

ITS ANNUAL REPORT
2017 - 2018

Luther College



Vision

Just as we complete this fiscal year and capture the achievements from this past year we have the announcement of a new Executive Director of ITS. This will provide a new opportunity to collaborate and think about a new vision for ITS and new strategies to achieve that vision. In the meantime as we create our initial plans for the new fiscal year, consider five guiding principles that we have been using these 5 years to think about how we create value for Luther College within ITS. 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 journey 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 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 as we support the idea of a Makerspace where members of the community can (re)claim the ability to make things with their hands. 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.

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, our Alums, other current 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.

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.” We do this when we provide the infrastructure and tools necessary for our faculty to provide learning experiences that our students can leverage to differentiate themselves as they achieve their next step after Luther College. 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 infrastructure for 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.

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, reliability, 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. Relentless and increasingly sophisticated “phishing” schemes have led us to implement 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

A handwritten signature in black ink, appearing to read "Paul Mattson", written in a cursive style.

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 2017-18

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.

Accomplished: Student success group changed direction and discontinued using Digication after the Fall 2017 Semester. The group worked with ITS to pilot Google sites during the Spring 2018 Semester to facilitate student portfolios.

Going Forward: Summer workshops on Using ePortfolios will be held with a soft roll planned for Fall 2018. The workshops provide an opportunity for faculty and staff to learn about the pedagogy of ePortfolios (electronic portfolios), discuss objectives for using ePortfolios at Luther, and to receive guidance in technical matters related to using Google Sites as an ePortfolio platform. Participants discuss the advantages of ePortfolio use in the classroom, in advising, and in other settings.

Assist with setup and use of WOnline tutor scheduling software for the Writing Center. SASC and TRIO may find the tutor scheduling functionality usable as well.

Accomplished: Requested and reviewed security assessment. Mike Garcia did the setup and configuration. He reported that the WOnline software is working well for him and the Writing Center.

Going Forward: Set up WOnline authentication with AD and visit with SASC and TRIO to evaluate if the software would also meet their scheduling needs.

Market the Digital Media Center by organizing a campus-wide podcast/vodcast production competition, with the Digital Media Center providing equipment and training.

Accomplished: As the academic year became more productive for Multimedia, our goals were realigned with serving the Luther community through the creation of podcasts and other audio/video related projects. Organizing production efforts under the guise of a "competition" seemed to be counterproductive to our main objective of serving the Luther community.

Going Forward: Multimedia will continue to serve the Luther community through conducting workshops and training on creating audio/video-based projects such as podcasts.

Improve accessibility of ITS systems and services.

Accomplished: Worked with selected faculty to ensure that KATIE was accessible to visually impaired students. Worked with SASC and Wellness to get accessible course materials for visually impaired student from publisher. Worked with SASC and Music department faculty to secure a workroom, computer, and Dancing Dots software for visually impaired Music majors.

Going Forward: Continue to work with faculty to ensure their content is accessible to visually impaired students. Set up braille printer and Dancing Dots workstation in location that is best suited for student. Work with our current visually impaired student to learn more about the Dancing Dots software, along with what technology is not easily accessible to her.

2. Provides differentiation for prospective students and parents

Upgrade campus-wide digital signage system to virtual server and latest Tighrope Media Systems (TRMS) software.

Accomplished: Summer 2017, we upgraded the digital signage software to a new version on a new server with a new database. All previously existing content remained in the system. We are now running Carousel 7.0.8.234 and FrontDoor 6.1.3.16.

Going Forward: Apply additional upgrades as appropriate.

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.edu and provide additional functionality for our constituents.

Accomplished: Installed Colleague Self Service in environments for test, development, and production and are working with HR, Registrar's office, Financial Aid, and Office for Financial Services to test and configure the functionality to meet their workflows and business processes. ITS is doing performance load testing to configure the infrastructure for better performance before wider use. HR plans to pilot Web Time Entry for select student workers in June and Financial Aid expects to allow access to Financial Aid Self Service this summer.

Going Forward: ITS will do load testing prior to wide use for Student Planning for students and advisors later this year. Person proxy will be needed for alternate supervisors and parent access to student information. The Registrar's office is making changes to the course information and 'rules' necessary for student registration.

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

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

Accomplished: The Technology Help Desk reworked Student Workers' roles to take more responsibility for our day to day work and more agency in quality improvement. Student Managers led this effort. The Technology Help Desk has also made hardware skills common training, rather than something reserved for a few specialized students. The Technology Help Desk also met

with each student worker for a Mid Year Reflection designed to help them reflect on their work and how it is relevant to their future professional lives.

Going Forward: The Technology Help Desk will continue to focus on Student Manager professional development and devote significant resources to improving training processes.

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.

Accomplished: The Technology Help Desk implemented a meeting schedule for Student Managers and met with each student worker for a Mid Year Reflection designed to help them reflect on their work and how its relevance to their future professional lives. Student Managers also participated in hiring and training. The Technology Help Desk promoted a student worker to intern for the summer with specific focus on project management.

Going Forward: The Technology Help Desk will continue to give Student Managers responsibility, meet with them regularly, and participate in the new Work Study Self-Assessment process.

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.)

Accomplished: In an effort to encourage student workers to build their own multimedia portfolios, tasks and assignments were often delegated and assigned to individuals equally, so that they could each have the opportunity to gather materials to build their own portfolios as they wish.

Going Forward: We'd like to emphasize more of a priority for students to create their own multimedia portfolios before they graduate, in an effort to maximize their employment potential and the benefits of a work study position such as one in Multimedia.

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.

Accomplished: The APC chair and Registrar's office discontinued using the student developed APC web application in April 2018.

Going Forward: ITS, Registrar's office, and the APC chairpersons are looking at alternative solutions or estimating the time needed to fix the original custom built application.



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.

Accomplished: The renovation was completed the week of February 26 through March 2.

Reeher CRM integration with Colleague

Accomplished: Initial Colleague daily data transfers to the Reeher Customer Relationship Management system are functional and continuing to be developed using a more efficient direct SQL query from Colleague. Advancement is making ongoing requests for additional data to be included in the transfers.

Going Forward: ITS is planning to complete Phase II of the project to update Colleague with Development Officer donor contact notes from the Reeher CRM.

5. Infrastructure

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.

Accomplished: Some workstations are using SMB printing, but in general the project was postponed.

Going Forward: There project is currently on hold.

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.

Accomplished: This project was postponed due to prioritization considerations. Instead smaller changes, like reworking category trees, have been accomplished on a team-by-team basis.

Going Forward: Changes will continue to happen in small pieces rather than through a formal review and recommendation process.

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

Accomplished: Meetings with various vendors took place.

Going Forward: Meetings will need to be repeated as costs have changed.

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, and Custodial offices.

Accomplished: The following residence halls have been completed: Miller, Brandt, Ylvisaker, Olson, Larsen, and College Apartments.

Going Forward: Will complete Farwell, Dieseth and Baker Village by August 1, 2018.

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

Accomplished: Budget spending reduced by 6.5%.

Going Forward: Continue to find ways to reduce budgetary spending.

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.

Accomplished: Options for the Summer 2017 Faculty Computer Refresh and the 2017-2018 Staff Computer Refresh continued to be the following:

- Supercharge my Windows Desktop/Laptop or MacBook Pro
- Refresh (software only) my iMac/MacBook Air
- Switch me from Mac to a Windows Desktop
- Switch me from Mac to a Windows Laptop
- Switch me from my iMac/MacBook Air to a Supercharged MacBook Pro
- I'm not sure what to do; I'd like to consult with ITS

Going Forward: Summer 2018 and through Summer 2020, for both the faculty and the staff computer refreshes, the options will remain as listed. We continue to watch vendor plans as we begin to consider options for the next 4-year cycle.

As part of the College's cost-saving measures, continue to "supercharge" workstations (increasing RAM to 8GB, switching to 240GB 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.

Accomplished: Summer 2017 computers for the Nursing and Music departments were supercharged. During the 2017-2018 academic year, computers were supercharged for: OAIR, Human Resources, Career Center, Dean's Office, Wellness, Residence

Life, Center for Global Learning, Regents Center, TRIO, Diversity Center, College Ministries, Student Life, Administrative Services, the Book Shop, and the President's Office.

Going Forward: Summer 2018 and through Summer 2020, for both the faculty and the staff computer refreshes, we will continue to "supercharge" workstations. We continue to watch vendor plans as we begin to consider options for the next 4-year 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.

Accomplished: The decision to discontinue H-drives for students was made in March 2017. Notification was sent out to current and graduating students. The server was taken offline on June 1, 2017 but remained available to retrieve student data for several weeks. The data was copied to an external hard drive before the server was powered down.

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.

Accomplished: We have transitioned to the new file servers and they are connected to Active Directory.

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

Accomplished: The VMware hosts were replaced in January 2018.

Going Forward: We will continue to monitor resource and performance needs and make adjustments as necessary.

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

Accomplished: Postponed until summer 2018.



Going Forward: During Summer 2018, Facilities Services will be able to prepare the office for our wiring work by removing the current ceiling and installing a drop ceiling that will conceal our network wiring running above it.

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

Accomplished: A new RADIUS server running on Microsoft Network Policy Server (NPS) was created and provides the basis of authentication on LCSecure. So, LCSecure is now being authenticated against Active Directory rather than Open LDAP.

Experimentation was done with integrating our Fortigate firewall with Active Directory to provide it information on user affiliation. This has not been successful yet, so thus far we don't have network access rights being based off of affiliation.

Going Forward: Keep working to fully accomplish this.

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 Alliant Energy.

Accomplished: The upgrade to our physical vmware hosts was done such that the new servers are in a new rack that's positioned to fit the Hot Aisle/Cold Aisle. Further progress will be wrapped into the project to replace the server room UPS which will happen during 2018.

Going Forward: Finish the implementation.

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 94 virtualized systems.

Going Forward: Continue to virtualize systems as appropriate.

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 a phonathon computers and HVAC and printer/copier.

Accomplished: Public Access Kiosks have been moved to be on the same network subnet as the LCGuest wireless network. This gives them Internet access only and no access into the campus network like they had when they were previously configured the same as faculty/staff/and students.

Going Forward: The next step is that Digital Signage computers will be moved to be configured the same as Public Access Kiosks. It is still a goal to further segment Faculty/Staff/Student/ and BYOD devices to limit their exposure to one another.

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

Accomplished: Sophos Central/Intercept X has been installed for all workstations and all Windows servers.

Going Forward: Continue to implement additional features provided by the new security suite.

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.

Accomplished: Installed and being utilized for workstation scanning through the work of ITS to meet with and educate users in most of the administrative offices on campus. Set up scheduled reports for 'data steward' to review and monitor.

Going Forward: Scan academic department workstations, all network drives, Google drives, and Gmail.

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

Accomplished: Enterprise Connect was purchased and, after initial testing, was rolled out to select users along with newly created documentation. Starting in late Fall 2017, the software was included in the macOS images for faculty and staff. Results have been very promising with few issues arising.

Going Forward: Enterprise Connect will be part of the standard macOS image for all faculty and staff users.

Migrate faculty to standard user accounts on their Luther computer.

Accomplished: All faculty have been migrated to standard user accounts.

Going Forward: Continue to educate faculty on use of the 'Temp Admin Rights' tool so as not to impede productivity or innovation.

Deploy Windows 10 to all Windows lab, classroom, and podium computers. Begin deploying Windows 10 to faculty and staff computers.

Accomplished: For the last eighteen months, Windows 10 for faculty and staff computers has been deployed as these workstations are upgraded.

Going Forward: The push will continue to deploy Windows 10 as upgrades occur, with the goal of finishing before Windows 7 goes end-of-support in January of 2020. Windows 10 will be deployed to lab, classroom and podium computers during Summer 2018.

Research and identify best practices for a disaster recovery solution for Colleague.

Accomplished: Data Domain is located off site and Networker is backing up server images of VM servers to it. These images could quickly be restored to a new VM infrastructure. For Colleague specifically, this helps the pieces of Colleague that run on virtual servers but not those that run on physical servers.

Going Forward: We need to find a similar solution for disaster recovery on physical servers or move all physical servers to being virtual servers. We also need to have off-site infrastructure to restore vm's to either set up and be ready to go, or we need to have solid plans of how to bring such infrastructure online quickly in the event of an emergency.

Research automated server patching options.

Accomplished: Tested Ivanti Patch automated server patching. Configuring Microsoft System Center for automated server patching testing.

Going Forward: Select, purchase, and implement an automated server patching system.

Install new printers and copiers as part of the Image Management Agreement with Ricoh.

Accomplished: In our continued efforts to identify opportunities for college-wide cost savings and greater efficiencies, Luther has contracted with Ricoh to manage, assign and service all print devices across campus. ITS staff worked with individual departments and Ricoh to implement the changes to over 50 printers and copiers Spring 2018.

Going Forward: Printers and copiers will be replaced on a 5-year cycle.

Colleague Self Service authentication with ADFS and multi-factor authentication.

Accomplished: Colleague Self Service setup is complete to enable production NorseHub.luther.edu to authenticate with ADFS.

Going Forward: Network and Systems team is evaluating multi factor authentication options.

Mid-year upgrade to KATIE.

Accomplished: KATIE (Moodle) minor upgrade on January 3rd to fix annotating pdf issue by upgrading from version 3.2 to version 3.3.

Going Forward: The KATIE Support Team has scheduled an upgrade for June 2018. A yearly upgrade has been scheduled for August 2018.

ITS Team Reports

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

- Dennis Blake (Telephone and Network Technician)
- 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 Hammen (Workstation Support Systems Administrator)
- Matt Hughes (Workstation Support Communications Administrator)
- Dave Huinker (Systems Administrator)
- Patty Livingood (Program Support Coordinator),
- Paul Mattson (Executive Director of Information Technology Services)
- Ahmed Muaz (Multimedia Lead)
- Jesse Mulert (Technology Help Desk Co-Lead)
- Jack Ross (Multimedia Strategic Fellow)
- Jean Ryan (Programmer Analyst and Database Administrator)
- Lane Schwarz (Technical Support Analyst)
- Jacob Secor (Programmer Analyst and Information Security Analyst)
- Larry Sikkink (Workstation Support Lead)
- Chris Stuckman (Systems Administrator)
- Erin Zidlicky (Technology Help Desk Co-Lead)

Software Development

Additional Software Development project highlights for 2017-18 are:

- Colleague Self Service upgraded to version 2.19 and the upgrade process, roles, sitemap, and Colleague configuration needed for each upgrade is well documented and streamlined to improve and speed the process in the future.
- Colleague UI version 5.5 is installed and UI 4.5 is disabled.
- Perceptive Content document imaging workflows were developed and are in use for Accounts Payable invoice processing and Account Receivable student statements and refunds.
- CS Access DOORS is upgraded to a new server, OS, and software version.
- Regroup emergency communication system was installed

and the file transfer developed in January.

- Formed a campus committee to define and create a Gender and Chosen name policy for students and determine Colleague changes to support new data, display, reporting, and publications that will be impacted.

Classrooms and Meeting Spaces Audio-Visual Support

During 2017-2018, classroom and meeting space technologies were upgraded and enhanced to ensure an efficient experience for Luther faculty, staff, and students. Olin 206 and 301 were both converted to digital classrooms, with Olin 301 also receiving the first high lumen laser LED projector. Koren 217 also received a large venue projector which significantly improved the presentation quality for the students. Our 3 largest campus venues were upgraded to digital systems with LED laser projection. These rooms were also enhanced with new touch panel room control systems, making them easy for the Luther community to use. These large venues are the Loyalty Boardroom, Valders 206 and Olin 102.

All remaining Vivitek projectors were installed and we now have a minimum 4500 lumen projection capability in classrooms.

We are continually moving ahead with the installation of large flat panel TV monitors in classrooms and meeting spaces when appropriate. We are now trying to add video conferencing Skype tools to these panels whenever it is requested.

Lecture capture has been made part of the installations in Valders 206 and Olin 102. This included cameras, microphones, monitors and lecture capture appliances.

Progress is still being made with older analog classrooms to bring them up to digital systems.

Digital Signage evolved this last year with new channel designs and our first portrait display in the CFL lobby.

Security cameras remained the same, but should probably be expanded in the next year.

A review of microphone frequencies and inventory was conducted to ensure our compliance with planned FCC changes.

Digital Media Center

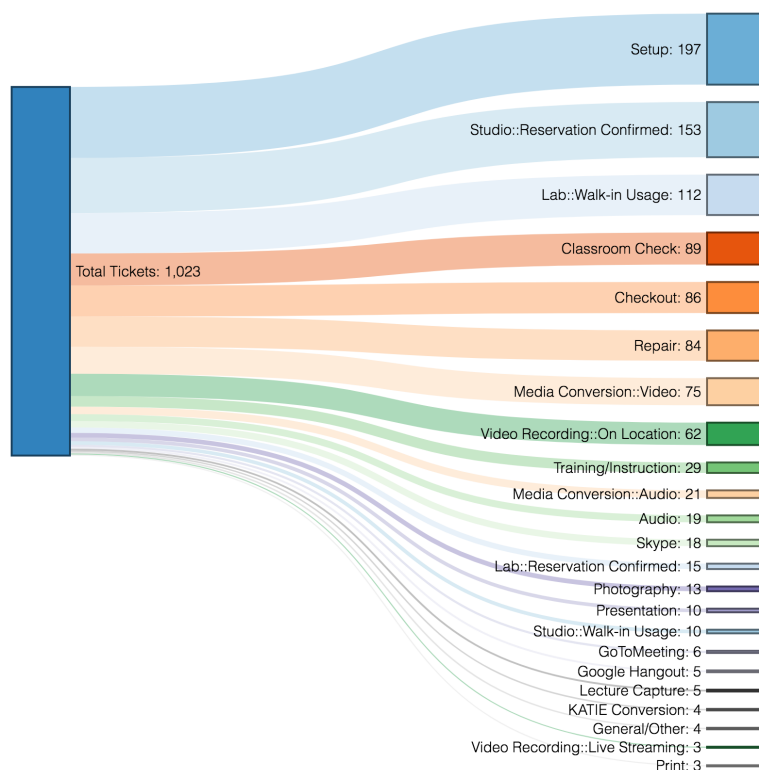
The Digital Media Center is located on the lower floor of Preus Library. Luther faculty, staff, and students are welcome to use the multimedia lab and multimedia studio. The lab is available for use whenever the library is open; the studio is available by appointment. The Digital Media Center is staffed from 7:30 a.m. to 9 p.m. Monday through 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.

Workshops and projects conducted during the 2017-2018 academic year:

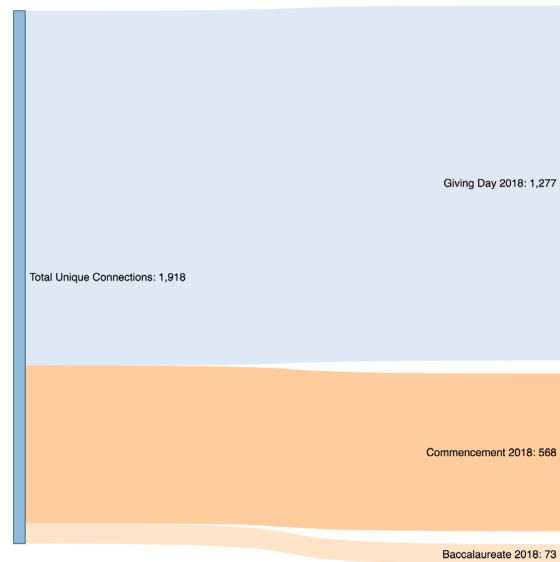
- ENG-211: Video Production Workshop/Project
- ENVS-485: Podcast Workshop/Project
- SCI-250: Video Production Workshop/Project
- ENVS-185: Stop-Motion Animation Workshop/Project
- THE-185: Podcast Workshop/Project
- SPAN-302: Video Production Project/Workshop
- MGT-352: Video Production Project
- ENVS-320: Stop-Motion Animation Workshop/Project
- COMS-258: Tuesday/Thursday Regular Class
- COMS-358: Tuesday/Thursday Regular Class
- ITS Classroom Video Recording Workshop for students/faculty/staff
- ITS Video Production Workshop for students/faculty/staff
- ITS Audio Production Workshop for students/faculty/staff



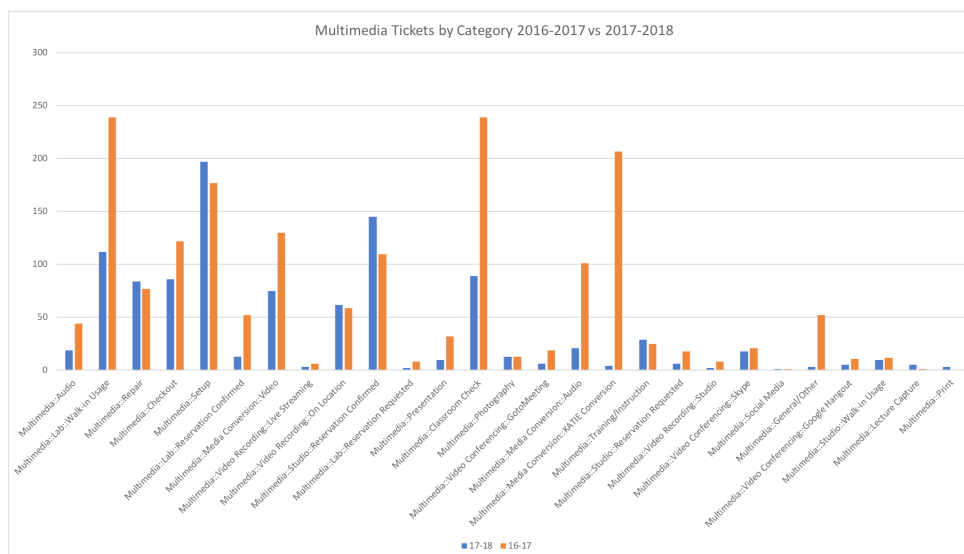
Multimedia Tickets by Category 2017-2018

The 2017-2018 academic year saw a total of 1,023 tickets classified under Multimedia. Our top three categories were setups (which most commonly included video conferencing setups for Skype/Google Hangouts/GoToMeeting, as well as sound system setups and projector setups across campus), Digital Media Center studio reservations, and walk-in usage of the Digital Media Center lab.

Multimedia Live Streams Unique Connections 2017-2018



Multimedia was involved with live streaming the annual Giving Day, Commencement, and Baccalaureate events. Relating to engagement, the 2017-2018 academic year was quite successful with a total of 1,918 unique connections, mainly stemming from the Giving Day stream as well as the Commencement ceremony stream.



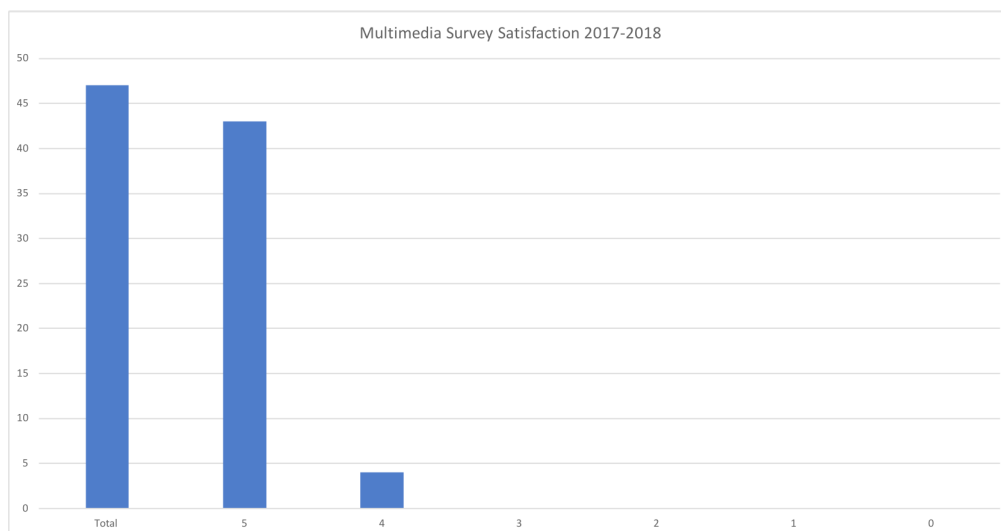
The graph above compares Multimedia productivity during the 2017-2018 academic year to the 2016-2017 academic year. There are a number of differences between the two years illustrated in the graph that are worth explaining in detail, many of them due to policy changes implemented during the 2017-2018 academic year.

First, this year we saw a significant decrease in video-based media conversions and KATIE conversions. This is because of an update to guidelines for instructors on using film in courses, where media conversions would no longer be allowed to occur for the purpose of making video-based materials available online on KATIE. As a result, screenings of video and film material were scheduled in the Digital Media Center for courses when necessary, allowing Multimedia to spend less time converting media.

Second, we also saw a noticeable increase in studio reservations. This was the result of further marketing of the equipment and resources available in the Digital Media Center for faculty, staff, and students, and thus leading to more professors implementing multimedia-based projects into their coursework.

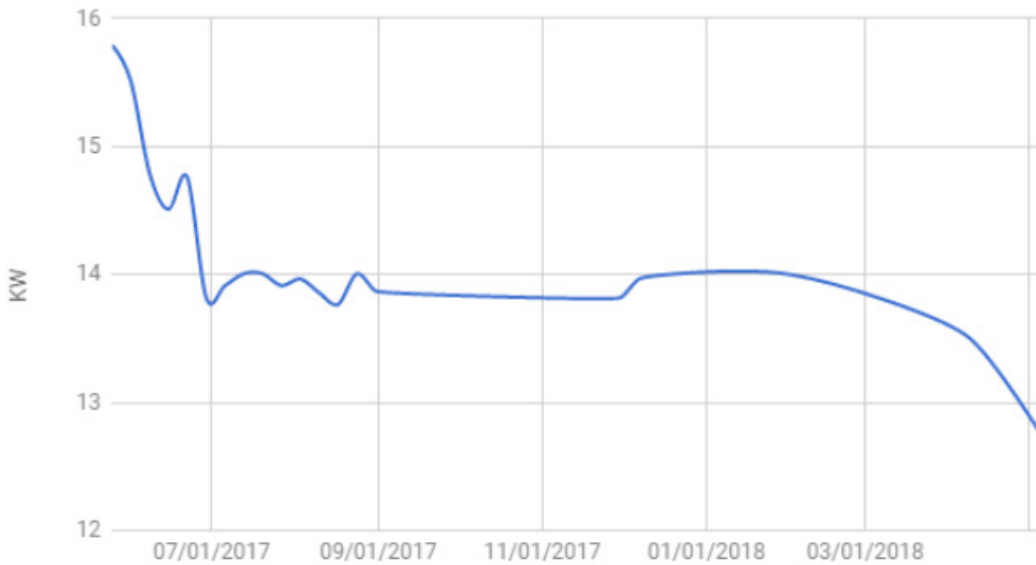
Finally, we saw a decrease in tickets categorized under “General/Other”. This was due to better training and communication to student workers on procedures relating to properly sorting Multimedia requests, leading to more useful data.

Survey responses from tickets during the 2017-2018 academic year provided useful data outlining the success of work and productivity from Multimedia. Out 47 total survey responses, 43 were rated “5” and 4 were rated “4”.



Network & Systems

Server Room Power Usage 2017/2018



Through continued retirement of old systems and upgrades with new more, efficient systems and an increasing number of virtual servers, power usage in our server room has decreased during the 2017/2018 school year. We intend to do additional work to optimize cooling in the server room which should further reduce power usage.

We have updated our physical VMWare servers during the 2017/2018 school year. These servers provide the resources needed to run all of our virtual servers. With this upgrade we have also begun to retire our Fiber Channel infrastructure. Our new VMWare servers connect to their storage on our Dell Storage Center SAN via iSCSI. This reduces our costs because we no longer need to buy separate fiber channel switches and server adaptors. In their place the ethernet network is used.

We continue to evaluate moving servers from physical to virtual as they are in need of upgrades, and many servers have become virtual. Many servers have also been upgraded to newer versions of their OS, and/or newer versions of their software.

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.

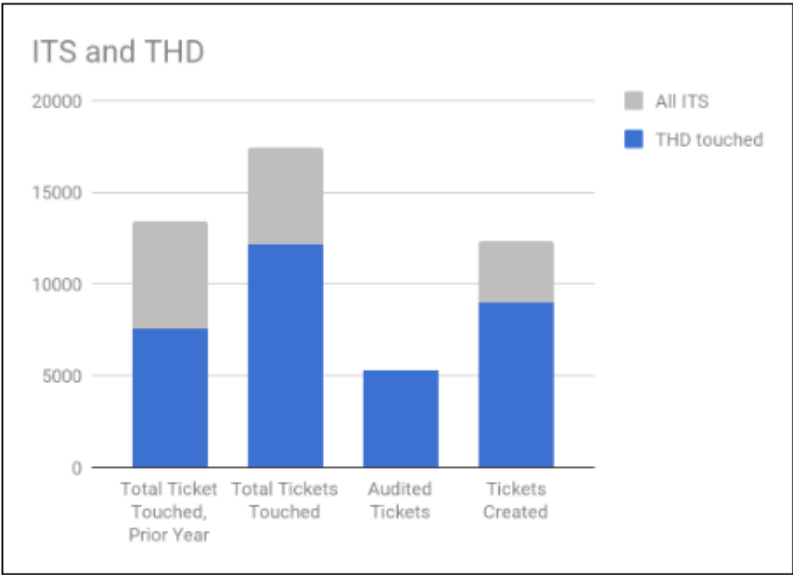
Behind the scenes, the Technology Help Desk works with others in ITS to identify and plan for transitions in campus technology and the effects those changes may have on our users. Through individual and campus wide communications, the Technology Help Desk provides a link to the campus community and ITS. 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 2017 and May 31 2018, The Technology Help Desk team touched 12,129 of the 17,461 service tickets touched by ITS as a whole (69%). This number is substantially higher than last year (7,589 out of 13,397) largely because the Technology

Help Desk revisited old tickets as part of a new data quality process. 5,287 tickets were audited, focusing on common services, changing categories, and general categories.

While overall touches is a good indicator of work performed, new tickets better represent the current demand for services. If we only consider those tickets created after June 1, then the Technology Help Desk touched 9,008 of 12,341 tickets (73%). Compared to the prior year, the Technology Help Desk touched 19% more new tickets. Of those tickets, 37% were resolved on first contact, more than double the prior year. Our Average Satisfaction Rating was 4.7.



Our ten most popular services make up 72% of our interactions, an increase from 54% the prior year. More than a third of that increase (13% of total tickets) is due entirely to a new ticketing process used during move-in week, which previously was not tracked using tickets.

Ten most common services, tickets touched by Technology Help Desk

Service	# Tickets
Password Reset	1364
Device Registration	1118
Printing-related	1095
General software support	627
Software Development-related	602
2-Step Verification	409
Workstation Support-related	383
KATIE-Support-related	337
Admin Access	170

Of additional note, there were far fewer tickets for Google 2-Step Verification (-31%) and phishing emails (-88%) this year, which was expected as a result of a more informed user base and hardened accounts. Last year we participated in 597 tickets related to 2-Step Verification and 547 related to phishing, making them our second and fourth most popular services. Furthermore, phishing incidents were historically underreported because we didn't create tickets during the most significant phishing incidents. These two metrics are a vivid representation of how much 2-Step Verification has improved Luther's security posture on Norse Apps accounts.

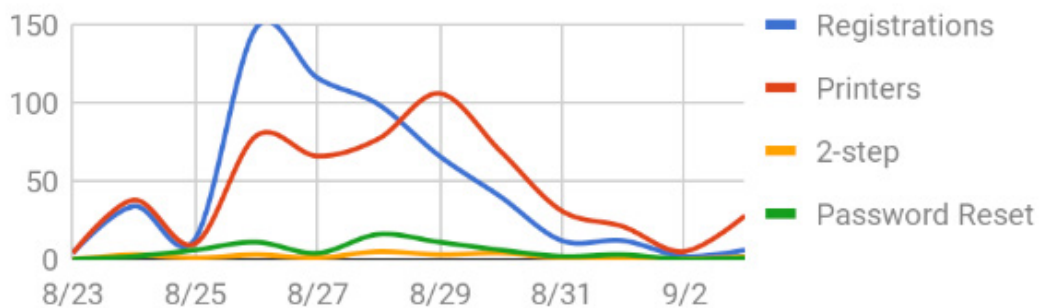
Changes to our category tree likely drove many other changes:

- "General/Other" tickets dropped from 29% of all tickets to just 13%. This is likely due because of improved category options under "Help Desk", "Workstation", "Software Development", as well as the new branch, "Accounts and Access". In the future, we expect this number to continue to drop as the category tree is refined.
- Generalized "Software Support" (e.g. helping format a document) revealed itself as one of our major services. Previously this service was misfiled under other categories.
- Workstation related issues move into our top 10, likely because tickets previously filed as "General/Other" are now filed under more appropriate categories.

Of the major initiatives that the Technology Help Desk team took part in, a few are worth highlighting:

- We started creating tickets for our most common services during Move-In Weekend and the first week of classes using a webform process. In prior years, we had simply used a tally system, which under-reported work and didn't put data in the same format as the rest of our tickets. Furthermore, a webform allowed us to see use over time and adjust staffing on-the-fly as well as for next year.

Move-in Week: Services by Day

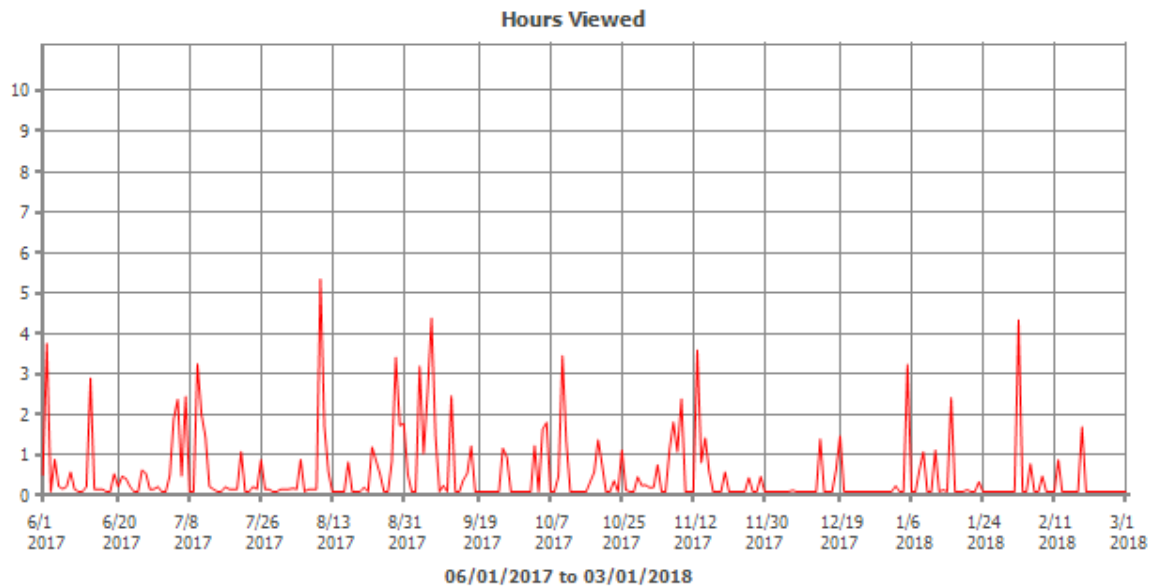


- We trained faculty and staff how to navigate our new least privilege solution for workstation administrator rights (See objective "Migrate faculty to standard user accounts on their Luther computer"). This new process became one of our new top 10 services. In addition to the tickets recorded above, there are many other instances which didn't receive tickets in favor of documentation via the webform presented by the automated process.
- In addition to normal assistance for use with 2-Step Verification, we transitioned to new processes as accounts were removed for alumni and compliance was required for the first time for an incoming class. Some 3000+ inactive accounts were removed for alumni and almost all incoming students were enrolled prior to the add/drop deadline during their first semester. After Fall semester, the new account process was changed again, unifying all user types under the same policy (i.e. require 2-Step Verification setup within 2 weeks of first log in).
- We began auditing Technology Help Desk-related tickets for consistency. We touched nearly half of all tickets for the year. The most clear outcome for the audit is greater reporting accuracy, and a number of statistics mentioned earlier were affected, specifically total ticket counts, a broad decline in "general/other" tickets, "Resolved on First Contact" data, and improved Category field data. This audit helped drive changes in KBOX mentioned in the objective "Determine standards for use of the KBOX Service Desk module across departments".

Training Summary

The following three charts list the usage of Lynda.com from June 1, 2017 to March 1, 2018. 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.

For the Spring 2018 Semester we engaged in a pilot of their campus-wide product called LyndaCampus. During the pilot, 34 faculty, 94 staff, and 166 students logged into lynda.luther.edu. A summary of usage during the pilot is shown below the Lynda.com charts.

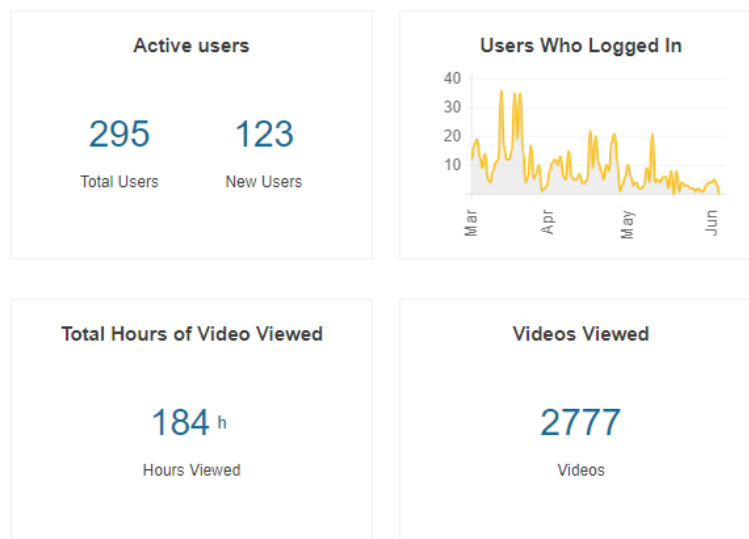


	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Avg
#Users In Account	64	72	74	74	76	76	76	78	80	82	84	88	77.0
#Active Licenses	20	20	20	20	20	20	20	20	20	20	20	20	20.0
#Users That Logged In	10	15	13	10	14	8	11	6	8	9	9	6	9.9
% Active Licenses That Logged In	50	75	65	50	70	40	55	30	40	45	45	30	49.6
Distinct Courses Viewed	49	18	28	10	23	14	14	19	14	30	13	12	20.3
Distinct Movies Viewed	1,188	275	192	127	266	108	121	218	184	190	147	53	255.0
Total Movie Views	1,419	1,045	377	205	364	176	189	257	226	218	197	66	394.9
Hours Viewed	133.2	75.3	28.2	16.4	31.2	11.5	16.3	19.1	18.8	14.0	14.2	3.2	31.8
#Logins	45	59	40	19	17	16	16	11	11	11	10	8	21.9
Average Movie Views Per User	142	70	29	20	26	22	17	43	28	24	22	11	37.9
Average Hours Viewed Per Login	3.0	1.3	0.7	0.9	1.8	0.7	1.0	1.7	1.7	1.3	1.4	0.4	1.3

A summary of usage during the Spring 2018 Semester pilot is shown below.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	YTD Avg
#Users In Account	90	90	90	90	90	90	0	0	0	0	0	0	90.0
#Active Licenses	20	20	20	20	20	20	0	0	0	0	0	0	20.0
#Users That Logged In	8	17	14	11	5	0	0	0	0	0	0	0	9.2
% Active Licenses That Logged In	40	85	70	55	25	0	0	0	0	0	0	0	55.0
Distinct Courses Viewed	9	8	0	0	0	0	0	0	0	0	0	0	8.5
Distinct Movies Viewed	125	71	0	0	0	0	0	0	0	0	0	0	98.0
Total Movie Views	154	87	0	0	0	0	0	0	0	0	0	0	40.2
Hours Viewed	8.5	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7
#Logins	9	41	54	47	19	0	0	0	0	0	0	0	28.3
Average Movie Views Per User	19	5	0	0	0	0	0	0	0	0	0	0	12.2
Average Hours Viewed Per Login	0.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6

Month/Year	03/18	04/18	05/18	06/18	Avg
Active Users	259	282	294	295	282.5
New Active Users	87	23	12	1	30.8
Total users who logged in	147	86	41	8	70.5
Logins	371	272	134	12	197.3
Distinct courses viewed	133	134	73	11	87.8
Distinct videos viewed	866	894	389	59	552.0
Total views	1243	1028	447	59	694.3
Exercise files downloaded	12	18	3	0	8.3
Hours viewed	80.26	64.19	36.42	3.51	46.1
Video views/user who logged in	8.46	11.95	10.9	7.38	9.7
Hours viewed/user who logged in	0.55	0.75	0.89	0.44	0.7
Hours viewed/log in	0.22	0.24	0.27	0.29	0.3



Workstation Support - Classrooms and Labs

The number of iMacs in the main floor Library lab was reduced from six to two. At the request of the Music department, the number of iMacs in the Jenson Noble 124 lab was reduced from ten to four.

The Mac Mini podiums in Preus Library 120, Koren 121, and CFA 119 were replaced with Windows workstations.

Olin 113 was upgraded from Optiplex 780s to 790s and SSDs were added. Olin 205 was upgraded from Optiplex 790s to 3020s and SSDs were added. Valders 240 and all residence halls had SSDs added.

All public access kiosks were updated to 21" iMacs and moved to an isolated network.

Workstation Support - Faculty

Starting in January 2017, Workstation Support began the process of Supercharging, adding extra memory and Solid State Drives (SSD) to workstations in lieu of purchasing new machines. In addition, we have been encouraging users to switch from Macs to Windows where possible. This is due in part to Apple's changing strategies and an increase in prices. It is also part of the College's cost-saving measures.

During the summer of 2017, workstations were upgraded for faculty in the departments of Music and Nursing as we continue our move to a staggered replacement cycle with 1/4th of the Luther faculty receiving refreshed workstations each summer.

Windows users now have Windows 10 and Office 2016. Mac users now have Sierra and Office 2016.

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.

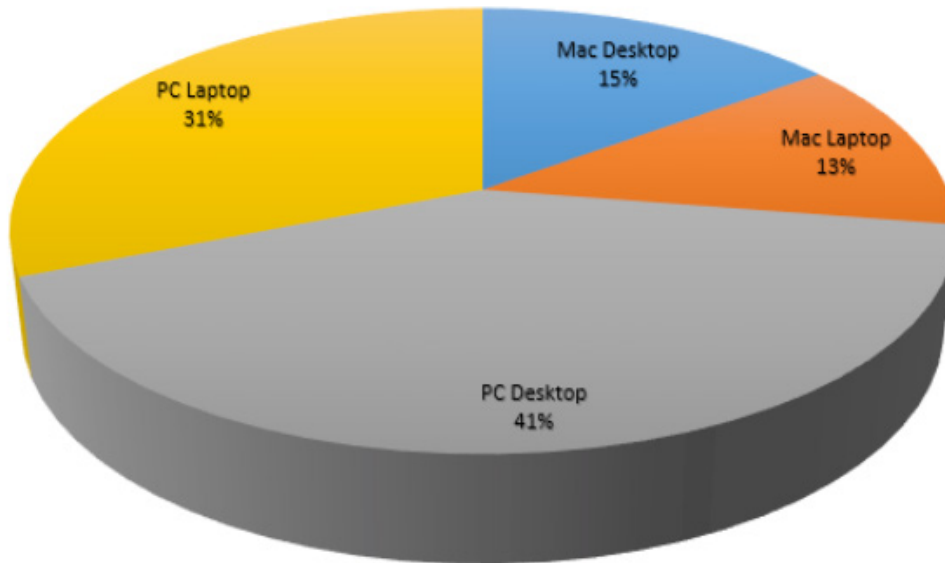
Windows users now have Windows 10 and Office 2016. Mac users now have Sierra and Office 2016.

Departments upgraded during the 2017-18 academic year included: Administrative Services, Assessment and Institutional Research, Book Shop, Career Center, Center for Global Learning, College Ministries, Dean's Office, Diversity Center, Financial Services, Human Resources, President's Office, Regents Center, Residence Life, Student Life, TRIO, and Wellness.

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

Workstations on Campus

Summary of Workstations



Count of Asset Id	Column Labels				
Row Labels	Mac Desktop	Mac Laptop	PC Desktop	PC Laptop	Grand Total
Acad	49	113	44	99	305
Admin	74	82	199	235	590
ITS	6	2	1	2	11
Kiosk	27		1		28
Lab	74	10	338	159	581
Podium	8		54	1	63
Research	5		41	16	62
(blank)	1	1	1		3
Grand Total	244	208	679	512	1643

Objectives for 2018-19

The objectives are organized by guiding principle.

1) Improves Teaching and Learning Outcomes for Faculty and Students.

- Continue upgrading analog classrooms to digital.
- Continue upgrading classroom projection.
- Continue installing Skype and Video Conferencing systems in classrooms and meeting spaces.

2) Provides Differentiation for Prospective Students and Parents.

- Perceptive Content document imaging workflow implementation is planned for student records, financial aid and human resources. Schedule Content upgrade to version 7.2.3 to enable new functionality and interface with Colleague. Perceptive Content is capable of streamlining processes, forms, data retrieval, and reducing paper forms for students and staff.
- Implement the Colleague, reporting, and data interfaces with auxiliary systems that are needed to support the Gender and Chosen name policy for students to support new data, display, reporting, and publications that will be impacted.
- The Colleague Self Service portal will provide students and parents information to support better faculty advising and course planning, financial aid award information, student financial statement information, and student work time entry.

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

- Continue to partner with the student success team and the Luther community to support Google Sites for student ePortfolios in the classroom, in advising, and in other settings.
- Continue to transfer responsibilities to Technology Help Desk student workers, especially student managers.

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

- In collaboration with the Alumni Office and other campus departments, determine a timeline and transition plan for moving away from Norse Apps for alumni and toward a better system for staying in touch with alumni.
- To improve conversations based on the information in the Reeher Customer Relationship Management system, Advancement has requested additional data be included in the daily data transfer. Phase II of the project to update Colleague with Development Officer donor contact notes from the Reeher CRM will improve the information available to the donor records staff as well.

5) Provide effective and efficient information technology infrastructure for Luther College.

- 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 to improve Luther's security posture by further network segmentation.

- Improve wireless network by upgrading Towers to 802.11AC wireless running on the Aruba platform.
- Improve wireless network by upgrading Brandt to 802.11AC wireless running on the Aruba platform.
- Improve wireless network by upgrading College Apartments to 802.11AC wireless running on the Aruba platform..
- Improve wireless network by eliminating all MSM430 model wireless access points. They will either be replaced new Aruba APs, or replaced with AP model MSM460 that have been replaced in their original locations.
- Select, purchase, and implement an automated server patching system.
- Upgrade Networker backup software to the newest version.
- Research KnowB4, SANS training, or facilitate 'escape rooms' to educate users how to identify phishing attacks.
- Explore the use of open source software to perform a penetration test/vulnerability scan of our network.
- Select and install a multi factor authentication solution that integrates with ADFS for use with Colleague Self Service and other campus systems.
- Develop identity management policies and procedures to better manage account life cycles.
- Integrate logging & monitoring solution to our nightly automated workflow processes to alert our developers of any failures before our clients notice issues in the morning.
- Continue to reduce telephone budget through multiple bids for items needed.
- Maintain voicemail and phone switch integrity by implementing a more aggressive cleaning schedule.
- Work with various vendors to secure a viable solution to replace our current voicemail and phone switch.
- Configure Business Objects to authenticate through Active Directory and upgrade to version 4.2.
- Update policies and procedures surrounding data privacy regulations for GLBA and GDPR compliance.
- Improve the wired and wireless network in the second floor Jenson-Noble Music Office .
- Research options for standardizing data integrations and enterprise data reuse to improve efficiencies in the data transfers to auxiliary software systems and services.
- Assist the VP of Communications and Marketing with content management system research, selection, and implementation planning.



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