Vision

Consider five guiding principles that we can use to think about how we create value for Luther College. These principles can help us think about the resources and skills for which we provide thoughtful stewardship. They can help us with investment decision making as well as with thinking about processes and projects and the services that ultimately are provided. They can inform decision making as we work through design and implementation.

1) Improves Teaching and Learning Outcomes for Faculty and Students

This is our wheelhouse. With each discussion of a new service, process improvement, or a new project we need to think about how it enables and supports improved teaching and learning for faculty and students. Our success is a reflection of the successful transformational journeys our students experience at Luther College. One indicator is when we contribute to student retention, improved graduation rates and students transition to their first “next step” after they graduate. We do this when we collaborate with the our LMS vendor (eThink) and the library team to provide reliable and well performing Learning Management System services (KATIE). We do this when we collaborate with groups leveraging services within our facilities such as the Digital Media Center. We do this when we provide the best and most affordable classroom technology stacks. We do this when we facilitate the creation and nurturing of learning communities. We do this when we provide teaching and learning experiences for faculty and students around skills they need for other classroom work. We do this when we contribute to student life-skill building. A special focus for this year concerns managing the cost of workstations through “supercharging” existing devices with SSDs and additional memory and providing a more secure and flexible workstation environment.

2) Provides Differentiation for Prospective Students and Parents

Parents and students have a growing set of higher education choices. Parents have extraordinary concern about jobs and next steps after Luther (e.g. graduate school acceptance) and this is exacerbated by concerns regarding anticipated debt service. Changing demographics in prospective student populations will also influence decision making on services and investments. It is essential that the experience we offer is differentiated and valued by parents and students to the degree they will choose to come to Luther College. Within ITS we need to evaluate each new service, process improvement, or new project with an eye towards how it increases the likelihood that students and parents will select Luther College when our stories are told by Admissions, other students, faculty and also directly by us. This happens when our services are seen as mitigating/addressing the concerns of prospective students and their parents. We do this when we meet and exceed expectations in service levels in essential services compared with their alternatives. We do this when we show that ITS provides and enables the development of “know how” that transcends “know about”. We do this when we share stories of how learning we have facilitated has had a positive impact on graduates’ successes. A focus this year is on successfully navigating a quantum increase in Internet bandwidth to the campus and a complementary increase in access and speed for wireless services as we move to a new common wireless controller infrastructure. Students need not worry
that Luther College can provide them the Internet they need.

3) Improves Prospect of Differentiation for Graduates on Their Next Steps (service, job, vocation, graduate school, etc.)

There continues to be a heightened level of concern about students’ success in achieving their next step. For many that means getting a job. For others it means getting into a service program. For others it means getting into graduate school. When we think about what will help make our graduates differentiated and successful in achieving their desired next step we are serving a key interest of theirs (and their parents). We do this directly as we develop our work study students and provide them with “resume worthy” skills. We do this when we have facilitated teaching and learning that leads to additional resume entries or achieving essential skills and experiences that make a difference in their pursuit of “next steps.” An anchor value for our students is captured in the phrase “lifelong learning.” The environment we live in and the rate of change has led some researchers to say one of the most important things we can do is teach our students to learn to learn. This heightened level of metacognition happens when students learn new skills.

4) Improves Relationships to Alumni/ae, Friends of the College

Our alumni/ae (alums) and other friends of Luther College have distinguished themselves by their high level of affection for Luther College. We can build on this by working to create a reinforcing positive growth cycle providing opportunities for them to continue their learning by our interactions and by leveraging their skills and experiences and their desire to manifest their affections through their stewardship of their time and talent. The power of communication and information technologies has broken historic barriers associated with time and distance. Our physical location need not inhibit collaborations that are of mutual benefit. Collaboration technologies can be leveraged to transcend distance. This happens when we support streaming of interesting events that enable a level of participation beyond the campus. We do this when we curate communities of interest around topics of substance that include graduates and other friends. We do this when we provide infrastructure to connect current students with alums and other friends of the college with a compliant, isolated network for Phonathon and secure payment process. Extraordinary examples of this are the streaming infrastructure support for Luther College’s “Giving Day” and the streaming/recording support for graduation. We do this when we enable others to contribute to the mission in ways that leverage their gifts.

We have an opportunity to become more intentional about facilitating what could become much more symbiotic relationships that enhance teaching and learning, enhance relationships and connections of value to students and alums and enable our alums to contribute to the success of our students both on and off-campus and both during their time at Luther College and after their graduation. Our students would benefit from these interactions, our alums’ richer connections will lead to further encouragement for prospective students of which they are aware and provide further connections that lead to opportunities for our graduates. An example of this is staffing of our multimedia specialist position with a Multimedia Strategic Fellow (recent graduate).

5) Provide Effective and Efficient Information Technology Infrastructure for Luther College

We are charged with providing essential information technology infrastructure on which we can support and enable the processes of delivering higher education at Luther College. Our systems mediate much of what we do at Luther College. Leveraging systems also leads to dependencies and dependencies require a focus on IT related risks including security, availability, and performance. New and alternative architectures in networks and systems and services provide us choices and also complicate decision making leading to our need to make investments in skill building, experimentation
and analysis. Over time these changes will suggest the need to revisit how we organize. This guideline captures an essential and resource intensive role ITS performs and a set of technology related services ITS provides and supports. A focus is working on Emergency Planning and augmenting that with Disaster Recovery focus. An example is completing a tunneled connection to Winneshiek Medical Center where we can house our backup appliance to provide physical isolation from our on campus data center. We will continue to invest in our Internet service bandwidth, wireless network as well as the wired infrastructure on campus and into the Decorah Metronet which provides us access to Internet. Relentless and increasingly sophisticated “phishing” schemes have led us to implement for two-factor authentication. We need to continue to leverage this approach for other key applications and services.

Paul Mattson
Executive Director of Information Technology Services
Our Mission

Information Technology Services supports the work and mission of the Luther College community by providing:

- **access** to appropriate communication and information resources,
- **expertise and training** in the effective and efficient use of information and technology, and
- **places** to explore and express ideas, ourselves, and our community.

Results and Accomplishments for Goals and Objectives for 2016-17

1. Improves teaching and learning outcomes for faculty and students

   Pilot using Mac Minis as podium computers in place of iMacs.

   **Accomplished:** Installed Mac Mini podiums in Library 120, Koren 121, and CFA 119 during Summer 2016.

   **Going Forward:** The Mac Minis performed very well and we heard positive feedback. We ran into few problems (typically peripherals such as keyboards or mice). The pilot will likely not be expanded though due to being able to replace podiums with Windows PCs of equal or greater power at a cheaper cost.

   Install, support, and provide training for the Adobe Creative Cloud campus-wide.

   **Accomplished:** We have learned a lot in the Digital Media Center Lab space as far as the resources needed (file management, hardware requirements and default settings).

   **Going Forward:** We are planning to continue to develop a default bin of settings that make sense for our deployment and makes it easy for users to use the software.

   Pilot remote lecture capture in classrooms.

   **Accomplished:** The feedback we received was largely positive however as it exists now, we cannot ensure that media can be delivered by the time the classes need it to be. Moving forward we would like to pilot a revamped workflow, geared more toward a self service option. With this new system, as soon as the recording ends the media is available to the individuals via USB drives or automated network drop folders.

   **Going Forward:** Automating the process would be ideal. We are exploring various options that may allow us to roll out a reliable and easy to use system. The final form is yet to be determined, be it an in house solution, or one of the many commercial products that have Moodle (KATIE) integration.

   Evaluate and implement solid state drives (SSDs) to improve performance and extend the life of existing hardware for labs, classrooms, podiums, and faculty/staff workstations.

   **Accomplished:** After feedback from test users that had SSDs and RAM installed, User Services was so impressed that this became the preferred method for the staff refresh of winter 2016-17. All podiums and upgraded labs were updated to SSDs as well.

   **Going Forward:** These components will be used for the faculty refresh and lab upgrades in compatible workstation models for the summer of 2017. This method will continue to be used as long as benefits are shown.
Transition Moodle environment to eThink Education.

**Accomplished:** In May of 2016, the KATIE Support Team worked to transition our self-hosted Moodle environment to a fully-hosted software-as-a-service with eThink Education. Network and Systems worked to set up authentication and secured network traffic, Software Development worked with the vendor to integrate Moodle and Colleague, and User Services adjusted tier 1 support procedures. Members of the KATIE Support Team did extensive planning, decision-making, testing and troubleshooting, as well as communicating with campus constituents, especially faculty. Holly and Marcia led the project. We successfully completed the transition to SaaS in 6 weeks.

**Going Forward:** The KATIE Support Team will continue to provide tier 1 support to Luther College, while all other support needs will be escalated to eThink. Holly and Erin Zidlicky are the primary eThink contacts, with the other members of KST as backup.

Explorance Blue course evaluations.

**Accomplished:** In Fall 2016, the Dean’s Office, Holly White, and ITS worked to transition our course evaluation process from using Moodle to using Explorance Blue software on a Luther hosted server. Explorance Blue is specifically designed for course evaluations and provides enhanced communication, reminders, reporting capabilities, and a progress dashboard for Jeff in the Dean’s Office. Chris Stuckman worked to setup authentication with ADFS allowing single sign on for Blue users. Nate Porath created the student, instructor, and course information data interface with Colleague. ITS worked with the Explorance consultant to facilitate planning, configuration, testing, and troubleshooting throughout the implementation. Course evaluations for Fall, January Term, and Spring terms have successfully been administered and completed using the Explorance Blue system.

**Going Forward:** The Technology Help Desk is reworking Student Workers’ roles to take more responsibility for our day to day work and more agency in quality improvement. Student Managers will lead this effort. The Technology Help Desk is also making hardware skills common training, rather than something reserved for a few specialized students.

Leverage classroom technology inventory and classroom technology budgeted funds to improve classroom technology.

**Accomplished:** Parts of existing rooms were incorporated into the renovation of those rooms with emphasis on reducing inventory and reducing costs (e.g. Koren 216, Koren 217, Koren 218, Ockham 102, Olin 112).

**Going Forward:** Continue to utilize classroom technology resources efficiently in the redesign and upgrade of spaces on campus.

2. Provides differentiation for prospective students and parents

Colleague self service for Human Resources and Student Finance.

**Accomplished:** Colleague Self Service is installed in a test environment and the HR staff was set up with access. They are testing the time entry forms that have been delivered by Ellucian. Ellucian is expected to continue development of features that Luther uses, but the features may not be delivered until late 2017 or early 2018. Student Finance provides a simplified presentation of the student’s statement of account and financial information.

**Going Forward:** Continue testing as enhancements are delivered by Ellucian.

**Continue hiring, training, and developing professionalism of students through the work study program.**

**Accomplished:** During the academic year ITS employed over 40 student workers. For a general breakdown, during the spring semester numbers were as follows: 19 in Multimedia, 1 in Network and Systems, 22 at the Technology Help Desk, and 1 in Workstation Support.

**Going Forward:** The Technology Help Desk plans to implement a meeting schedule for Student Technicians and adopt the Career Center’s Mid-semester Work Study review with all Student Technicians.

Colleague Student Planning provides a simplified design and interface for students to register for classes, make a four year plan with their advisors, and facilitates communication and notes between student and advisor.

**Accomplished:** Colleague Student Planning has been installed in a test environment and Registrar’s office has access to self service menus and configuration documentation.

**Going Forward:** Registrar’s office will work with ITS, Ellucian consultants, and faculty to set up and configure Student Planning for student use.
Colleague Financial Aid Self Service provides a simplified design and interface for students to apply for financial aid, accept financial aid, and facilitates communication with the student and financial aid counsellors.

**Accomplished:** Colleague Financial Aid Self Service has been installed in a test environment and ITS is working on setting up access to Self Service menus. Financial Aid has the Ellucian documentation for configuration and setup.

**Going Forward:** Financial Aid office will work with ITS and Ellucian consultants to set up and configure Financial Aid Self Service for student use.

### 3. Improves prospect of differentiation for graduates on their next steps (service, jobs, vocations, graduate school, etc.)

Support Digication ePortfolio solution for pilot project in Fall 2017.

**Accomplished:** ITS assisted with ePortfolio solution research, evaluation, security assessment, authentication, and interface considerations.

**Going Forward:** The Dean’s office and Registrar will solicit feedback from faculty volunteering to use Digication in the fall to make a decision on continued use for students, instructors, and advisors.

### 4. Improves relationships to alumni/ae, friends of the college

Provide networking to Soccer, Softball, and Baseball fields. **Accomplished:** For the first time, Luther Soccer, Baseball, and Softball fields will have the ability to stream events via a fiber optics backbone. Each venue was provided 4-5 data ports in their respective press boxes for video streaming as well as visiting radio announcement. Also, for baseball and softball, dugout to press box phones were installed.

### 5. Infrastructure

**Document Imaging for student records and financial services.**

**Accomplished:** The Registrar’s office participated in a discovery call with Lexmark/Kofax consultants and gathered a list of documents, identifying the forms that should be available online and those that include workflow routing for persons to review and process.

**Going Forward:** Work will resume in July when the new associate Registrar has been acclimated to the office and the Registrar’s staff has capacity to work on the project. Financial Services is creating an inventory of documents, forms, and workflow desired in their solution.

**Web Time Entry for all regular non-exempt employees.**

**Accomplished:** Colleague Self Service for Human Resources is installed in the test environment and the HR staff is testing the student work processing.

**Going Forward:** Test Colleague Self Service time entry and overtime as enhancements are delivered by Ellucian.
Self-service for exempt staff leave reporting through my.luther.

**Accomplished:** Ellucian is expected to deliver this functionality in Colleague Self Service by January 2018. This feature is on the Ellucian Self Service roadmap for Q1 2018.

**Going Forward:** Test Colleague Self Service leave reporting as enhancements are delivered by Ellucian.

Move my.luther.edu to VM and recycle current physical server.

**Accomplished:** ITS teams met and decided to keep WebAdvisor on a physical server and eventually move more services to Virtual Machines over time.

**Going Forward:** Plans are to repurpose the GoPrint server for my.luther/WebAdvisor.

**Human Resources Affordable Care Act reporting.**

**Accomplished:** Colleague setup and reporting to meet the requirements are in place. 1095-C forms were printed for employees.

**Going Forward:** Colleague Self Service will provide 1095-C forms online. Enhancements will be installed and tested as Ellucian delivers them.

**Enhancements to Google calendar for facilities scheduling.**

**Accomplished:** Work is in place for facilities scheduling to work around the deprecated Google API. The code base has been reviewed and refactored. All uses of the deprecated Google API are updated.

**Going Forward:** Work continues to complete the project including documentation, improved logging capabilities, streamlining regular tasks such as final scheduling, and restoring permissions management.

**Enhancements to server monitoring through utilization of Spotlight.**

**Accomplished:** Spotlight was used to monitor the database system load during student registration this spring and comparative graphs provided information in support of doing student registration during the business day during normal Colleague use.

**Going Forward:** We plan to use Spotlight to monitor Colleague Self Service database system load on the production installation to advise server requirements.

**Migrate remaining faculty, staff, and student worker workstations to authenticate using Active Directory.**

**Accomplished:** Phase I of the project to migrate faculty, staff, and student worker workstations to authenticate using Active Directory is complete. Windows faculty, staff, and student workstations are now authenticating, with the exception of a few generic accounts still in place.

**Going Forward:** Phase II of the project includes implementing Enterprise Connect from Apple to authenticate Mac faculty, staff, and student worker workstations using Active Directory. It also includes a few generic accounts yet to be converted to unique accounts.

**Research and select a viable solution for backing up data stored locally on faculty/staff workstations.**

**Accomplished:** A trial installation of Code42 Crashplan came to an end, and while it may have been a good solution for local backup, not enough time or effort was given to truly test this.

**Going Forward:** Data backup is still a good goal, but other projects have taken priority for now.

**Identify personally identifying information that should not be stored locally on faculty/staff workstations and determine alternative workflows/locations for that data.**

**Accomplished:** During Spring 2017, we completed a Proof of Concept for Sensitive Data Manager from Spirion (formerly
Identity Finder). We proved that we could successfully scan Windows and Mac workstations, admin1 and academic file servers, and Google Drive/Mail.

**Going Forward:** June 2017, we purchased Sensitive Data Manager and will begin implementation.

**Implement PaperCut for students, faculty, and staff.**

**Accomplished:** Fully transitioned to PaperCut from GoPrint, including students, faculty, staff, emeriti, student organizations, student workers, and special cases.

**Going Forward:** New phase to transition Luther computers to SMB printing, possibly enable workstation client.

**Determine standards for use of the KBOX help desk module across departments (e.g. ITS, Document Center, Web Content) and within ITS. Formalize, identify best practices, and document.**

**Accomplished:** Project team formed and specific plan proposed.

**Going Forward:** Pending review for scope, method, and priority.

**Enhance wireless in Larsen to accommodate increasing density of wireless devices.**

**Accomplished:** New Aruba access points were installed in every other residence hall room during summer 2016. This upgrades the wireless service in the building to 802.11AC Wave 1.

**Going Forward:** Implementation complete, but continue to monitor the wireless network and look for opportunities to improve it.

**Enhance wireless in Farwell to accommodate increasing density of wireless devices.**

**Accomplished:** New Aruba access points were installed in every other residence hall room during summer 2016. This upgrades the wireless service in the building to 802.11AC Wave 1.

**Going Forward:** Implementation complete, but continue to monitor the wireless network and look for opportunities to improve it.

**Enhance wireless in Baker Village to accommodate increasing density of wireless devices.**

**Accomplished:** Aruba access points were installed in every apartment during summer 2016. Wireless service continues to be dual band 802.11N, but the additional access points improves performance and coverage.

**Going Forward:** Implementation complete, but continue to monitor the wireless network and look for opportunities to improve it.

**Improve the wired and wireless network in Jenson-Noble by rewiring the Music Office and faculty offices on second floor.**

**Accomplished:** New wiring was completed for the faculty offices on second floor, and additional wireless access points were installed in those areas as well. Work was done to pull wire for use in the music office in preparation of switching them to new wiring. This work will be finished in summer 2017.

**Going Forward:** Finish the installation of new wiring and wireless access points in the music office on second floor.

**Continue to monitor our Internet usage and maintain our available Internet bandwidth at a level that’s twice our peak usage so that if one of our Internet connections temporarily goes down we can continue to meet demand using the remaining connection.**

**Accomplished:** We started the school year with 2 1Gig Internet connections shared with our partners in the Decorah Metronet. Our peak usage was beginning higher than 1Gig. When our contract for 1 of the Internet connections ended in April, it was replaced with a 2Gig connection on a 10Gig circuit. Our second Internet connection will be replaced with a 10Gig connection when that contract ends in June. This will bring our total Internet connectivity to 12Gig.

**Increase the fault tolerance of our network by having redundant connectivity between buildings.**

**Accomplished:** In August 2016 a 10 Gig link between Brandt and Preus Library and a 20 Gig link between CFL and Sampson/Valders were added. In December 2016, a new 24 fiber cable was installed between Main and Preus Library. In May 2017, a 24 fiber cable was installed between Brunsdale Lounge and Ylvisaker, Brunsdale Lounge and the CFL, and between Ylvisaker and the CFL.

**Increase the speed of the network links between buildings.**

**Accomplished:** In August 2016 a 10 Gig link between Brandt and Preus Library, a 20 Gig link between the CFL and Sampson/Valders were added and the link between Olson and the rest of campus was increased from 1 Gig to 4 Gig. In September 2016, the link between Regents Center and the rest of campus was increased from 2 Gig to 4 Gig. In December 2016, the link between Main and Sampson/Valders was increased...
from 10 Gig to 20 Gig.

Upgrade 10/100Meg ethernet ports to 10/100/1000Meg ethernet ports.

Accomplished: All wired ports in Farwell (July), Larsen (August), and Olson (March) were upgraded to 10/100/1000 meg ports.

Improve wireless coverage in the Legends Center.

Accomplished: In February 2017, a second wireless access point was added to the Legends Center.

Make a secure wireless network for Faculty & Staff that authenticates against Active Directory.

Accomplished: This has not been accomplished.

Going Forward: This remains a goal going forward.

Provide off site backup by locating Data Domain at the Winneshiek Medical Center.

Accomplished: Installed network rack in data center at Winneshiek Medical Center (WMC) complete with UPS and redundant 10 gig connections back to the Luther data center. The Data Domain appliance was moved to WMC in June 2017.

Expand the storage capacity of our Data Domain backup appliance.

Accomplished: Added additional enclosure with approximately 30TB of additional storage.

Going Forward: Monitor Data Domain capacity and usage.

Expand the storage capacity of our Compellent SAN.

Accomplished: The capacity of the Compellent SAN was increased from 36 TB to 96 TB.

Improving energy efficiency in our data center by implementing the Hot Aisle/Cold Aisle design recommended to us in our energy audit done by ClearResult and AlliantEnergy.

Accomplished: This has not yet been accomplished.

Going Forward: This remains a goal for 2017.

Continue moving systems and services to Active Directory Authentication. Limit further dependency on OpenLDAP.

Accomplished: Fixit and eXplorance Blue authenticate with ADFS enabling users to sign on once and move between the two services without requiring additional authentication.

Going Forward: Systems will be moved to AD as appropriate.

Continue moving systems to VMs to improve operational effectiveness, improve our recovery posture, and to save cost/power.

Accomplished: Several systems have been virtualized over the past year. We now have 93 virtualized systems.

Going Forward: Continue to virtualize systems as appropriate.

Rebuild Citrix to remove dependency on Xen and be isolated from the server network.


Implement isolated networks for public kiosk computers and phonathon computers and HVAC and printer/copier.

Accomplished: This has not been accomplished.

Going Forward: This remains a goal for 2017/2018.

Research and implement a two factor authentication system and begin having services use it.

Accomplished: Google 2-Step Verification has been implemented on Luther Norse Apps accounts. Faculty, staff, emerita and office accounts had a deadline of December 1, 2016. The deadline for students and student organizations was February 1, 2017. Alumni had a deadline of March 1, 2017.

Going Forward: Alumni accounts not enabled by the end of June 2017, will be removed. Research for two factor authentication for other campus systems continues.

Begin looking at an identity management system.

Accomplished: Chris, Adam, and Marcia attended the CLAC mindshare and identified several changes that can be made to our existing processes that will dramatically improve our security posture. We do not intend to pursue an identity management system at this time.

Going Forward: Implement the identified changes and look for other areas of improvement.
ITS Team Reports

During the 2016 - 17 academic year, the Information Technology Services (ITS) team included:

- Dennis Blake (Telephone and Network Technician)
- Ian Carstens (Multimedia Strategic Fellow)
- Dustin Cote (Programmer Analyst and Database Administrator)
- Robert Erickson (Classroom and Meeting Space Technology Lead)
- Michael Espey (Multimedia Strategic Fellow)
- Adam Forsyth (Director of Network and Systems)
- Faust Gertz (Programmer Analyst)
- Diane Gossman (Director of User Services)
- Marcia Gullickson (Director of Software Development)
- Matthew Hammel (Workstation Support Systems Administrator)
- Matt Hughes (Workstation Support Communications Administrator)
- Dave Huinker (Systems Administrator)
- Paul Mattson (Executive Director of Information Technology Services)
- Faust Gertz (Programmer Analyst)
- Ahmed Muaz (Multimedia Lead)
- Jesse Mulert (Help Desk Co-Lead)
- Nathan Porath (Programmer Analyst)
- Bob Puffer (Web Programmer Analyst)
- Jean Ryan (Programmer Analyst and Database Administrator)
- Lane Schwarz (Technical Support Analyst)
- Larry Sikkink (Workstation Support Lead)
- Chris Stuckman (Systems Administrator)
- Erin Zidlicky (Help Desk Co-Lead)

Software Development

The Colleague migration from UniData to MS SQL Server went live the first weekend in August 2016. The preparation work and testing provided a smooth transition for the Colleague users. Many scheduled tasks, processes, and reports were updated as the office did their seasonal processes and made some discoveries over the year, including difficult reports like the Scholarship and Reunion Giving reports. Significant upgrades to Business Objects 4.1, Content document imaging, and Colleague User Interface 5.x were successful.

New software and services were installed for Course Evaluations (eXplorance Blue) and Fixit that use single sign on authentication with ADFS.

Colleague Advancement purchased the Reeher data analytics and customer relationship software to assist Development officers in focusing their time and efforts on the most prospective donors.

Software Development worked with the Web Content team on the Registration Orientation and Advising Day (ROAD) project, which included a new student checklist, placement exams, and advising worksheets.

ITS assisted in the research of new software for Advancement (Reeher), course evaluations (eXplorance Blue), recruiting student athletes (FrontRush), registering campers (CampSite), tutor scheduling (WCOnline) and ePortfolios (Digication).

Classrooms and Meeting Spaces Audio-Visual Support

During 2016-2017, some of the highlights regarding classrooms and meeting spaces included the following:

- Installed new digital classrooms in Koren 216, 217, 218 and Ockham House 120.
- Installed new digital technologies in conference room areas such as the Loyalty conference room.
- Designed and installed a full upgrade to Olin 112.
- Installed new digital sign for KWLC.
- Repurposed an under-utilized Cafeteria TV and installed it in Marty’s for public CATV viewing with digital HDMI input capabilities for Sodexo training opportunities. Also cabled it back to the Cafeteria AV rack for additional display options.
- Upgraded projectors in Olin 108 and Regents 221 HPE Lab, which also involved some re-wiring.
- Organized the replacement of all the projectors (11) in SHL and then installed new vga cables in each of those rooms.
- Researched Large Venue Projection and organized a vendor showcase of an Epson projector for Loyalty Board Room users in Loyalty, Theater and Dance users in the CFA, and ITS users in Hovde.

Digital Media Center

The Digital Media Center is located on the lower floor of Preus...
Library. Luther faculty, staff, and students are welcome to use the multimedia lab and multimedia studio. The lab is available for use whenever the library is open; the studio is available by appointment. The Digital Media Center is staffed from 7:30 a.m. to 8 p.m. Monday through Thursday, 7:30 a.m. to 5 p.m. Friday, and 1:00 p.m. to 5:00 p.m. Saturdays and Sundays during the academic year.

The multimedia lab consists of an open learning space with high-end Macs for editing photo, media, and video projects. The multimedia lab is also home to the support desk, from which student workers provide expertise to those working in the space, and respond to campus-wide requests. The multimedia studio is ideal for creating projects that include video, audio and photography.

The Digital Media Center is the service point for multimedia requests. Requests may be entered online, emailed, phoned in, or submitted in-person. The multimedia team supports the Luther community’s questions when using the multimedia lab and multimedia studio, requests for media conversion from one format to another, video creation and editing requests, issues related to technology in classrooms and meeting spaces, video conferencing requests, recordings of lectures, and video streaming of high-profile academic-related events on campus such as Giving Day and commencement.

The graph above illustrates usage of the multimedia lab and studio for each category, both for the 2015-2016 academic year and 2016-2017 academic year. Usage of the multimedia lab and studio greatly increased during the 2016-2017 academic year. It’s worth noting that the “Photography” category is not all-inclusive—some projects designated under the “Studio Use: Reservation” category included some photography reservations as well.
The graph above represents multimedia usage for the purpose of media conversion, as well as projects consisting of video conferencing, on-location video recording, and audio production. Of note, the “Media Conversions” category decreased during the 2016-2017 year as a result of the new KATIE streaming policy; likewise, the “Video Recording On Location” category decreased as a result of lecture capture installations, and increased faculty encouragement to utilize the multimedia studio instead of recording elsewhere on campus.

The graph above illustrates the usage of multimedia services for classroom checks, repairs, and setups. The “Repair” category is not all-inclusive; some data designated under the “Classroom Check” category included repairs. Additionally, the “Setup” category consists of classrooms and meeting spaces, as well as outdoor locations on campus. Of note, there were a number of class projects that utilized the services available in the Digital Media Center in addition to staff expertise. Workshops (1 hour in
length) and one-on-one training were scheduled during the 2016-2017 academic year for the following classes:

- Bio 252 - Podcast Training
- Science 250 - TEDx Talk Video - Video Production Workshop
- ENV 485 - Podcast - Audio Production Workshop
- COMS 246 - Group Video Project
- COMS 358 - Regular Class Tuesday & Thursdays
- German 344 - Video Project - Video Production Workshop
- SPAN 335 - Video Project
- SPAN 302 - Commercial Video Production Project
- Art 490 - Digital Portfolio Workshop
- SW 201 - Process Recordings
- Religion 265 - Film Showing
- MGT 240 - Video Presentation
- MGT 352 - HR Video Presentation
- DAN 350 - Dance Final Projects

Giving Day, held Thursday, March 9, included a 12-hour YouTube live stream by the multimedia team. The 2017 event consisted of 1,580 total playback and 79 concurrent views.

Commencement, held Sunday, May 20, was another high profile event that was streamed by the multimedia team. Stats as of Sun, May 21, 2017 at 7:17 p.m. included 419 Stretch Live unique connections. This was also the first year that Facebook Live/On-demand was incorporated, with a view count of 6,150 as of 7 p.m. (view count could be 3 seconds to 30 seconds plus). In addition, the team produced a DVD of the commencement stream that was made available by the Luther Book Shop.
Network & Systems

Currently we have over 140 servers and more than 61% are virtual servers while 38% are physical servers.

Of those servers 53% run a version of Windows Server as their operating system and 47% run a version of Linux.

Technology Help Desk

The Technology Help Desk is the front door to ITS for the technology needs of the Luther community and visitors. Every day, the Technology Help Desk student technicians and professional staff deal with a wide range of issues from computers to Internet to multimedia to education and training and more.

Behind the scenes, the Technology Help Desk works with others in ITS to identify and plan for transitions in campus technology and the effects those changes may have on our users. Through individual and campus wide communications, the Technology Help Desk provides a link to the campus community and ITS. In addition to immediate service, the Technology Help Desk creates and maintains tutorials and self-support resources for users.

The Technology Help Desk also provides an opportunity for professional growth among our student staff, many of whom aspire to careers in information technology, but also go onto other fields where technology plays a key role.

Between June 1 2016 and May 31 2017, The Technology Help Desk team touched 7,589 of the 13,397 service tickets touched by ITS as a whole (56%). Of those tickets, 16% were resolved on first contact. Of note, we had a large volume of tickets related
to Google 2-Step Verification and phishing emails, though we expect both these numbers to plummet next year: There will be fewer accounts compromised due to phishing emails because 2-Step Verification will harden those accounts, and there will be fewer 2-Step Verification interactions because there will be fewer new users and existing users will be more familiar with the service. Our ten most popular services make up 54% of our interactions.

<table>
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<tr>
<th>Service</th>
<th># Tickets</th>
<th># Help Desk Touches</th>
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<td>2-Step Verification</td>
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<td>1903</td>
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<tr>
<td>Parent Portal</td>
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</table>

Known caveats to the table above include:

- A high but unknown number of unaccounted for service interactions which never received a ticket. These tend to occur during hours when students don’t have supervision and when we are extremely busy, such as when we’re short staffed, during Move-in week, and during a major phishing attack or other crisis when response time trumps record keeping.

- Misleading stats for Hardware Room tickets: Unlike all other types of tickets, these indicate services that were requested as well as services that were performed.

- 2189 Tickets that weren’t in a specific category, which is 29% of tickets overall. This is partially due to the wide variety of problems inherent to our role, but also due to inadequate category options, training issues, etc. The 2017-18 objective “determine standards for use of the KBOX service desk module across departments” is one attempt to resolve some of these
Of the major initiatives that the Technology Help Desk team took part in, several are worth highlighting. To cope with the massive numbers of students who would need printers installed as part of the transition to PaperCut, we developed an install script which made installing printers on personal computers dramatically more efficient. This is always a major service during Move-in Weekend, but this year, all students would be affected rather than just first years. Cumulative stats over the weekend are telling: In 2015, because of the AD transition, we experienced a similar “spike” in password resets during the same period, which is a significantly shorter procedure — that we were able to perform a similar volume of printer installs during 2016 Move-In Weekend speaks to the increased efficiency of the printer install procedure.

Additionally, the Technology Help Desk team helped configure 2-Step Verification for every type of user with an “@luther.edu” email address. We provided communication for the transition, as well as setup help, education, reactivation of suspended accounts, and backup codes when the user was locked out. Often this service goes along with a password reset. In addition to our normal service points, we also tabled outside the Cafeteria, hung posters in labs, and fliered in residence halls.

The Technology Help Desk also led the transition to PaperCut. Overall, there were good printing trends during the period:

- During the academic year, students printed 90,178 fewer pages than the year before, or a 10% decline. This represents the lowest student printing on record.

- The number of students for whom the quota was satisfactory rose to 98%, a 5% increase.

- We issued 1674 refunds, worth $420.21. This is more than an order of magnitude greater than previous years and reflects improved access to the refund request mechanism rather than more error-prone printing.

- 52% of jobs were printed double-sided, a 2% increase, which reflects an overall trend as well as discounts to double-sided printing for students.

- 3% of pages were in color, which is out of line with previous statistics by an order of magnitude. We believe that this is because PaperCut has the ability to distinguish single color pages in an otherwise grayscale print job, whereas GoPrint did not. In other words, it’s likely that color printing has been historically overstated.

Training Summary

The following three charts list the usage of Lynda.com from June 1, 2016 to May 31, 2017. Lynda.com is a provider web-based software training videos and resources. We have 20 licenses for campus-wide use. Faculty, staff, and students interested in using one of the licenses for a two-week period may contact the Technology Help Desk.
### Hours Viewed

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#### Average Movie Views Per User

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#### Average Hours Viewed Per Login

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### Next Page

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#### % Active Licenses That Logged In

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#### Hours Viewed

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#### Average Movie Views Per User

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</table>
Workstation Support - Classrooms and Labs

During the Summer of 2016, various Windows computer labs and classrooms received upgraded workstations, including Olin 213, Main 114, Valders 377 - GIS Lab, Valders 344T - Data Analysis Lab and all Residence Hall labs. All Windows lab/classroom workstations had their RAM upgraded from 4GB to 8/10GB. In addition, solid state drives were installed in all Windows podiums.

In addition, the Koren 121 Mac lab received new iMacs and Mac Minis were installed as podium computers in Preus Library 120, Koren 121, and CFA 119.

Workstation Support - Faculty

During the summer of 2016, the workstations were upgraded for faculty in the Division of Humanities and Fine Arts as we continue our move to a staggered replacement cycle with 1/4 of the Luther faculty receiving new hardware and software each summer.

The Summer 2016 Faculty Refresh officially began Tuesday, July 5th, and ran for three weeks in July. Windows users now have Windows 7 and Office 2016. Mac users now have El Capitan and Office 2016.

This included installation of new workstations for faculty in the following departments: Classics, English, Modern Languages and Literatures, Philosophy, Religion, and Visual and Performing Arts.

For more information on the faculty refresh, visit http://www.luther.edu/helpdesk/services/computer-refresh/.

Workstation Support - Staff

Beginning with the 2010-11 academic year, staff computer upgrades are now on a staggered 3-year cycle. The departments are divided in thirds, and every year one third of all staff computers are refreshed. This new cycle is manageable for most needs and maximizes our hardware investments.

Windows users now have Windows 7 and Office 2016. Mac users now have El Capitan and Office 2016.

Departments upgraded during the 2016-17 academic year included: Admissions, Alumni, Communications & Marketing, Counseling Service, Development, Dining Services, Document Center, Health Service, Mail Center, KWLC Radio, Publications, Student Academic Support Center, Sports Information, and Web Content

For more information on the staff refresh, visit http://www.luther.edu/helpdesk/services/computer-refresh-staff/

Workstations on Campus
<table>
<thead>
<tr>
<th>Row Labels</th>
<th>Mac Desktop</th>
<th>Mac Laptop</th>
<th>PC Desktop</th>
<th>PC Laptop</th>
<th>Grand Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acad</td>
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<td>133</td>
<td>62</td>
<td>95</td>
<td>340</td>
</tr>
<tr>
<td>Admin</td>
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<td>575</td>
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<td>9</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>17</td>
</tr>
<tr>
<td>Kiosk</td>
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<td></td>
<td></td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>Lab</td>
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<td>12</td>
<td>318</td>
<td>157</td>
<td>581</td>
</tr>
<tr>
<td>Podium</td>
<td>8</td>
<td>1</td>
<td>54</td>
<td></td>
<td>63</td>
</tr>
<tr>
<td>Research</td>
<td>5</td>
<td>1</td>
<td>42</td>
<td>15</td>
<td>63</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>273</strong></td>
<td><strong>253</strong></td>
<td><strong>687</strong></td>
<td><strong>456</strong></td>
<td><strong>1669</strong></td>
</tr>
</tbody>
</table>
Objectives for 2017-18

The objectives are organized by guiding principle.

1) Improves Teaching and Learning Outcomes for Faculty and Students.
   • Support the Digication ePortfolio pilot project led by the Dean’s office inviting faculty to use with the students they advise and students in their classes.
   • Assist with setup and use of WCOnline tutor scheduling software for the Writing Center. SASC and AAA may find the tutor scheduling functionality usable as well.
   • Market the Digital Media Center by organizing a campus-wide podcast/vodcast production competition, with the Digital Media Center providing equipment and training.
   • Improve accessibility of ITS systems and services.

2) Provides Differentiation for Prospective Students and Parents.
   • Upgrade campus-wide digital signage system to virtual server and latest Tightrope Media Systems (TRMS) software.
   • Colleague Self Service portal for students, parents, and staff will provide a simplified, cleaner design that will gradually replace the existing functionality in my.luther and provide additional functionality for our constituents.

3) Improves Prospect of Differentiation for Graduates on Their Next Steps (service, job, vocation, graduate school, etc.).
   • Continue hiring, training, and developing professionalism of students through the work study program.
     • The Technology Help Desk is reworking Student Workers’ role to take more responsibility for our day to day work and more agency in quality improvement. Student Managers will lead this effort. The Technology Help Desk is also making hardware skills common training, rather than something reserved for a few specialized students.
     • Provide opportunities for professional growth among our ITS student staff, many of whom aspire to careers in information technology, but also go onto other fields where technology plays a key role.
     • The Technology Help Desk plans to implement a meeting schedule for Student Managers and adopt the Career Center’s Mid-semester Work Study review with all Technicians.
   • Ongoing support for CS Student project for the Academic Planning Committee by developing a service level agreement between ITS support and CS student to update and maintain the software solution developed by the CS Senior project in Spring 2017.
   • Encourage Digital Media Center student workers to complete a digital portfolio within 12 months of their hire date (e.g. audio/video production, live streaming, marketing video, etc.)

4) Improves Relationships to Alumni/ae, Friends of the College.
   • Renovate Loyalty Board Room from analog to digital, adding current industry technologies decided through collaboration with the Alumni office and other vested parties.
5) Provide effective and efficient information technology infrastructure for Luther College.

- PaperCut Phase III—Convert domain computers to SMB printing, which allows for standardization, responsive interactions with the server, and remote configuration. Also consider using the user client in some situations.

- Determine standards for use of the KBOX Service Desk module across departments (e.g. ITS, Document Center, Web Content) and within ITS. Make recommendations for changes.

- Current voicemail solution is operating on Windows 2003 and has reached end of life. Consider options, obtain quotes, and replace system.

- Install at least one emergency phone per floor per residence hall and then remove residence hall living space phones. Phones will remain in the Service Centers, Hall Director rooms, RA rooms, and Custodial offices.

- Reduce telephone budget by 5–10% through renegotiation of upcoming contracts and equipment shopping (buying outside the box) not going with same supplier.

- Move from Macs to Windows computers where possible due to Apple’s recent design decisions that hinder the ability of ITS to perform upgrades and repairs, along with Apple’s increasing price structure.

- As part of the College's cost-saving measures, continue to “supercharge” workstations (increasing RAM to 8GB, switching to 240 GB SSDs, refreshing software) rather than buying new. This effort started with the 2016–2017 staff refresh and will continue for the full faculty and staff refresh cycle.

- Remove students.luther.edu and transition student network storage needs to Google Drive, which offers unlimited storage and is easily accessible when off campus. This will free up high cost SAN storage for other uses.

- Transition to new admin1 and academic file servers that will allow us to more easily maintain and the file server software. This will also allow us to move the file servers from OpenLDAP to Active Directory authentication.

- Increase virtual server capacity by replacing older host systems and optimizing our configuration to increase performance.

- Improve the wired and wireless network in the second floor Jenson-Noble Music Office.

- Make a secure wireless network for Faculty and Staff that authenticates against Active Directory.

- Improve energy efficiency in our data center by implementing the Hot Aisle/Cold Aisle design recommended to us in our energy audit done by ClearResult and AlliantEnergy.

- Continue moving systems to VMs to improve operational effectiveness, improve our recovery posture and to save cost/power.

- Modify network architecture to base access on who a user is and what they’re authorized to access. For example, a faculty/staff network, a student/BYOD network, a public kiosk computer network/guest network, and phonathon computers and HVAC and printer/copier.

- Implement Sophos InterceptX and upgrade our installation of Sophos to Sophos Central to further improve our security posture.

- Purchase Spirion Sensitive Data Manager from Spirion (formerly Identity Finder). Engage their professional services to identify best practices for scanning Windows and Mac workstations, admin1 and academic file servers, and Google Drive/Mail, and then begin implementation.

- Implement Enterprise Connect from Apple to authenticate Mac faculty, staff, and student worker workstations using
Active Directory.

- Migrate faculty to standard user accounts on their Luther computer.
- Deploy Windows 10 to all Windows lab, classroom, and podium computers. Begin deploying Windows 10 to faculty and staff computers.
- Research and identify best practices for a disaster recovery solution for Colleague.
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