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UNIVERSITY INFORMATION TECHNOLOGY SERVICES

Strategic Plan Annual Review and Progress Report
September 2017

University Information Technology Services (UITS) published our five year strategic plan in 2014, and we annually report on our progress meeting the goals outlined in the plan. The five main goals from this plan remain relevant and guide our delivery of central IT systems, services, and capabilities to key institutional constituencies.

UITS strives to be a good partner with our IT colleagues and the University, and this intention contributed to the development of the five goals. As we have made progress on our goals, our partnerships have evolved and led to improvements that benefit the whole IT ecosystem. The University made substantive investments in infrastructure and high performance computing this year and is entrusting UITS to deliver these key services to the UConn community. We have also engaged in productive partnerships with departments and schools to expand access to resources and to negotiate for products on their behalf. In concert with our colleagues in IT, we also explored the best practical way to deliver IT support services securely, efficiently, and sustainably as we jointly develop the franchise service model.

Below are our five goals and selected initiatives that UITS completed this year.

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.

A dominant consideration for UITS regarding this goal is to allow individuals to make decisions that make sense for themselves. This requires the organization to provide multiple ways to achieve the same end as long as these ways are both sensible and likely expected by the community. This is not the same thing as supporting infinite variety. Allocation of fixed resources invariably requires tradeoffs, but rational choices grounded in the perspective of the community are a touchstone of effective IT management.

- **Private file storage:** UITS expanded the available storage space on personal (P:) drives to 50 GB. Additional quota increases in 50 GB increments for individuals with larger needs are, by practice, granted upon request. The community has competing options available for their diverse storage

needs. These frequently have a number of tradeoffs. UITS wanted to facilitate community storage in a local environment that was both stable and secure. The size increase to the central environment allowed it to be adequate for typical needs and the internal policy change to grant additional increases on request means that the centrally provided service represents a viable option for the overwhelming majority of basic use cases.

- **Centrally-licensed software:** UITS aggressively revisited existing licensing agreements to ensure that the University was fully compliant with all terms and conditions. This entailed negotiating with vendors to expand coverage of users, activities, equipment, and locations. A substantive number of existing licenses were modified or expanded to better meet the evolving needs of the community. Increasing both the population and the various use cases that are properly licensed allows people to make practical software selections that best meet their needs. To improve information dissemination about software availability and delivery mechanisms, UITS substantively revised the UConn Software website: http://software.uconn.edu.

- **UConn AnyWare:** This application virtualization service allows faculty, staff, and students to run university-licensed software remotely from a variety of supported devices. By virtualizing only the software itself and not an entire operating environment, this solution allows UITS to provide for a better customer experience while simultaneously reducing backend resources. The entire institutional software catalog of products generally available at the University was virtualized within the service. Individuals can try out software without any custom installation requirements. Customers can continue to use software within the environment or perform local installations as they see fit. The service was introduced to the community as a pilot offering but was scaled up to full production this year and made generally available.

- **Help Center Online Chat:** The IT Help Center provides direct support to the community. Issues are either addressed directly (tier 1) or formally escalated (tier 2) so that customers can obtain resolution through a predictable support mechanism. To better scale with customer expectations and needs, the Help Center introduced live text-based chat support through the Help Center website. This substantially increases the number of cases that can be worked concurrently and decreases wait times. As a generic go-to mechanism for support, first contact capacity is a key metric of success and maximizing throughput at tier 1 is the best practical approach to addressing the varied, but often relatively straightforward, support needs for the University.

- **Email website:** UITS supports two entirely distinct email/calendar services for the University. One is targeted for students while the other is targeted for faculty and staff. Both include application suites and proprietary sharing mechanisms. For practical reasons, both service offerings will be maintained for the foreseeable future, but migrating between them remains a supported activity. UITS developed and launched a new single service website that combines access and support information across all of our email services. The combined site acts as a common access mechanism. It enhances consistent access for respective customers and facilitates mobility between each of the services.

- **Computer labs in university libraries:** University students often own individual technology. Despite this, they frequently find it beneficial to utilize equipment in centrally maintained labs. UITS recognizes and supports this use case. To better meet student needs, UITS replaced thin client (local

terminal running an image running on a remote server) computers in libraries on the Storrs and regional campuses with 220 powerful stand-alone Macs and PCs. These computers were deployed with current operating systems and a full complement of locally installed software. The performance improvement of this technology is substantial and allows students to effectively run resource intensive applications, such as the Adobe Creative Cloud suite. The majority of students own laptops and while these are effective platforms with maximum portability, they are not direct substitutes for a powerful workstation with a full size monitor when performing complex and demanding tasks. Providing this alternative for students gives them competing options with overlapping but distinct qualities, and this allows them to choose an environment that better matches their individual needs based on their preferences and distinct uses.

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.

- **High Performance Computing (HPC):** UITS assumed full management and oversight of the facility starting July 1. The HPC service on the Storrs campus, which was originally implemented as the Hornet cluster, was first stood up by the School of Engineering as part of the Booth Engineering Center for Advanced Technology (BECAT), where it was well positioned to meet local needs. Usage of the service increased tenfold over six years as these capabilities were increasingly leveraged by the School of Engineering as well as the broader university research community. While it was certainly successful and the activity gratefully received capital resources through the Office of the Provost's academic plan investments, operating revenues were historically assembled ad hoc, and this jeopardized its ability to sustainably meet researchers' needs. The Provost's Office committed permanent operating funds for HPC starting in fiscal year 2018. This funding enables UITS to effectively deliver a reliable, robust, and up-to-date service that is supported by professional staff. It also enhances the institution's ability to leverage its strategic investments in existing computational and storage technologies and positions us for future investments as researcher activities shift to alternate technologies.

- **Classroom technology:** Classroom technology at the University was historically funded ad-hoc, typically with end of year resources. This produced significant variation and unpredictable refresh. Starting in 2014, UITS began introducing technology and implementing it consistently to provide a common, contemporary standard for a predictable, high-quality instructor and student experience. The Academic IT team completed deployment of updated classroom technology in all generally scheduled classrooms. By refining the AV system design and through additional funding from the Provost's Office, the lifecycle plan was executed in five rather than seven years. By the start of the Fall 2017 semester, all classrooms had equipment that was less than five years old, and that timetable will be maintained.

- **Kaltura Lecture Capture (KLC):** Kaltura Lecture Capture is a cloud-based media capture and storage application that integrates into the UConn learning management system, HuskyCT. Academic IT piloted KLC, which serves as an alternative to Mediasite, in the Fall semester. After receiving positive feedback about KLC, UITS added the offering to the UITS service catalog.

- **Cisco Meeting Server (CMS) bridge:** The Academic IT team added the CMS bridge to our existing WebEx video conferencing offering. It supports connections from a room outfitted for video conferencing to remote participants, who may not have specialized equipment. The CMS bridge acts as a conduit to the commonly installed WebRTC and Skype for Business web conferencing technologies, and remote participants can choose to join a meeting with either option.

- **HuskyCT:** UITS integrated UConn Health into our instance of BlackBoard. This project was both academically aligned and consistent with our OneUConn perspective that attempts to leverage existing investments and capabilities in the broadest way practical. By decommissioning an environment that was both duplicative and not version current, we ensured that medical and dental students would have an experience that was consistent with other university students and up to date. Further, by reconciling similar but disparate systems into a single environment, the University can evolve all learning management simultaneously. This decreases the complexity burden that faculty must absorb and lowers barriers for students that might wish to avail themselves of educational opportunities that might span the Farmington/Storrs combined regions.

- **Software offerings:** UITS is responsive to requests for software that our faculty and students need for effective research, teaching, and learning. We negotiate on their behalf for the best overall benefit to the University at the lowest practical cost. Consistent with our perspective that the University operates best when it facilitates independent decision making that also leverages assets and capabilities that already exist, UITS engaged in a contract expansion and reconciliation effort. Our goal was to streamline software purchasing agreements and to better align them with the working needs of our community. UITS negotiated with our provider and expanded software licensing for the statistical analysis software SAS to extend eligibility to all campuses, including UConn Health, and students. Likewise, UITS built a consortium consisting of the School of Business, College of Liberal Arts and Sciences, and the School of Engineering to fund a site license. UITS negotiated with Mathworks to provide the MATLAB suite (base product and a full complement of tool boxes) to faculty, staff, and students on all campuses

GOAL 3

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

- **UITS database hosting service:** UITS historically hosted a limited number of Oracle databases and provided administrator support on a case-by-case basis without actively advertising an official service. After receiving increased requests from our community for both Oracle and Microsoft SQL server support, UITS has made substantive infrastructure investments to better support robust and scalable database services. UITS migrated 16 InfoEd databases for Office of Vice President for Research (OVPR) to the UITS central database servers. This allows a key institutional office to

leverage robust, centrally provided capabilities while focusing on providing support for the university research mission.

- **Digital Signage:** Digital signage is a contemporary approach to disseminating dynamic information to mounted large format displays. Business units at the University have historically employed a number of different technologies. As capabilities evolved and requests for one centrally-managed system increased, UITS pursued a unifying solution that could be easily distributed and effectively maintained. Our new digital signage service enables individual units to manage their signs centrally. It includes templates approved by University Communications and integrates with Office 365, Astra classroom scheduling, Everbridge emergency notifications, and EMS event scheduling.

- **Applications and integrations:** The University has many distinct activities that contribute to its overall mission. These often require support at an application level that might entail the procurement, development, or facilitation of software or application solutions and/or integrations that work in concert with existing institutional investments and practices.

  o Scholastic Standing System: System to manage academic standing (warning, probation, dismissal) and plans for recovery and engagement

  o Waterbury Scholarships: System for applying for and managing scholarship applications at the Waterbury campus

  o Education Abroad Course Search: Automated list of approved courses at foreign institutions that is searchable for students

  o Global Affairs Partnership Database: Workflow system for managing university partners

  o Stamford Orientation Registration: Registration system for orientation at Stamford

  o Graduate School of Business Placement form: Form to capture graduate placement data

  o International student and Scholar Services (ISSS) Online Request form: Request form for international students

  o School of Social Work Non Degree Registration System: System for non-degree registrations at the School of Social Work

  o Visiting Non Degree Application Form: Application form for visiting and non-degree students to apply for non-degree study

  o Army Ant Guest Collection: Research database

  o Business Services Event Management System: System to assist student organizations and business services with management of financials for student events

  o Stamford Tour Reservation: Reservation system for tours at Stamford

  o CCD Personalized Career Plan: Personalized career content

  o Hartford Parking Validation: Verification of UConn faculty/staff/students and their parking permit status for Hartford Convention Center garage

- o HR/Payroll - OBI System/Data Access Request: Application that captures the appropriate access requirements for requesting individuals. Workflow was created to electronically route form to data stewards and other interested parties

- o Sponsored Program Services: Application that captures proposal and grant award documents with necessary security and accessibility features critical to the office's primary business purposes

- o Treasury Services FileNet application: Application that captures and stores financial documents electronically which improved access, security, storage and compliance (records management) requirements

- o Center for Career Development interface: Automated student data interface to populate "Purple Briefcase," software used by the Center for Career Development to help undergraduate and graduate students connect with employers

GOAL 4

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

Access to internal IT tools: UITS is the university's central IT organization and has a responsibility to effectively manage broad IT infrastructure and to operate enterprise IT services in support of the institutional mission. Distributed IT has a complementary role with a typically more narrow scope. To accomplish its own mission, UITS developed or implemented tools to provide best practice capabilities. UITS shared the following capabilities with university IT professionals in support of their respective missions.

- o Jack Trace: provides the building, room, and jack number for wired devices

- o Device Information: used to obtain the machine address, IP address, hostname, and NetID for devices

- o Microsoft Bitlocker Administration and Monitoring (MBAM) self-service portal: allows IT professionals as well as faculty and staff to safely obtain their own recovery key

- o PXE Boot Server: enables fast and efficient operating system deployment

- **Franchise service model:** UITS continued to refine the franchise service model that will enable IT professionals to serve as the front line support for their customers while still having a higher level of structural support from UITS (e.g., software and security updates). Members of the campus IT community participate and provide feedback on this model's development. However, more concretely and working in partnership with institutional partners, organizational changes were made to establish an embedded IT organization that reported to UITS but was collocated with specific business units on the northwest corner of campus. We have continued to work with institutional partners to better coordinate central activities with local outcomes. The InCHIP center reorganized their IT operations and moved all aspects to centrally provided virtual infrastructure. This decreased

their risk profile substantively and allowed them to free resources that could then be applied to center differentiating purposes.

- **OneUConn IT Service Delivery:** UITS has been developing a vision for expanding and enhancing service delivery to all UConn campuses. A key role for UITS is to pursue systems, services, and capabilities that can be best provided centrally and deliver them securely, efficiently, and robustly at scale. This is a goal that we assert in our strategic plan, defines our concept of central IT services, and guides how we will evolve service delivery for our community. Like all areas of the institution, UITS faces increasingly constrained resources and has to make choices about resource allocation. This situation has prompted us to think creatively, collaboratively, and more broadly about how UITS can continue to enact our stated goal for central IT services. We communicate the foundational concepts of our developing strategy in "OneUConn IT Service Delivery Vision," available at itstrategy.uconn.edu

GOAL 5

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

- **Expansion of wireless network service:** Pervasive, fast, and reliable wireless service is both required and expected by the UConn community. Aging infrastructure and historically ad hoc deployment have resulted in an operating wireless deployment in university buildings that is limited to about 50% coverage. This is not adequate to deliver a service that effectively meets institutional needs. The University made sufficient capital resources available for UITS to provide all administrative and academic buildings across all campuses with full wireless coverage. The work will be completed by the end of FY18.

- **Disaster Recovery (DR):** UITS validated the University's ability to restore existing tier 1 services using our own infrastructure at the new remote facility in the State's data center in Groton, CT. DR planning is being expanded to include additional institutional services that are critical systems and applications. Savings associated with decommissioning our previous DR provider were immediately utilized to expand learning management capabilities.

- **Decommissioning legacy technology:** Lifecycle planning, including sunsetting end-of-life and redundant technology, is a component to maintaining and delivering robust and secure services. UITS completed the decommissioning of the institutional mainframe. This required final migration of any remaining functions into new environments, providing alternative access to key historical data for Human Resources and Payroll, replication or replacement of existing functionality, and negotiating final disposition of asset value.

- **Institutional File Storage:** UITS made strategic investments in data storage infrastructure in support of institutional and research activities. These changes include the modernization of all SAN infrastructure components and augmentation of the University's distributed research storage system to increase capacity by 1 PB. Consistent with this approach, we are making back-end improvements to evolve the infrastructure.

- **Identity and Access Management:** IAM is a security and functional discipline that enables the right individuals to access the right resources at the right times for the right reasons. Well executed IAM protects institutional data, secures access to digital resources, and ensures compliance with federal regulations. It must constantly evolve in response to changing requirements and expectations of our institutional partners as well as the availability of new technologies. UITS has formed a dedicated IAM team to maintain the appropriate focus on these activities. They have engaged in long-term planning to establish priorities and future directions for IAM. One result of this effort is the IAM Roadmap, available at iam.uconn.edu/roadmap/.

- **Secure Shell (SSH) Gateway:** An SSH gateway is an encrypted proxy mechanism that is used for external network access, typically to internal Linux/Unix network resources. As an alternative to the university Virtual Private Network (VPN) service, the SSH protocol can establish targeted connections to specific services rather than a blanket tunnel to the University in general. After receiving feedback that a scalable, robust service would be both helpful and preferable to individually managed local gateways, UITS elected to provide a central SSH gateway option. This aligns with our long-term efforts to streamline and simplify security on the university network border.

- **Voice Over Internet Protocol (VOIP):** VOIP was deployed as the primary voice technology at the new Hartford location and select locations where it solved business problems. UITS also migrated its own internal voice technology to VOIP to identify problems and their resolutions before the technology is offered more broadly at the institution. This approach is consistent with how all of UITS's major service changes are migrated. UITS test deploys first with any early adopters and then adjusts the service and migration process to minimize disruption for the broader community.