RICE OF INFORMATION TECHNOLOGY



2016-2017 ANNUAL REPORT

CONTENTS



About OIT IT Executive Committee Departmental IT Leaders IT Council



Research, teaching, learning 8

Teaching with Technology Center for Research Computing Science DMZ Network Students Helping Students



Web Hosting Streamlining Administrative Processes



VoIP (Voice over IP) Communications System Infrastructure Projects



SECURITY.	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	LL

IT Security Awareness and Protection



Plans and Directions ITEC Prioritized Projects

OVERVIEW



The Birth of Consciousness by architect John Outram on the ceiling of Duncan Hall (photo by Juliann Bi)

ABOUT OIT

The Office of Information Technology is the university's central technology provider, supporting research, academic and administrative systems, other core applications, and voice, network, computing infrastructure for the Rice community. OIT is an integral part of Rice committed to supporting the university mission through innovative uses of technology and service excellence.



"These beautiful buildings are its tenement of clay, but the staff and students its brain and heart, determining and regulating the flow of thought and the flow of life in its being: in them its character and intellect..."

From "The Meaning of the New Institution" by Edgar Odell Lovett

IT EXECUTIVE COMMITTEE

The IT Executive Committee (ITEC) provides overall university-wide IT prioritization. The Provost (Marie Lynn Miranda), the Vice President for Finance (Kathy Collins), the Vice President for Administration (Kevin Kirby), the faculty chair of the IT Council (Paul Padley) and the Vice President for IT and CIO (Klara Jelinkova) serve on the ITEC. All major technology expenditures across the university are reviewed by ITEC.



Lovett Hall (photo by Nicholas McMillan)

DEPARTMENTAL IT LEADERS

Elaine Brewer Diane Butler Randy Castiglioni Saira Cooper William Deigaard Mike Dewey (staff) Denis Galvin Robin Meeks Jan Odegard Karen Rubinsky Marc Scarborough John Thomas OIT collaborates closely with staff in departments with responsibility for technology. In 2015, these leaders started to meet monthly to improve coordination, communication, resolve tactical issues, and eliminate duplication of effort. In FY17 the team focused on integrating support functions, improving security practices, and coordinating project delivery across units.

Mike Dewey (Director in OIT) staffs the committee.

IT COUNCIL (Paul Padley - Chair)

ACADEMIC TECHNOLOGIES SUBCOMMITTEE

Scott Rixner, Chair Sid Burrus Diane Butler (staff) Justin Denney Josh Eyler Klara Jelinkova Kathy Matthews Paul Padley Renata Ramos Rafael Salaberry David Tenney Lesa Tran The Academic Technologies Subcommittee of the ITC is chaired by Scott Rixner (Computer Science and Electrical and Computer Engineering). Diane Butler (Associate Vice President in OIT) staffs the committee. In the last year the subcommittee discussed computer teaching labs on campus and recommended the design and technology for the newly renovated Gardiner Symonds Digital Learning Center 2. The subcommittee also began discussions on a strategy for what academic technologies should be included in computer labs and classrooms as well as an innovative teaching space for faculty where new technologies could be tested. Discussions will continue this academic year.

RESEARCH COMPUTING SUBCOMMITTEE

Farès El-Dahdah, Chair

Dominic Boyer Anthony Brandt Cecilia Clementi Keith Cooper Klara Jelinkova Sara Lowman Jan Odegard (staff) Paul Padley George Phillips Farès El-Dahdah (Humanities) chairs the Research Computing Subcommittee of the ITC. Jan Odegard (Associate Vice President in OIT) staffs the committee. In the last year the subcommittee reviewed technology support for research and recommended additional investments in storage to the IT Executive Committee for FY17. It also reviewed needs for supporting computing environments in addition to high performance computing and consulting services with recommendations to be completed next academic year.

ADMINISTRATIVE TECHNOLOGIES SUBCOMMITTEE

Paul Padley, Chair

Elaine Brewer Jana Callan Randy Castiglioni (staff) Brad Fralic Shiva Jaganathan Terry McClintock Rachel Miller David McDonald Edith Reed Wayne Robinson David Tenney Paul Padley (Physics) chairs the Administrative Technologies Subcommittee of the ITC. Randy Castiglioni (Associate Vice President in OIT) staffs the committee. Over the last year the subcommittee established a project portfolio of the prioritized projects, developed a budget proposal based on timelines and estimates for project staffing levels required to complete the project portfolio, and helped secure funding to proceed.

RESEARCH, TEACHING, AND LEARNING



Student workspace (photo by Nicholas McMillan)

TEACHING WITH TECHNOLOGY

Collaborating with faculty to design modern classroom and course tools

Gardiner Symonds Modernization

When the Gardiner Symonds Digital Teaching Center 2 was targeted for renovations, the faculty members of the Academic Technologies Subcommittee of the IT Council were sought out to provide input into the design of this teaching space. The faculty had conversations with their peers to determine what should be the design and technology for the room.

Discussions centered around the need for a larger computer teaching lab on campus as well as a flexible learning space when computers weren't being used. Working with the architects, a 66seat classroom was created that has 33 computers with the ability to hide away the computers if the instruction doesn't require them. Students can also bring their laptops and connect with the technology in the room. The existing layout of the room presented some architectural challenges. Key considerations for faculty were the ability for students to collaborate with each other or work independently, the ability to switch between displaying the instructor's computer or student computers on displays, a smart board for the instructor, and a technologically innovative teaching space.

OIT researched various options for the space. A group of faculty members that previously taught in the space advised on the technology for the room. After summer renovations, the room opened for use in fall 2017.



Updated Gardiner Symonds Teaching Center 2 in Duncan Hall (photo by Hector Piñeda)

Other classroom renovations:

OIT's Learning Environments in collaboration with the Classroom Quality Management Team worked to renovate other classrooms this summer.

- Over 70 classrooms received new touch panels.
- Herzstein Amphitheater lighting and replacement of the technology.
- Duncan Hall McMurtry Auditorium
 new sound system, event production equipment and computer
- Rayzor 119 and 121 combined to create a new 64-seat active learning classroom
- Rayzor 113 podium, new AV equipment and whiteboard
- Duncan 1042 and 1075 screens and white boards
- Keck 102 new chairs
- BRC classrooms new screens
- Over the coming academic year, Registrar-booked classrooms will be receiving locks (for safety reasons) on the doors so they can be locked from the inside.

Canvas: Learning Management System

Following the recommendation of the ITC Academic Technologies Subcommittee, OIT has completed the migration to Canvas, Rice's new learning management system (LMS). For the spring 2017 semester, Canvas was used in over 500 courses that included 5,000 students. Owl-Space will continue to be available for archival access (either directly or by request) and for collaboration project sites (until a new option is announced). OIT's Learning Environments team continues to assist faculty by migrating OWL-Space courses to Canvas and training instructors on how to use Canvas. Workshops are offered throughout the semester in addition to office hours for informal drop-in support.



CENTER FOR RESEARCH COMPUTING

Supporting computation in partnership with the Ken Kennedy Institute for Information Technology

The Center for Research Computing (CRC) within OIT, in partnership with the Ken Kennedy Institute, manages Rice's shared research cyberinfrastructure – high-performance computing (HPC), data storage, networking, visualization, and research facilitation. In addition to operating the campus infrastructure, the CRC also works closely with faculty and users to facilitate access to national computing infrastructure through the NSF-funded Extreme Science and Engineering Discovery Environment (XSEDE) program.

Rice's shared research computing infrastructure is critical to Rice researchers, by attracting additional research funding and serving as a recruiting tool for faculty and students.

RESEARCH CYBERINFRASTRUCTURE Working group

Stephen Bradshaw Cecilia Clementi Erik Engquist Klara Jelinkova Alan Levander Caleb McDaniel Jan Odegard Paul Padley Amina Qutub Tayfun Tezduyar The Research Cyberinfrastructure Working Group is part of the ITC Research Computing Subcommittee. They are tasked with providing advice to the CRC about all aspects of existing shared high-performance and high-throughput computing, storage, and visualization infrastructure.

CRC by the Numbers

- Rice is a Tier 1 HPC institution
- Between 60% and 70% of Rice's research expenditure is enabled by shared research computing facilities (Ken Kennedy Institute estimate)
- Over 170 Principal Investigators (PIs) use CRC on-premise resources
- 75% of resources is funded by federal infrastructure awards facilitated by the Ken Kennedy Institute based on faculty needs and expertise
- 25% of the computing infrastructure is faculty owned compute condos funded by faculty startup funds or smaller faculty infrastructure awards

The CRC launched two new infrastructure services in FY17, new and improved data storage services and research facilitation services.

Data Storage Services

A scalable research data commons was installed in the Primary Data Center. The new data storage infrastructure will enable the CRC to support faculty data storage needs. This storage platform will be an important investment to support increasingly data intensive research. It will serve as a key component of a CRC research storage offering centered around cloud first but with on-campus storage infrastructure supporting use-cases that cannot be supported in cloud today. On-campus storage in combination with cloud storage (Box) will enable CRC to support data storage needs for research across campus satisfying 90% of the user community. Projects that need storage services beyond what is covered by the 90% will be supported through a storage condo offering, allowing groups to buy into the newly procured scalable research data commons.



Expanding Research Computing Windows Support

Daniel Stephens, Technical Architect, joined the CRC as part of a transition to support research projects that increasingly rely on Windows. Having been with Rice for 17 years in systems administration, Daniel is looking forward to new challenges in his role in the CRC. Daniel specializes in complex architectures inclusive of the design of the new storage system, virtualization, and Windows applications. "My goal is to assist the CRC and OIT in the review, design, and implementation of new and existing services to meet the needs of the university."

Research Facilitation Services

To assist more people to better leverage CRC infrastructure services (computing, storage, networking, and visualization) the CRC added staff to serve as research facilitators. Over the next two years, the new service of research facilitation is expected to expand substantially the reach of the CRC into groups and disciplines that previously did not have a need for shared infrastructure but now are being underserved. The goal is to build services and infrastructure with a wider footprint, supporting users and projects across the university that are rapidly outgrowing laptop and desktop computing and data storage needs. To improve support for humanities and social sciences, the CRC partnered with the Humanities Research Center to hire a postdoc that will act as a facilitator.



John Mulligan is new to his role as a CRC Research Computing Facilitator and Digital Scholarship Postdoctoral Fellow, but joined the Humanities Research Center two years ago as a lecturer in the public humanities. "I see my CRC job description to communicate to OIT the needs of non-STEM scholars and to help those scholars to discover the opportunities available in new computing technologies. From storage of archival materials to analysis of text, images, and other media, to custom or public-facing web apps that accelerate scholarly production and bring that scholarship beyond the hedges, there is enormous untapped potential in collaborations between OIT and the humanities/social sciences."



Research Computing Facilitator **Clinton Heider** brings 20 years of experience in user support and systems administration to the CRC, including 12 years in departmental support at Rice. According to Heider, his goal is "to help the Rice research community make the most of the computing resources available to them through outreach, documentation, training, and direct assistance."

SCIENCE DMZ NETWORK

Facilitating high-throughput science traffic

The Science DMZ network is a highspeed network dedicated purely to research activities. "Science DMZ" is a name of a network concept coined by the Energy Sciences Network (ESnet), a national Department of Energy facility. The term describes a network or portion of a network designed for high-throughput science traffic. Faculty members whose data transfer needs are not met by the campus network are encouraged to contact OIT's Center for Research Computing for consultation.

The Science DMZ network consists of a bypass to the Rice border router with a 100 gigabits-per-second (Gbps) uplink to the national research and education networks. The traffic can bypass Rice firewall protection to speed up high throughput transfers that can be constricted or slowed down by the firewall. To protect the university network, a new experimental technology called the BRO cluster is being deployed. This technology can secure specialized science traffic. Specialized data transfer nodes can be used to transfer data quickly between external resources and the university's Primary Data Center that houses centralized HPC resources. This connection is at 100 Gbps. The traffic can also be moved to other parts of the university dependent on limitations of the building connections.

These powerful transfer rates provide the capability to transmit large data sets to peers at other Science DMZ laboratories and universities. Due to the fact that it eliminates latency points in the network, researchers are able to transmit large amounts of data and compute over it using campus HPC resources. The Science DMZ will directly benefit a range of NSF-funded projects engaged in data-intensive science, providing critical support for data intensive experimental needs. The Science DMZ was funded in part by the National Science Foundation (award number 1659348).



STUDENTS HELPING STUDENTS

OIT student employees serve their fellow students by teaching while answering questions

Each of Rice's 11 colleges has a unique culture and self-governing structure; OIT strives to respect their independence with a student outreach program that works within each college's system. A resident student in each college serves as their college's OIT Ambassador for the academic year.

OIT Ambassadors are critical at the beginning of the fall semester to introduce new students to OIT services and to spread the word on attending a fall study break that provides technical tips. Due to reports from ambassadors, OIT has addressed disruptive wifi issues, installed requested software on college lab computers, and investigated printer issues. Ambassadors have facilitated getting students to like the OIT Facebook page, gathering feedback on issues, and answering many questions. Occasionally, ambassadors are techies and also work for OIT's Help Desk as Student Computing Consultants (SCC). This dual role has double benefits as Vinay Raghavan explains, "At the OIT Help Desk, we help students with a range of issues, from failing hard drives to forgotten NetID passwords. Even though we are trained to fix these issues, one of the most important parts of our job is to help students understand these issues. By educating students on the reasons for their problems, rather than just fixing them, we help students become more effective users of technology and therefore, more effective students.

My role as an OIT Ambassador is to be a resource to the students of my college and to be a liaison between OIT and my college. If any students have IT-related issues, I am the go-to guy to either help them out or make sure they know where to get help. They also know to report important IT issues to me, such as receiving a suspicious email, so I can inform OIT and make sure everyone stays protected. On the other hand, I also serve as the link for OIT to inform students of important problems or changes. In the case of phishing emails or localized outages, OIT contacts me so the students have a friendly face to inform them about any significant issues."



Vinay Raghavan, Duncan College



Vi Nguyen, Lovett College

Vi Nguyen is Lovett College's go-to techie. "The work I do at the Help Desk is pretty varied, which makes it fun, since you never know what the next problem you have to solve is! As an OIT Ambassador, I act as a liaison between Lovett College and OIT. Essentially, I act as a familiar face for people to contact when they have issues with technology - from computers breaking to the wi-fi being down. Additionally, I communicate important announcements from OIT to Lovetteers." Serving as the OIT Ambassador for Sid Richardson College and a SCC, **Edi Danalache** explains his roles:

"At the OIT Help Desk we provide in-person technical support and assistance to Rice students, staff, and faculty for issues ranging from email and NetID access to WiFi connectivity and issues with students' personal devices (laptops, phones). As OIT Ambassador I communicate Rice OIT news and updates with my college and help students with small personal tech issues or problems with the Rice tech infrastructure

(printers, network, etc.) or direct them to the Help Desk if I can't fix the issue myself or it requires more time-intensive work (i.e. hardware repair, backups, virus scans). Having a direct representative from the OIT that students know, trust, and can easily approach with their tech issues is great for my college. There have been numerous times, especially last semester, when a phishing scam or other hacking/impersonation attempt had been circulated throughout the student body, and in my capacity as OIT Ambassador I both



Edi Danalache, Sid Richardson College

reached out to my college to pass on official OIT announcements and shared reports of security threats that I received from students to the OIT Help Desk and the Rice IT security team. Working at the OIT Help Desk has also helped me be a better OIT Ambassador, as I can better direct students to the proper resources when they need help as well as help them with small hardware issues, network connectivity issues, and Rice-supplied software services (Microsoft Office 365, MatLab, Philo, etc.)."

ENABLING BUSINESS PARTNERS



Owl Spirit (photo by Nicholas McMillan)

WEB HOSTING

A partnership with Public Affairs provides tools and templates for consistency across Rice web sites

OIT's Web and Student Systems and Public Affair's Web Development and Design teamed up in the spring of 2015 to launch a new model for creating Rice websites. The strategy leverages the use of a leading commercial cloud hosting service by Acquia Corporation using the Drupal content managing system. The model uses a set of templates that greatly simplifies the creation of sites. The templates are predefined but allow for flexibility in arranging content. They also comply with Rice brand standards.

The Public Affairs team provides the design themes and creates the templates, the OIT team provides engineering support, Drupal expertise, and template training. OIT also develops software modules and integration with other Rice systems for automated content such as event calendars. Once the shell of the site is completed, including navigation and integration points, the site owner provides the content. There is no charge to Rice departments for the creation of a template-based site or ongoing hosting costs within the framework. Weekly Drupal training sessions are held for the campus web community to become familiar with the templates techniques for adding and maintaining content.

This year, the web sites for the School of Engineering, School of Humanities and School of Social Sciences were migrated to Drupal publishing platform along with other campus departments. Specialized sites included Vision for the Second Century, Part II and the Rice Leading Innovation through Faculty Thought.

Also, OIT worked with the **Doerr Institute** on a special project to create a text response application designed to pair students interested in the leadership program with potential leadership coaches.



STREAMLINING ADMINISTRATIVE PROCESSES

Improving campus systems and workflow

Rice Parent's Facebook Group

Parents of Rice students approached the university with an idea to create a dedicated Facebook group for parents. OIT worked with the Dean of Undergraduates Office, Development and Alumni Relations and Public Affairs to establish a Facebook group for Rice parents run by Rice parents.

PTO Application in Esther

In collaboration with Human Resources, OIT developed a new Paid Time Off (PTO) web application in Esther. With a calendar-based interface, the new PTO web application allows exempt employees to easily track and report their PTO on a monthly basis. The monthly PTO data is then immediately available to the Controller's Office for the monthly accounting liability data. The new PTO web application went live in August 2016 and the campus-wide rollout was completed in March 2017.

Academic Visitor System

In collaboration with the Office of the Vice Provost for Academic Affairs, OIT implemented phase 3 of Academic Visitors. New visitors are entered in a visitor portal as service providers or through Esther as academic visitors, and then routed through the appropriate approval process, which is interfaced to the appropriate campus services resource providers.

AP Director/eInvoice Integration

OIT and the Payment Solutions Office collaborated to implement the AP Director/eInvoice in Rice Marketplace (RMP) and integrate it with the central financial system. The module enables suppliers to send invoices directly and electronically to RMP, and for invoice data to be automatically synced to Banner. The AP Director/eInvoice went live in June 2017 replacing paper invoicing.

Grant Projections Reporting

OIT collaborated with PIs (Principal Investigators) and their research administrative staff from multiple divisions on the development of the Grant Projection Report. The report has been developed to provide PIs a monthly financial status regarding their sponsored projects. The report is based on past and projected future expenditures. It is designed to assist the PI and their administrative staff in planning the expenditure activity on their awards. Custom reports are also available. After month end close, a single file combining individual PI R-fund reports is distributed via email to PIs. In addition, a link to download an Excel report is now available via Box; the spreadsheet contains formulas so administrators and/or the PIs can enter their own "what ifs" for a more in-depth report.

INFRASTRUCTURE



Mirror by artist Jaume Plensa (photo by Juliann Bi)

VOIP (VOICE OVER IP) COMMUNICATIONS SYSTEM

Deploying a robust communications and collaboration system

In December 2016, the Rice Board of Trustees approved replacing the existing campus telephone system (17 years old and nearing end of support status) with a Cisco VoIP (Voice over Internet Protocol) Unified Communications telephony system. VoIP technology will improve the existing telephony architecture, redundancy, and resiliency. It also provides an opportunity to significantly enhance the client's telephony experience by providing extremely robust feature enhancements.

The Cisco VoIP system (core system, applications and initial 500 sets) was purchased with hardware and software in early July 2017. The OIT department was migrated first to the VoIP platform in August as a pilot. The first 'non-OIT' building to migrate to VoIP will be the new Cambridge Office Building. After these two initial deployments, additional handset purchases will occur throughout the on-going migration process of the entire campus, on a building by building basis (approximately 6,000 handsets total). It is anticipated the entire campus migration to the Cisco VoIP system will be completed by December 31, 2018.

VoIP allows for changes in billing. Telephone billing is being moved to a single annual departmental charge. Long distance charges are no longer being assessed.



New office telephone handsets

Infrastructure Projects

VM Infrastructure

The university's virtual infrastructure facility was replaced to provide a more robust service level to the campus and appropriate growth opportunities as virtual computing requirements increase.

New Shared Storage

Aging campus storage systems were replaced this year including storage. rice.edu (individual and department shared storage), Crate (storage space for researchers), Archive (longterm retention of completed work), and RNAS (solution purchased by departments for archival storage, not research related). The new, under warranty equipment helps safeguard these collections of Rice data.

SECURITY



Rice undergraduate (photo by Nicholas McMillan)

IT SECURITY AWARENESS AND PROTECTION

Protecting Rice data and resources

Information Security Training

The Information Technology Security Office provided security awareness training to all faculty and staff on campus. The training, developed by SANS Institute, is a video-based system that takes approximately 30 minutes to complete. It covers topics like email security, encryption, privacy, and mobile devices.

Improved Appropriate Use of Information Technology Policy

The Rice Appropriate Use of Information Technology Policy (832) was completely updated to address the current risks related to the protection of data, the increasing trend of faculty and staff using their own devices for university business, and removed legacy risks that are no longer relevant to the campus. Specific guidance on how best to protect resources is linked in an easy-to-update document.

Proofpoint: Campus Protection System

Email continues to be a vital means of communication on campus. Unfortunately, email is also used to introduce and propagate malware, viruses, phishing, and ransomware. It has become increasingly and alarmingly difficult to recognize these targeted attacks. Many of these email attacks are extremely convincing in appearing to be legitimate email. Unrecognized, significant damage can be inflicted, both to the person targeted and to the organization. As a result of these increasing threats and the actual and potential damages resulting from such attacks, OIT started a proof of concept in early 2017 of Proofpoint's email protection and targeted attack protection service offerings. The Proofpoint trials were extremely effective and over the summer OIT moved Proofpoint to production. In addition to security enhancements, Proofpoint also provides enhanced SPAM filtering. Clients can selectively choose to whitelist or blacklist email senders and can treat unwanted email senders the same as SPAM senders.

Between July 24 and August 23, the system identified and quarantined over 725,000 spam messages, 24,000 phishing messages, and 3,500 messages with malware attachments. This represents significant improvement over our previous system.

A LOOK TO THE FUTURE



Reflection (photo by Nicholas McMillan)

PLANS AND DIRECTIONS

Goals for fulfilling the university's future IT needs

OwlConnect: New Advancement System

In September 2016, an initiative was launched to develop a comprehensive advancement system that will meet the needs of Development and Alumni Relations as well as its partners in all departments across campus. The end product, OwlConnect, will provide a platform to more effectively engage alumni, corporations, foundations, families, and friends of Rice University. The solution will:

- Maximize coordinated opportunities for Rice constituents to make a difference through their engagement and philanthropy
- Capture data and information on all constituents and their activities, including giving, volunteering, and most touch points with Rice
- Reflect Rice's core values of responsibility, integrity, community and excellence
- Facilitate strategic planning through powerful reporting capabilities

Throughout 2017, the OwlConnect solution is being designed and built using the Blackbaud CRM product, with go-live planned for spring 2018. When delivered, OwlConnect will replace three existing advancement systems: Millennium, Flatbridge (Jones School), and Salesforce (Baker Institute). The new integrated solution will interface with other campus applications, such as Banner, and deploy a new web front-end for online communications, event registration, giving, and marketing. Sponsors of this project include Development and Alumni Relations, Office of the Provost, and OIT.



Administrative Systems

The Rice Board of Trustees approved in their May board meeting the allocation of two million dollars for a portfolio of administrative improvement projects spanning the areas of human resources, finance, research, and student administration processes and systems. The projects involve digitizing records, creating electronic workflows and signatures, as well as adding new capabilities and systems. In the area of student administration, the portfolio includes projects for digitizing paper records in the Dean of Undergraduates Office and a new system for graduate admissions. In the financial systems area, there is a project to improve the university's budgeting and planning system and migrate it to the cloud. The Hyperion system will be redesigned and enhanced with new functionality and ultimately moved to the Oracle Cloud.

A new HR Benefits Management system is planned utilizing specialized third party software that will be connected to the university's ERP system (Banner) as well as Rice's health insurance carriers. It will also provide employees with a self-service portal for selecting and enrolling in benefits. HR administration will also be improved with the introduction of electronic forms for routing and approval and the digitization of faculty human resource records.

Additional projects are a portal to support research that provides Principal Investigators with a single point of entry into the information relevant to them, software that will enable the creation of electronic documents, workflow, and signatures, and a review of the security and data access rules in the Banner system using a role-based approach.



ITEC PRIORITIZED PROJECTS

The following projects have been prioritized by the Rice IT Executive Committee (ITEC) for FY18

- In partnership with the Office of Graduate and Postdoctoral Studies: implement a new Graduate Admissions Application.
- In partnership with Finance: will upgrade and provide enhancements to the Hyperion Budgeting Application.
- In partnership with Human Resources: implement a new Benefits Management System.
- In collaboration with institutional business partners: implement a third party solution for electronic signature of documents.
- Hardware upgrades to university wide systems including: Banner, CLE@R, VM infrastructure, CBORD access control system, OnBase imaging server amongst others.

Emerging Needs

OIT will continue to work with the Office of Strategic Initiatives and Digital Education, Glasscock School of Continuing Studies, Jones Graduate School of Business, and other partners to improve systematic technology support for non-degree seeking students including students who complete most of their work online.



From left to right, clockwise: Hanszen College (photo by Nicholas McMillan), Study Break (photo by Nicholas McMillan), Sunset at Brockman Hall (photo by Juliann Bi), Graduation 2017 (courtesy of Rice Public Affairs)