues, and suggests remediation strategies (e.g., alternative formats, addition of tags). Blackboard Ally was first available to a tester group and then rolled out to all courses. Feedback has been positive, and ITS will formalize and expand the service offering.

Course Catalog Search Tool: In collaboration with the Office of the Registrar, ITS improved the course catalog search and replaced a time-consuming manual process. ITS developed a plugin that pulls and displays data directly from Student Admin and also contains advanced search, sort, and filter features. The plugin improves accuracy, saves time, and offers students flexibility in identifying courses that meet their academic requirements and intellectual interests. Other institutional units can integrate this tool into existing websites and customize the data displayed by adjusting parameters.

Live streaming lecture capture: During the spring 2019 semester, ITS piloted live streaming for the lecture capture service. This added capability gives instructors another way to easily connect with students remotely in real-time and also facilitates use of educational technology. After receiving overwhelmingly positive feedback about the enhancement, we will add this feature to lecture halls on campus by the start of the fall semester.

High Performance Computing (HPC): Overall usage of HPC has increased by 7%, and additional faculty have purchased priority access to the clusters. The HPC activity centered in Storrs coordinates with a similar activity centered in Farmington. There are over 8,000 cores accessible in Storrs. The bulk of the resources are generically available to university researchers. Individual faculty continue to make equity investments in the facility for priority access to resources.

GOAL 3

Pursue IT solutions in concert with functional partners that support the business of the University and increase operational effectiveness.

Data as an Institutional Asset

Data is an institutional asset that supports decision-making at all levels and across multiple functional units. It is collected by the enterprise transactional systems that support operations and is an immediate by-product of the interaction all students and employees have with UConn. ITS has developed a data service architecture that better supports institutional reporting, is reflective of the heterogeneous nature of existing systems, and can be applied between our transactional systems and data consumers at UConn. This architecture is predicated on the combination of access and preservation of effort. A formal broker layer functions as the integration between respective transactional systems and supported reporting environments and infrastructure.

Data marts: Each transactional system will eventually have a data mart that will align with this architecture. Data marts are an environment built from the analytic layer of the architecture that support analysis and reporting. ITS, in concert with our functional partners, replaced an end-of-life legacy data mart for the PeopleSoft Student Administration system with a data mart that followed the new architecture. It went into production on January 22. We also began work on the HR/Payroll Data Mart and developed a data-broker between Core-CT and UConn.

Reporting: ITS implemented BIRT as a primary component of the Facilities Operations reporting and data driven decision strategy. This project included in-depth training for a core team of business and technical resources, development of report intake and tracking standards, and the rapid delivery of reports and analytics across all dimensions of Facilitates Operations. The power and flexibility of BIRT and the expanded training of staff provides significant visibility into the operations, allows for advanced analytics and produces reporting of a significantly higher quality with much reduced business effort.

UConn and UConn Health student systems

Historically, UConn utilized the PeopleSoft Student Administration System (Student Admin) while UConn Health School of Medicine (SoM) and School of Dental Medicine (SoDM) utilized Jenzabar for registrar and bursar functions and PowerFAIDS for financial aid. In 2018, UConn and UConn Health launched a project designed to consistently deliver all student administrative services from PeopleSoft as a common system of record. This initiative represented substantial collaboration among the following units at both campuses: IT, Admissions, and offices of the Bursar, Registrar, and Student Financial Aid. All medical and dental students, including applicants and dental residents, were converted to Student Admin in March 2019.

Software Project Implementation

In partnership with Transportation Services, ITS completed a hardware/software project to facilitate improved bus service at the University. GPS tracking provides students with real-time travel information, such as timing and arrivals. The system also collects ridership data that will be leveraged to inform service changes and other enhancements.

ITS is also actively collaborating with the following partners to implement solutions that will improve business processes

- Human Resources on the Recruiting and Onboarding Systems Solution, PageUp
- Purchasing department and Accounts Payable on the Travel & Expense Management Solution, Concur
- Parking Services on a Parking Software Replacement, Passport

Institutional Website Development

In addition to providing the enterprise-wide WordPress service Aurora, the web development team also provides design support for UConn units. The team collaborates with faculty and staff to create sites on Aurora and supports their ongoing use. This year, the team designed the following sites:

- Math Department (https://math.uconn.edu/)
- ITPMO (https://pmo.its.uconn.edu/)
- Recreation Center Naming Opportunities Page (https://recreation.uconn.edu/funding-opportunities-details/)
- El Instituto (https://elin.uconn.edu/)
- Arts Venues (https://artsvenues.uconn.edu/)
- Connecticut Education Network (https://ctedunet.net/)
- Undergraduate Student Government (https://usg.uconn.edu/)
- The Early Childhood Personnel Center (https://ecpcta.org/)
- Earth/GeoSciences (https://geosciences.uconn.edu/)
- IPB Tech Park Website: https://techpark.uconn.edu/
- Expression, Communication, and the Origins of Meaning Website: https://ecomresearchgroup.com/
- IT Security Website: https://security.uconn.edu/

Applications and Integrations

At the request of and in concert with our functional partners at Storrs and the regional campuses, ITS provides application support for institutional activities that contribute to the overall mission of the University. This support entails procurement, development, or facilitation of software or application solutions; integrations that work in concert with existing institutional investments and practices; and enhancements to efficiency by improving processes and introducing automation.

New applications: ITS created applications that support training requirements and student financial and academic needs. Applications developed include:

- Graduate Program Action Request
- UConn Campus Room Tracker for Academic IT team, who supports audio-visual technology in the classrooms
- iBacs Data Collection, which tracks grants for Institute of Brain and Cognitive Sciences
- Avery Point Orientation Reservation
- Graduate School Voluntary Separation form
- Designed and Implemented a Building Condition Assessment program for Facilities

Integrations: The integration of software and systems enables our functional partners to leverage data from more than one system for greater consistency, efficiency, and tracking. This year we performed integrations in:

- KFS to support the COR²E implementation of CIDER for shared research facility billing
- AiM to KFS/HuskyBuy

New Process or Automation: Updating processes and automating activities that replace manual entry provide our partners with improved efficiency and accuracy of data. ITS made improvements for the Bursar's Office, Advising, Human Resources, Department of Orientation, and the School of Education.

- Implemented online security access request form for KFS/KFDM and SADM that replaces paper process with electronic workflow approvals.
- Introduced new workflow in the Document Production software to better enforce Copyright protections.
- Enhanced AiM invoice error handling and reporting to better support reconciliation efforts by the business.

System and Program Development

ITS collaborates with functional partners to design programs and systems that help them meet business obligations and enhance the efficiency and effectiveness of services.

- ITS helped design the new Campus Camera system for Public Safety. It consisted of 25 new servers and uses 2.3 PB of storage.
- Created Summer and Custodial Turns program in AiM
- Designed and Implemented a Building Condition Assessment program for Facilities
- The Office of the Bursar, Barnes and Noble Bookstore, and ITS collaborated to create the UConn Bookstore Student Account Program, a new option to help undergraduate, graduate, and professional students manage education expenses. Participants in the program receive a $500

line of credit per term to purchase course materials and other supplies at the Barnes & Noble Bookstore, either on-campus or online. After opting in to the program via the Student Administration System, students can have eligible purchases added to their fee bill.

GOAL 4

Pursue IT solutions that assist technical partners at all UConn locations to successfully provide for the specific needs of their respective communities.

Communication

ITS continued to focus on strengthening communication among IT professionals at UConn. We produced a whitepaper to add to a series of communication-centric papers that provides guidance on producing effective written messages: https://cio.uconn.edu/#communications. The purpose of sharing our strategies broadly was to encourage the transparent sharing of timely information.

IT All Staff Conference: We also continued our IT All Staff Conference series, where we spotlight completed projects, ongoing initiatives, and other accomplishments that are relevant to IT professionals at the University. To encourage broad participation, ITS prepared a structured program of support services to help refine ideas and discussion points. We had several teams participate in multiple sessions and had a successful turnout at the event.

IT Town Halls

The ITS Town Hall events were historically limited to ITS staff. The general format of these events lends itself to a longer discussion on a useful organizational or technical topic. These have been dominated in recent events by service, culture, and community migration. These are relevant topics for IT staff in general and ITS now invites the entire IT community to these events. Attendance continues to grow, and this allows us to develop common language, perspective, and sensibilities across the UConn IT community.

Digital Signage: We expanded our digital signage service to provide departments with more freedom and flexibility to post information relevant to their area. Departments that own their signage may manage access and permissions for their staff. For the large, ITS-owned signs deployed in 14 academic buildings on the Storrs campus, anyone with a NetID may submit content for these screens. These activities are supported through authenticated access forms that can be utilized to submit requests into our established workflow.

Migration of Services

ITS has engaged in multi-year partnerships with schools and institutes to migrate duplicate services to the central portfolio. We pursue these activities in partnership with the schools and institutes to leverage the benefits of scalability and security that central services can provide.

School of Engineering: The migration of services and servers from the School of Engineering's active directory (AD) to the UConn AD was completed and then the SoE's AD was decommissioned. We also worked with SoE's technical staff to migrate all sites off of web11 and decommission the legacy web server.

School of Education: The School of Education joined the ITS managed workstation program. All of their servers have been migrated to ITS infrastructure, including print and web servers, and they now also use enterprise file services. This is consistent with the long range direction set by ITS. Managed workstation operates at dramatically greater scale than local alternatives. Distributed IT staff are capable of supporting local workstations, but leveraging the significantly better scaled central option frees up local resources to provide other local support to better differentiate departments.

GOAL 5

Pursue IT solutions that can best be provided centrally and deliver them securely, efficiently, and robustly at scale.

Wired and Wireless Network

The university data network, consisting of both wired and wireless components, is a critical service supporting the institutional mission of research, teaching, learning, and outreach.

Network refresh projects: Our wired infrastructure is unevenly deployed and handicapped by aging equipment that is mostly at, or past, end of life. With available resources, ITS made improvements to high traffic, high impact areas. Using a mix of internal and external labor, ITS replaced the network equipment in the following buildings:

- Agricultural Biotechnology Lab (ABL)
- Advanced Technology Laboratory (ATL)
- Austin Building
- Shippee Hall
- Storrs Hall
- Student Union
- Rowe Center
- Wilbur Cross

- Williams Health

These selected refresh projects were the precursor for a long term university commitment to update the data network access layer. The full refresh will total approximately $30M over a five year period.

University data network: ITS implemented strategies that increase efficiency and optimizes deployed assets. Eight years ago, ITS chose 4500 series access switches for a number of buildings on the Storrs campus and 6500 series distribution routers for regional campuses. Both permit updating the supervisor, which is the device management card, without replacing the entire unit. This economically extends the usable life of the equipment and extracts additional value from the deployed investment.

Network port utilization: As ITS pursues network refresh, we seek approaches that will optimize the size of the deployed infrastructure. In the current network infrastructure, each network jack in a wall plate is active; it is directly wired back to a dedicated port on a switch in our telecommunication closet. We are assessing activity on all jacks and refining the design for updated infrastructure to more closely align with community need. This will allow ITS to economically serve our community and affect broader impact with available capital.

Wireless Network: ITS has been designing and implementing campus infrastructure to provide a contemporary experience for the community. Part of this approach is to more effectively bring services to where people are instead of the reverse. Consistent with this, ITS deployed wireless coverage on the main lawn in front of the Student Union this past spring and began installing network equipment in 20 other open areas on the Storrs and regional campuses. We are emphasizing locations where the community, in particular students, tend to congregate.

Incident Response and Disaster Recovery

A well-planned and consistently executed plan for responding to emergencies and outages increases our ability to respond quickly and restore services effectively for our community.

Incident Response: Our incident response plan outlines a procedure for engaging staff, communicating to various groups, failing over select services, and sequencing restoration activities. With each incident, we assess the effectiveness of the plan and refine it. This process was employed a number of times over the course of the year to varying degrees. Most compromises were ultimately assessed to be small in nature, but the foundation to respond to a large breach is effectively in place.

Disaster Recovery: If a catastrophic campus emergency occurs, we engage the disaster recovery (DR) plan. In July, we will conduct our annual test to validate our ability to restore and tier 0 and tier 1 services in Azure, a cloud-hosting service, and at the new remote facility in the State's data center in Groton, CT. As part of DR, we set up the following tier 0 services on Azure: IT Status and authentication

services (CAS, LDAP, and Active Directory). These are tier 0 services because they need to be available all the time and are essential for emergency communications.

Identity and Access Management

Identity and Access Management (IAM) protects institutional data and ensures that the correct people have the right level of access to the right information. This area encompasses areas that are visible to end users, such as their digital identity and ability to access their privileged information, and behind-the-scenes data feeds essential to functionality of institutional applications.

Display/Preferred Name tool: In collaboration with the Rainbow Center, ITS created a new tool that enables our community to enter first, middle, and last names that differ from their legal names and choose a format for how their names appear in some university directories. ITS has also facilitated the integration of the tool into other applications.

Two-Factor Authentication: If individuals' NetID credentials are stolen through phishing and other nefarious activities, criminals can use them to access sensitive information, such as payroll and tax documents. To give our community the tools to better protect their identity, we launched a two-factor authentication (2FA) service with Duo. 2FA enhances security by requiring a person to verify their identity on two factors – one they know (NetID credentials) and one they have (device enrolled in the service). This project aligned with the state's initiative to require 2FA for authentication into Core-CT, and when we launched the service to the UConn community, we only required it for Core-CT access.

Identity Integrations: If an application owners requests identity information and data owner approves it, ITS works with the application owner to provide the necessary identity data. Central coordination of these integrations ensures that data integrity is maintained and that the university is in a position to leverage any integration for additional use cases. ITS performed integrations for Concur (travel management system), One Card, and PageUp (Human Resources system).