Information Technology Services

WASHINGTON STATE UNIVERSITY
SPOKANE

ANNUAL REPORT

2017

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Who We Are

We are WSU Spokane Information Technology Services, one team encompassing many fields of expertise – all focused on the single goal of creating a superior information technology environment for WSU Spokane's unique multi-institutional campus. While we make our home within the WSU Spokane community, we do not see ourselves as a static department. Instead, we consider ourselves to be a dynamic business partner actively pursuing new opportunities to provide our customers with the highest level of service to help them succeed. We are defined by this commitment and continuously design, implement, and offer services and solutions in support of WSU Spokane's greater vision of creating and maintaining a premier research and health sciences campus.

Mission Statement

Our organization, through collaborative and progressive leadership, uses its information technology resources to support the strategic mission of the campus by facilitating excellence in teaching and learning, ensuring excellence in service delivery, and supporting state-of-the-art research and discovery.

Our 5 Strategic Goals

Connect.

Provide state-of-the-art infrastructure to facilitate excellence in teaching, research, and operation.

Collaborate.

Grow and develop partnerships and alliances to advance campus initiatives.

Conserve.

Champion environmentally responsible use of technology.

Cultivate.

Promote a world-class teaching and learning environment.

Care.

Create a first-rate, customer-focused culture.

To Our Campus Community

Technology is increasingly interwoven with all aspects of daily activities for WSU Spokane's students, faculty, and staff. From commonplace expectations—like email and MS Office solutions, to leading-edge tools and resources for teaching, learning, and research—our ITS teams have no shortage of opportunities or challenges.

By focusing on the following, ITS is creating technology-rich environments to meet the evolving needs of our campus:

- Building secure research frameworks that help academics create new knowledge;
- Upgrading classroom technology to facilitate excellence in teaching and learning;
- Enhancing the technology infrastructure that powers the campus experience.

This annual report is organized around our 5 strategic goals—highlighting our accomplishments from the past year and featuring the projects and initiatives we are engaged in going forward. Looking ahead to the coming year, we are reevaluating our model for delivering services and providing support to the campus community. This means renewing our commitment to understanding the needs and priorities of our customers. It also means identifying new synergies that traverse organizational boundaries to help enable efficient and cost-effective delivery of reliable, innovative, and secure information technology capabilities and experiences.

ITS Leadership Team

Connect.

Provide state-of-the-art infrastructure to facilitate excellence in teaching, research, and operation.

Campus Wireless

Cellular Signal Boosters

Network Access

Campus Wireless

Responding to the demands of a growing campus

As our campus has continued to grow, and especially with the inaugural medical school cohort beginning in fall of this year, the need for an expanded and upgraded wireless infrastructure has never been greater. Not only have we experienced growth in our student body, faculty, and staff, the number of mobile devices used on campus has also increased. The average number of devices per student is now 2.0 – up from 1.5 two years ago. We have also experienced a 10% increase in internet bandwidth consumption.

Over the past year, the Networking & Telecomm Infrastructure team has installed a new wireless network architecture throughout the Spokane campus, increasing wireless access speeds from 50 – 70 Mbps to 450 Mbps. The new architecture will be able to accommodate the much needed capacity and coverage, in order to meet the new demands. Our first milestone, installation of wireless access points (APs) throughout the Spokane Teaching Health Clinic in August, led to successful deployments in the highest student density areas of the Student Academic Center and the Pharmaceutical & Biomedical Sciences building in September.

APs have been integrated with our old wireless network architecture and installation has been completed for outdoor APs in the courtyards of the Nursing building and the Pharmaceutical & Biomedical Sciences building and outside the Academic Center on the adjacent lawn area. At present, the Network team has installed 179 out of 306 total APs. Areas of our campus which have historically had the lowest wireless speeds and highest number of dropped connections have, at this point, all been addressed with the new wireless architecture. Additional outdoor installations will be completed in spring 2018. Following that milestone, we will continue to expand the indoor architecture, remove the previous architecture, and fine-tune the network for optimal usage.

Cellular Signal Boosters

Addressing problematic areas to improve cell reception

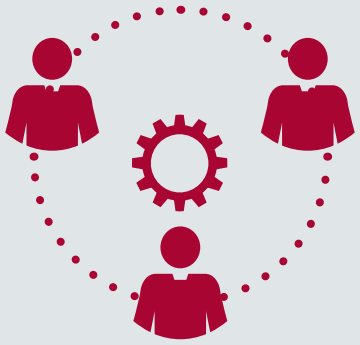
To directly address user concerns about cellular reception from our 2017 TechQual+ IT survey, we investigated the source of these issues on the Spokane campus. Several factors impact cellular reception on campus including multi-signal interference, lack of line-of-sight to cell towers, physical structures between towers and campus, and the composition of campus buildings. While we are unable to address these problems directly, we have installed cellular signal boosters in several places around campus where interference makes use of cellular connectivity difficult, but not impossible. For locations where signal boosters are ineffective, we have provided instructions to our campus population on how to setup and use Wi-Fi calling to maintain connectivity over our wireless network.

Wireless access point and cellular signal booster deployments

Network Access

Adding robustness by changing providers

Adding redundancy to, and increasing the integrity of, the campus internet connections became a significant initiative for ITS when current providers changed their business structure, creating a less robust internet environment. Over the past year, we have negotiated a contract with a new network access circuit provider, Level 3 Communications. This change not only satisfies our desire for increased geodiversity of connections, but also results in a small cost savings for the University. The infrastructure is currently being readied for the scheduled provider changeover in March of 2018. We expect the change to be completely unnoticed by our campus population.



Collaborate.

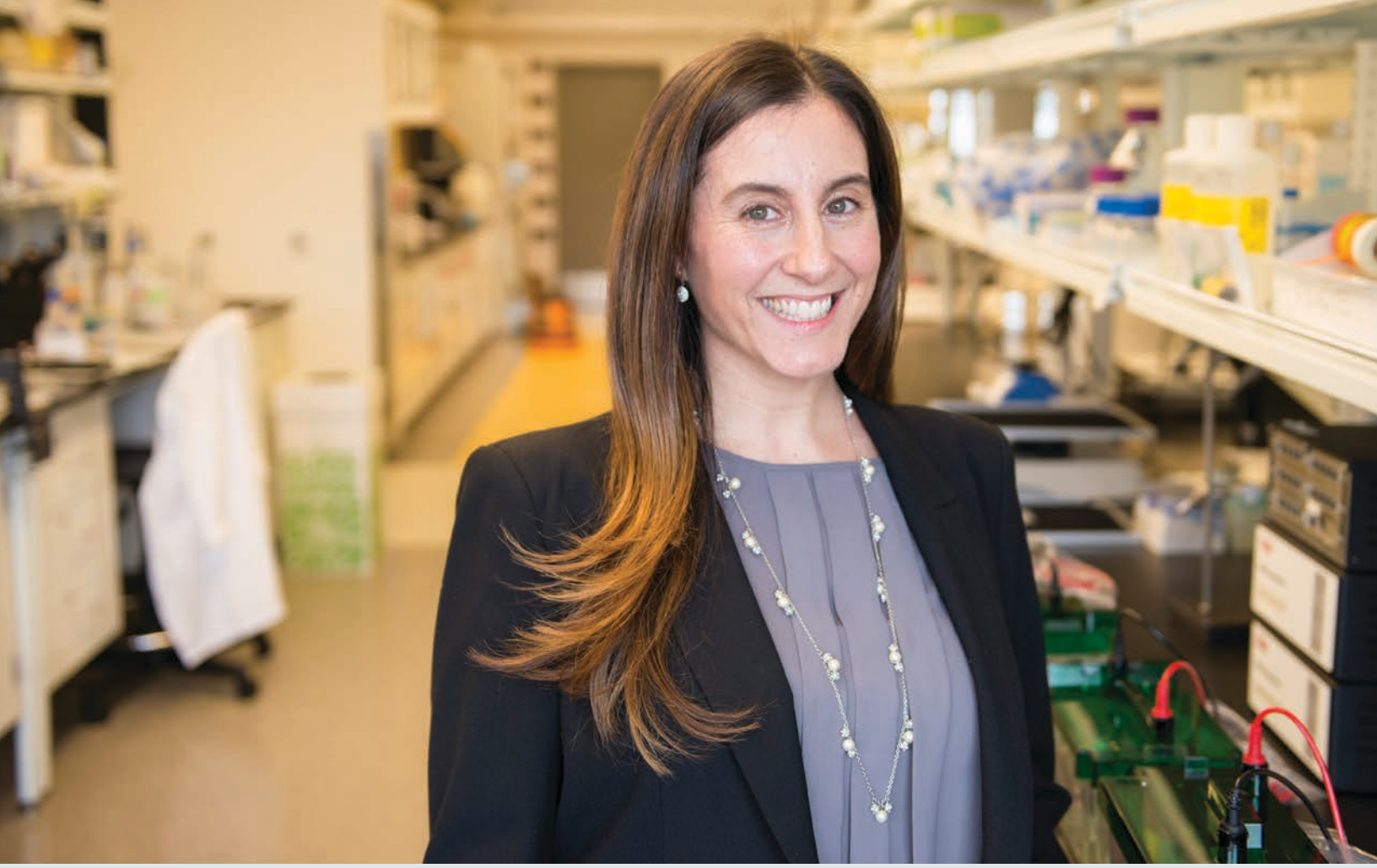
Grow and develop partnerships and alliances to advance campus initiatives.

High-Speed Research Link

High Performance Computing Cluster

AirServer Presentation Software

Browser-Based Collaboration



High-Speed Research Link
High Performance Computing Cluster

Aiding campus health sciences research

Spokane to Pullman High-Speed Research Link

This year, ITS marked the completion of the high-speed research link between the Spokane and Pullman campuses. Adding a single-mode fiber-optic cable connection between the two campuses will enable access to the high performance computing clusters (HPCC) in both locations. This enables load-balancing of our resource-intensive data centers and ensures maximal time availability for University researchers.

High Performance Computing Cluster

We are currently working with researchers to improve the process of accessing compute time on the HPCC. We are also working to streamline each phase—from a researcher's initial job submission to run on the desired compute cluster, to downloading the compiled data after the job is completed in preparation for the next researcher.

Much of the current research in medicine involves or requires so much data that without adequate computational hardware and software, research would become bottlenecked by the sheer quantity of data. Using the WSU Spokane HPCC, researchers like Dr. Lucia Peixoto reduce computational time requirements by a factor of ten. When using the cluster to research complex relationships between autism spectrum disorders and epigenetic changes, Dr. Peixoto describes the cluster as "Crucial, [as] it enables us to sort through our analysis fast, where in a week we can produce several gigabytes of potential test data-sets that would take 10x more time on a single computer. For instance, a typical process of aligning our experiment material to the known genome database takes 5-6 hours in the cluster. If a single average computer was used solely for the same purpose, it would take a whole week." Dr. Peixoto further stated that our system stability ensured that outages wouldn't impact her research. This is in contrast to using a typical desktop computer to perform data analysis tasks which often results in system outages that "could [each] potentially result in a 2-week setback for the entire team."

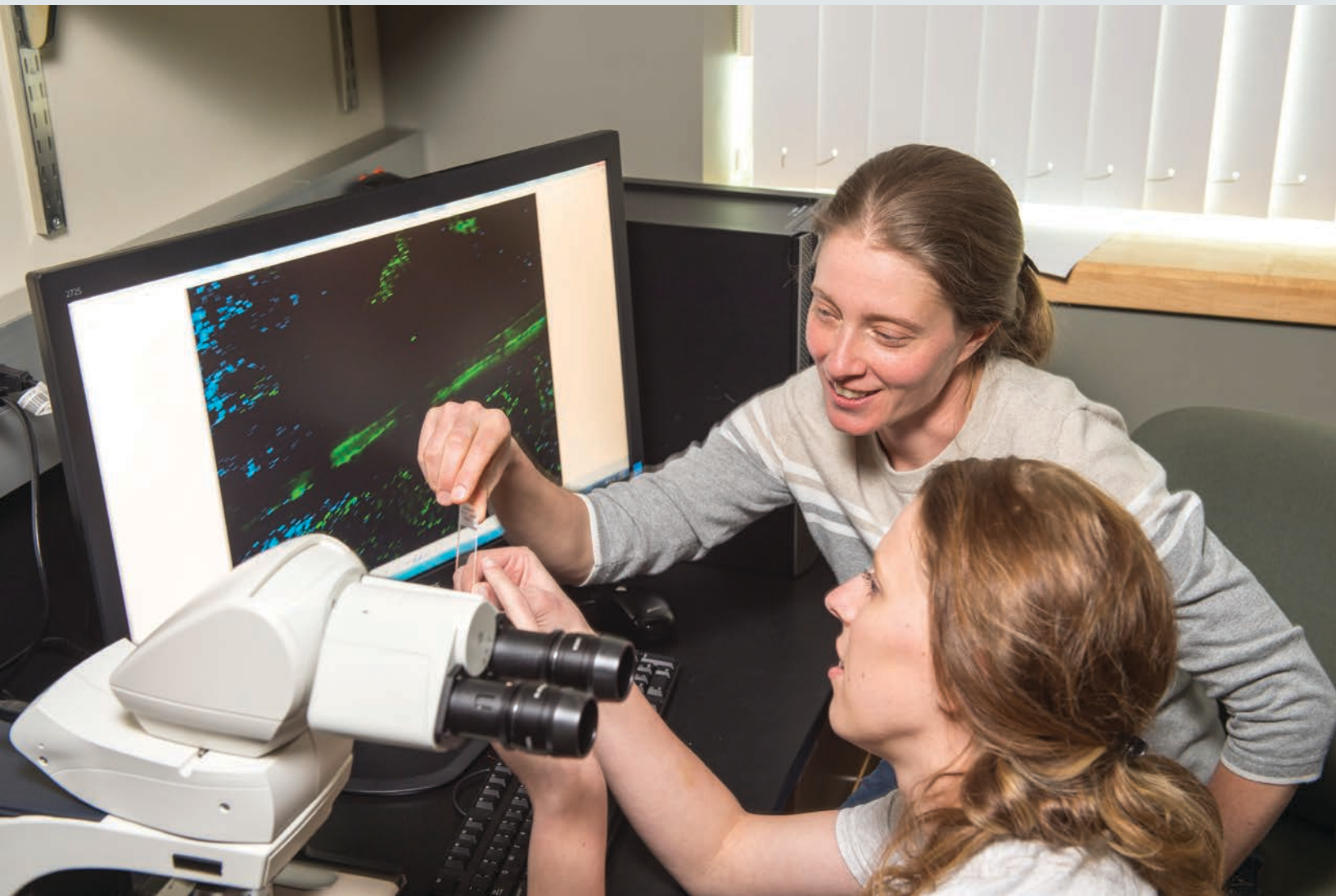
Certain computational tasks would practically be impossible without the HPCC. The ability to have it available locally and at our disposable, where we can get fast support, is an invaluable resource.

– Dr. Lucia Peixoto
Elson S Floyd College of Medicine

Dr. Peixoto's team also relies on our Systems team to deliver a computing environment that includes:

- necessary tools for data manipulation,
- emergency data transfer to eliminate data loss and reduce downtime if the system encounters issues, and
- resource management to allocate maximum resources to fit researchers' needs.

To conduct her research and present findings that result in successfully-funded research grants, Dr. Peixoto's team depends upon our cluster to provide the infrastructure and computing power necessary to sort through 2-3 terabytes per study, not including data used to store programs, tools, and programming languages used in the manipulation of the study, which greatly varies. The most data-intensive portions of research in Dr. Peixoto's use of the cluster is in the preprocessing stage, where her team uses the cluster to filter, select, classify, normalize, and integrate several data sets locally and remotely, and in the evaluation stage, where they need to constantly produce potential results and try to identify the right patterns and features they are looking for in a designated study. When asked what value the HPCC on the Spokane campus adds, Dr. Peixoto answered that, "Certain computational tasks would practically be impossible without the HPCC. The ability to have it available locally and at our disposable, where we can get fast support, is an invaluable resource."



AirServer Presentation Software

Enhancing the ability of educators to build a collaborative learning space

To leverage the benefits of multimedia-augmented instruction, WSU ITS installed the AirServer presentation application on classroom computers throughout campus. The AirServer app enhances the ability of educators to build a collaborative learning space by allowing students and faculty to stream (mirror) content from their portable devices to in-room presentation hardware.

For a very small cost, the AirServer app allows us to continue supporting forward-looking instructional technologies to help keep students engaged in the educational process. To use the application, instructors and students can download the free AirServer Connect app from their app store and follow the simple on-screen instructions on the classroom computer. Formal training is available on request.

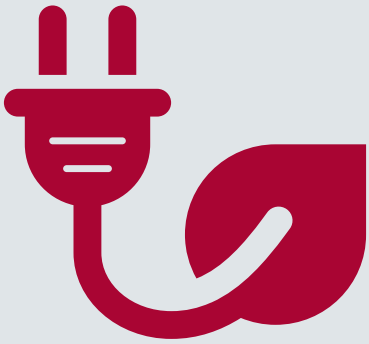
Elson S Floyd College of Medicine faculty and students are heavy users of AirServer in our classrooms and teaching labs, and their feedback has been positive. We're hoping other colleges and departments will also find AirServer to be a useful innovation in the classroom.

Browser-Based Collaboration

Testing new technologies to provide high-quality collaboration solutions

WSU Spokane has a high demand for conferencing solutions given the relatively small size of our campus, so continuing to evaluate products for their ability to meet our community's needs is a high priority.

Over the past year, ITS has been actively testing and piloting several browser-based collaboration solutions (such as Skype, Zoom, and other web conferencing tools) to provide high-quality collaboration solutions for our faculty and staff while also stewarding resources. At present, we support the Skype for Business solution for browser-based collaboration, and anticipate offering additional solutions in the near future.



Conserve.

Champion environmentally responsible use of technology.

Energy Cost Savings

Virtual Desktop Infrastructure

Virtual Systems Infrastructure

Software-Based Conferencing

Energy Cost Savings

Conservation strategies continue to generate savings while improving efficiency and performance

Conserve is one of the strategic goals for WSU Spokane ITS. Server virtualization and power management are two of the key methods we are taking to reduce our energy and physical footprint and to improve efficiency and performance. Energy-saving measurements, based on average use, were taken both by a certified electrician and an Avista-approved software application.

Server VIRTUALIZATION

Virtual Machines
One virtual machine (VM) costs approximately $23 per year to power and cool. A traditional server costs $800 per year in raw power alone, not including hardware, maintenance, and operational costs.

Current VMs
Currently, ITS has virtualized 150 servers, or 90% of the campus infrastructure, exceeding our goal of 80% virtualization.

Money Saved
This produces an annual savings of $116,550 for power and cooling, as well as an additional $600,000 in savings from server replacement costs every 3-5 years.

Power MANAGEMENT

Energy Saved
ITS employs energy-saving technology for campus PC usage. This power management tool helps us accurately measure PC consumption, enforce policies for greater energy efficiency, and optimize savings. This saved 105,170 kWh in 2017, providing a cost savings of $10,520.

Equivalencies
This is the energy equivalent of 3,148 gallons of gasoline —enough to drive around the earth over 2 3/4 times!

Trends
In the future, this level of energy and money savings will continue to grow, as more virtual machines are provisioned and energy saving techniques are implemented.

Virtual Desktop Infrastructure

Offering an alternative solution to a traditional computer workstation

In April, ITS deployed our current Virtual Desktop Infrastructure (VDI) and began offering this as an alternative solution to a traditional workstation. Bringing VDI to the WSU Spokane campus opens a major avenue for ITS to reduce costs of service while expanding the services we offer. Where a typical desktop computer has a life cycle of 3 to 5 years and costs between $1,200 and $1,400 per computer, VDI devices only cost $350 to $450 per device with an annual subscription cost of $200. While performance on a typical desktop computer declines over time, the virtualized nature of VDI devices often means that system performance remains stable, or in some cases even improves, over time. We also expect that without the outdating of hardware that traditional computers experience, VDI devices may have a longer life cycle. Additionally, because of lower per-unit energy costs, we expect to see significant savings as our users transition to VDI over the next few years.

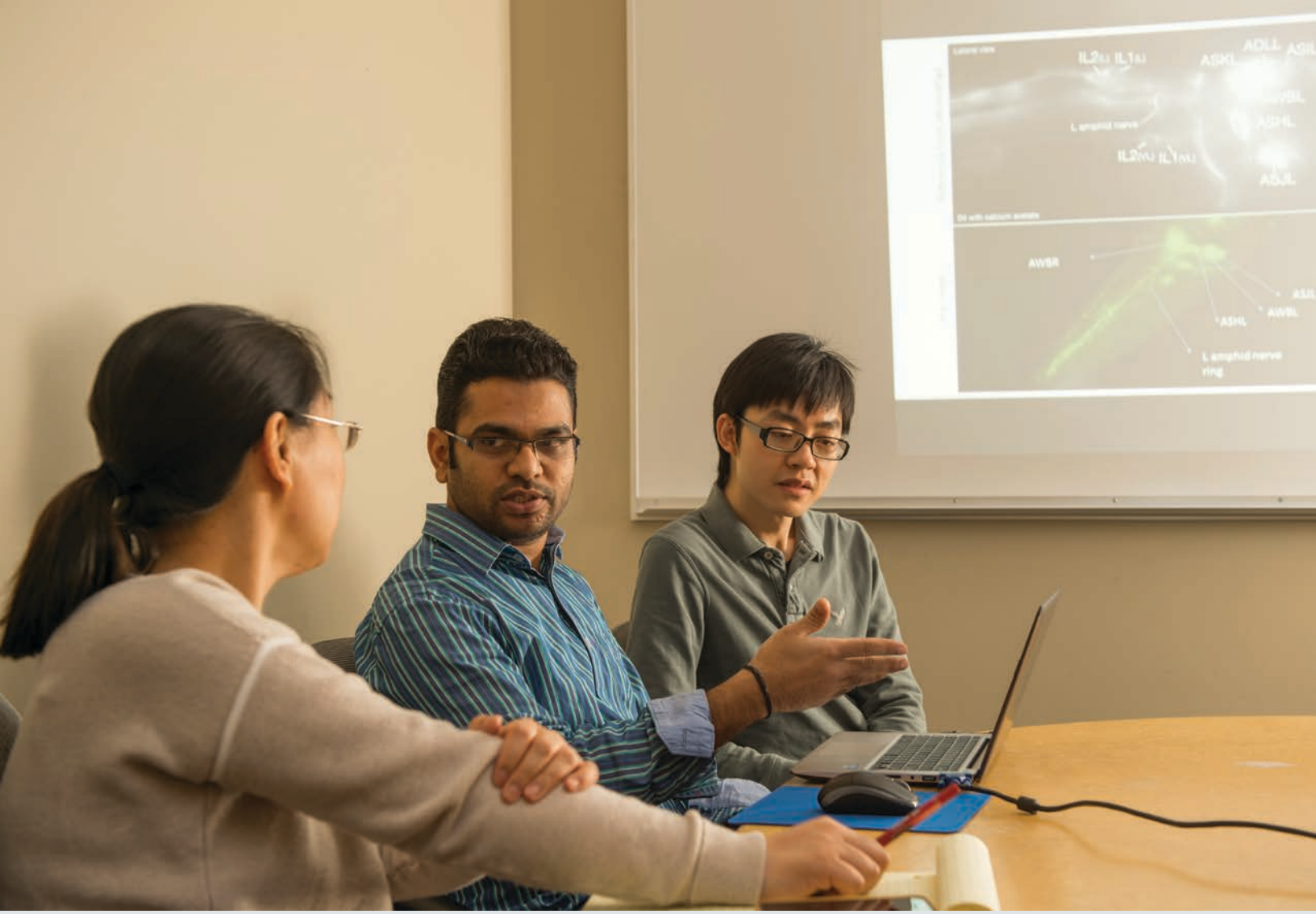
Following the initial rollout of VDI, ITS conducted a major update to our VDI devices over the summer. We updated applications on all devices to increase their performance and we refreshed the anatomy lab in the Pharmaceutical & Biomedical Science building with optimized operating systems to improve user experience and serviceability of the lab without interrupting device usage. Some of the benefits our users have already seen include reduced downtime, instant data recovery from cloud storage, fewer interruptions from server updates/configurations, and reduced software installation time (applications access is granted rather than installed). Our service personnel have also seen benefits in reduced maintenance requirements, simplified troubleshooting protocols, managed security policies, and segmented memory allocation reducing system issues to single users.

Virtual Systems Infrastructure

Transitioning to new technology to reduce licensing costs and allow for easier integration

To standardize our virtual infrastructure environment and better leverage the University's investment to reduce licensing costs, ITS began building the underlying architecture and network connections to support our transition from VMware to Hyper-V virtual machine (VM) technology in early 2017. This transition also makes for easier integration with Microsoft technologies.

In December, we completed the first phase of the project and deployed a few select VM's onto the new architecture to stress test the solution. The data that we've collected on performance is encouraging, as we prepare to transition the remaining 150 VMware VM's on campus in 2018. Services shouldn't experience any changes during or after the migration.



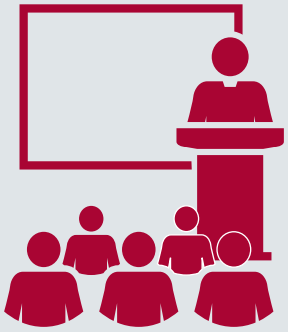
Software-Based Conferencing

Piloting new solutions to reduce expenditures for hardware, installation, and maintenance

In a continuing effort to maximize cost savings, the Audiovisual Engineering team is piloting two software-based conferencing solutions for classroom and conference rooms. Software-based conferencing saves time and money as it is significantly easier to install and maintain and is approximately 20% of the cost of traditional hardware-based solutions.

The first pilot project replaces traditional conference room hardware-based solutions in ROP 212 and 325. ITS has solicited feedback from conference room users to ensure the new solution is meeting their needs and the response has been somewhat mixed. It will take some time for users to get accustomed to controlling their camera and microphone from software rather than a room control system. However, as users get more comfortable with videoconferencing from their offices using Skype for Business, they will be better prepared for software-based videoconference rooms.

The second pilot project replaces classroom hardware-based solutions in SEWC 106. This pilot is for receiving course instruction via videoconferencing where the faculty are teaching from another campus. User feedback from this classroom has been very positive, however, this solution doesn't facilitate local instructor needs very well. As software improves and as users get more comfortable with the technology, we may be able to move forward with software-based teaching. If feedback continues to be positive, we will move forward with similar solutions in other classrooms on campus as equipment needs to be upgraded.



Cultivate.

Promote a world-class teaching and learning environment.

Classroom and Conference Room Technology

2017 Tech Expo

ITS Training

CyberSecurity

BitLocker Encryption

Cloud-Based Applications

User Data Backup Initiative

Pounce Improvements

Network Projects

Classroom and Conference Room Technology

Evaluating and upgrading to save costs and meet campus needs

Each year, ITS evaluates how classrooms and conference rooms are being used on campus and whether the current technology located in each room meets the needs of the intended use. Throughout 2017, our Audiovisual Engineering team upgraded five classrooms and four meeting spaces. In the Student Academic Center classrooms, SAC 45 and SAC 241, the team added Polycom videoconferencing capabilities in addition to replacing the outdated audiovisual equipment. Videoconferencing hardware was also upgraded in the SAC 503A meeting room. In the Nursing building classrooms, SNRS 005 and SNRS 105, the team upgraded the videoconferencing hardware as the old equipment was at end of life.

To reduce costs, new software-based videoconferencing solutions were installed in four spaces on campus. In the Spokane Eastern Washington University Center classroom, SEWC 106, the team added this new technology in addition to a video projector. Software-based videoconferencing technology was also installed into newly occupied spaces in the Riverpoint Office Park in rooms ROP 212, ROP 240, and ROP 325. These new software-based solutions provide a cost savings of about 80% compared to similar hardware solutions.

Videoconferencing Hardware Installations & Upgrades

Polycom videoconferencing capabilities added:

- Student Academic Center 45
- Student Academic Center 241

Videoconferencing equipment replaced:

- Student Academic Center 503A
- Nursing Building 005
- Nursing Building 105

Audiovisual Hardware Upgrades

Outdated audiovisual equipment replaced:

- Student Academic Center 45
- Student Academic Center 241
- Eastern Washington University Center 106

Software-Based Videoconferencing Installations

New software-based videoconferencing solutions installed:

- Eastern Washington University Center 106
- Riverpoint Office Park 212
- Riverpoint Office Park 240
- Riverpoint Office Park 325

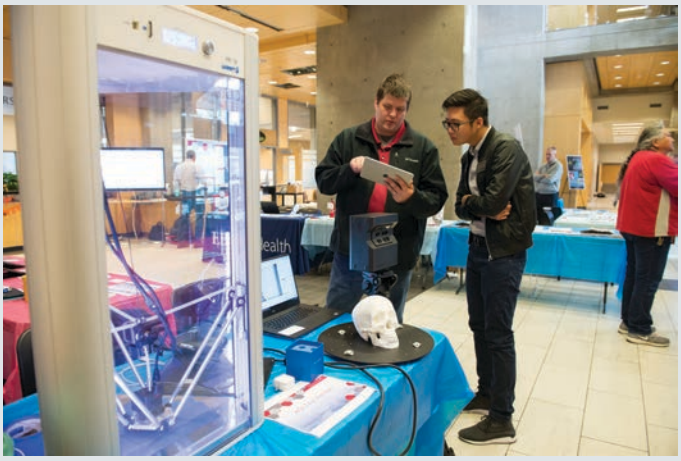
Why are we replacing videoconferencing technology?

Video and audio quality standards have increased drastically over the last 10-15 years. The analog (800x600 pixel) video resolutions have long been superseded by digital HDMI 4K resolutions (3840x2160 pixel) of today. Also, this equipment becomes unreliable and even unrepairable at around 8 years old. We simply are forced to upgrade or remove the equipment from service. Once we decide a room's equipment must be upgraded, we look for new technology that:

- meets the needs of the space,
- has lower initial and maintenance costs than the older technology, and
- provides additional quality or features that our campus population will find useful.

Video resolutions: digital versus analog

With the rise in software-based conferencing and presentation solutions driving lower initial and maintenance costs, we are looking more toward software-based installations, providing these solutions are appropriate for the learning environment.



2017 Tech Expo

Increasing awareness of education technologies to augment classroom environments

Each year, ITS hosts the WSU Spokane Tech Expo, increasing our customers' awareness of the technologies they have access to and showing how these technologies can augment classroom environments.

This October, approximately 250 students and staff attended our third annual expo, which consisted of 12 organizations from WSU and EWU and 5 technology vendors. ITS also provided several education technology training sessions throughout the one-day event.

We are pleased to see that each year's expo has received more visitors than the last, as this serves our intended goal of educating our user base and fostering an environment where technology is viewed as a partner in problem solving rather than a source of frustration.

An overview of ITS training offerings throughout 2017

CyberSecurity

Defending our users from malicious attacks and increasing awareness

In the face of the rising costs of data breaches in the U.S., it becomes increasingly important to ensure that organizational data is handled and stored responsibly. To increase the security of our users' information, ITS has taken several steps to reduce potential vulnerabilities. In 2018, we will begin offering Microsoft BitLocker encryption services campus wide and have been offering training on the use of cloud-based applications (Office 365 applications) and storage solutions (Pounce) that reduce the risks of data-on-disk and data-at-rest. We also negotiated a change to Level3 internet circuits which establishes a secondary line for intra- and inter-net communication and increases the geodiversity of our connections to add physical redundancy to our systems. This change over will take effect in March 2018. Additionally, our new wireless architecture increases our ability to identify suspicious network activity, allowing us to locate and segregate devices with malicious software installed.

Unfortunately, while we actively defend our users from malicious technology use, there are many areas where defense is ineffective without an informed and attentive user population. To an extent, our systems contain potential weaknesses when users are unaware of techniques that attackers use to gain access. Users expose themselves to financial or identity risk when uninformed. To mitigate the potential threats to our systems and our people, we continue to promote the safe use of technology by educating the campus population.

This fall, we participated in CyberSecurity Awareness month by sending out campus-wide announcements and posting flyers and posters about email phishing scams and methods for safe online conduct. Our Network Security Engineer was also present at the TechExpo throughout the day to answer questions and raise awareness.

2017 Global CyberSecurity Issues

WannaCry / WannaCryptor worm charged an average ransom of $300 per decryption, with over 200,000 computers affected.

Petya/NotPetya ransomware's largest single attack cost over $300 million for a single institution.

Bad Rabbit charged an average ransom of $283 per decryption and spread globally in less than 24 hours.

The Cloudbleed configuration bug affected over 6,457 websites globally.

Blueborne exposed vulnerabilities in more than 20 million Bluetooth-using devices.

Broadpwn exposed vulnerabilities in millions of Android and iOS devices over wi-fi.

Specter and Meltdown remote-access vulnerabilities were discovered, but have been present in computer processors for 22 years.

BitLocker Encryption

Reducing institutional risk

To better safeguard University equipment and sensitive information, reduce potential costs, and reinforce the responsible use of technology, ITS is working with faculty and staff to enable Microsoft BitLocker Administration & Monitoring (MBAM) on University desktops and mobile devices.

Enabling BitLocker encryption, especially when done in conjunction with off-site data (cloud) storage, is simply the cleanest method for ensuring that data is not lost or exposed to theft. When the encryption service is enabled, the entire system state moves into an "encrypted by default" mode. Only the information that is currently being accessed is decrypted for usage, then automatically re-encrypted when the screen is locked, the user logs out of the system, or the system's regular operations are interrupted.

If a computer or mobile device is stolen, lost, or destroyed, having encryption services enabled prevents data on the device from being accessed by a third party. If data is saved using cloud storage, a stolen device can be replaced with minimal down-time and no loss of information.

ITS is currently staging this solution in preparation for general availability in spring 2018. At that time, the service will be available to all WSU Spokane domain joined desktops and mobile devices.

"The average institutional cost of a data breech in 2017 was $3.62 million, with confidential records costing an average of $141 per record."

-2017 Ponemon Cost of Data Breach Study

Cloud-Based Applications

Helping our users take better advantage of cloud solutions

ITS has focused efforts on upgrading and enhancing cloud-based applications this year, in addition to providing user training to take better advantage of these solutions. Our cloud services continue to offer excellent return on investment for the University and enhance the ability of ITS to support the many needs of our students, faculty, and staff. In general, the cloud service subscriptions we promote are less costly than PC-based applications, are more easily updated and supported, and provide a more secure environment for data. Additionally, all cloud applications are more environmentally friendly due to their ability to segment and load-balance demands, reducing energy consumption when demand is low while remaining ready to scale when demand is high.

Taking user feedback into account, improvements were made to our Pounce on-premise cloud file sharing platform. Pounce is used by faculty and staff to store, access, and share data with University colleagues. These upgrades encouraged more users to take advantage of this secure data management solution. Improved usability features include a cleaner interface and a landing page that integrates favorites and widgets. Faster upload/download times and simplified drag-and-drop tools aid with data sharing and transfers. New features include the addition of user-generated teams with selectable permissions and controls, role-based data sharing through the Address Book, and enhanced document tracking, access, and usage reports.

Throughout the year, our Technical Support Center also offered training on the configuration and use of Office 365 cloud-based applications (OneDrive, OneNote, Outlook, and others). This has enabled our users to be more productive with these tools and keep their information safe and accessible.

User Data Backup Initiative

Educating users on how to protect their data

In an initiative to proactively preserve our users' data before a critical loss, the Technical Support Center has been using in-office support visits to educate users on how best to protect their data. TSC staff has helped many users migrate their files into OneDrive and educates them on the productivity benefits of using OneDrive and other online Office365 tools. In addition, we have started using OneDrive as a back-up point when migrating our customers to new computers. This way our customers start off on the best foot ensuring their files are safely backed up to the cloud.

Educating our users on current technology reduces data recovery time and cost, reduces institutional data storage costs, and prepares our users for increasing trends in decentralized computing.

Network Projects

Supporting remote sites to provide standardization and protection

Network team projects for 2017 included infrastructure upgrades for the College of Nursing building on the Yakima Valley Community College campus and for the WSU Small Business Development Center (SBDC) on 2nd Avenue in Spokane. In addition to replacing outdated hardware at YVCC, we also updated the College of Nursing's storage area network. This work was conducted to ensure that they have access to the University's common sharing platform. For the SBDC, we added a new application aware firewall to protect their data network. We also added site-to-site virtual private network capabilities to enable the same user experience as any of the larger campuses and installed a fiber connection between the SBDC office and the main WSU Spokane campus. The connection delivers near-instant data transfer. Additionally, we negotiated a change in their internet service delivery from residential-grade to carrier-grade, which incorporates higher connection speeds and improved connection integrity. These and other changes at our remote sites are in support of bringing all WSU locations to standardization on common platforms, technologies, and levels of ITS support. This will aid to universalize technical support and protect University assets across WSU.

Care.

Create a first-rate, customer-focused culture.

TechQual+ Survey

University KnowledgeBase

Accessibility

Campus Room Directory

TechQual+ Survey

Accessing IT service quality

Feedback from our customers is vital to ensure we are meeting their expectations in providing technical services and solutions at WSU Spokane. Last spring, ITS collected responses from 358 members (16%) of our campus community through the Higher Education TechQual+ Project survey. At a high level, the survey revealed that:

- 7 of 13 standard IT services exceeded minimum expectations.
- 94% of respondents reported satisfaction with IT technical support.
- Respondents felt that Wi-Fi service was the most critical technology in need of improvement. Specifically, respondents identified problems with access and speed, reliability in classrooms, sluggishness during high-traffic times, and the visitor login process.
- Students, faculty, and staff experienced frustration with cellular coverage (especially in basements, labs, and faculty offices).
- Many respondents were frustrated with the room scheduling system.
- Issues with the WSU Spokane and MyWSU website navigation, ease of use, and availability of information were cited by several respondents.
- Respondents were largely satisfied with ITS support staff and levels of support available, but also desired additional self-help resources.
- Difficulties using Blackboard LMS were frequently noted.
- Some respondents felt that Skype for Business was easier to use than other videoconferencing technologies and some respondents preferred to use Skype for Business from their desktop/laptop rather than scheduling a conference room for that purpose.

In places where survey results pointed to adequate or excellent performance, we have tried to make small, positive adjustments to our operations. In places where survey results painted services as inadequate, we have focused projects and operations to improve those areas:

- Our wireless upgrade project directly addressed negative experiences with access, speed, and reliability.
- The installation of cellular boosters and communicating the benefits of Wi-Fi calling addressed cellular coverage issues.
- We delivered and hosted over 40 hours of workshops and classes during the year to better train our community on learning management systems and videoconferencing software to address encountered difficulties.
- We updated the Campus Room Directory to assist efforts in accessibility and scheduling rooms that meet pedagogical requirements.

The full 2017 TechQual+ Survey Report is available on our website at spokane.wsu.edu/its/.

Top Three IT Services Needing Improvement

Students
Five Most Requested Improvements

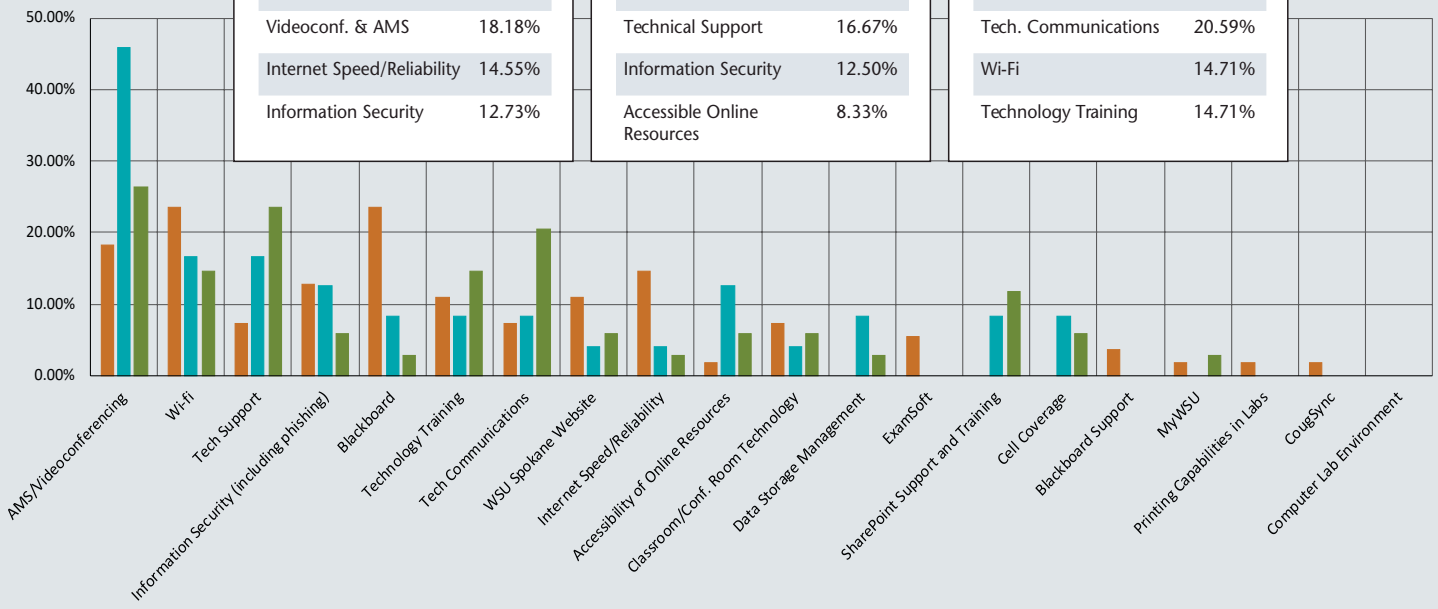
Wi-Fi	23.64%
Blackboard	23.64%
Videoconf. & AMS	18.18%
Internet Speed/Reliability	14.55%
Information Security	12.73%

Faculty
Five Most Requested Improvements

Videoconf. & AMS	45.83%
WiFi	16.67%
Technical Support	16.67%
Information Security	12.50%
Accessible Online Resources	8.33%

Staff
Five Most Requested Improvements

Videoconf. & AMS	26.47%
Technical Support	23.53%
Tech. Communications	20.59%
Wi-Fi	14.71%
Technology Training	14.71%



Top Three Most Helpful IT Services

Students
Five Most Helpful Services

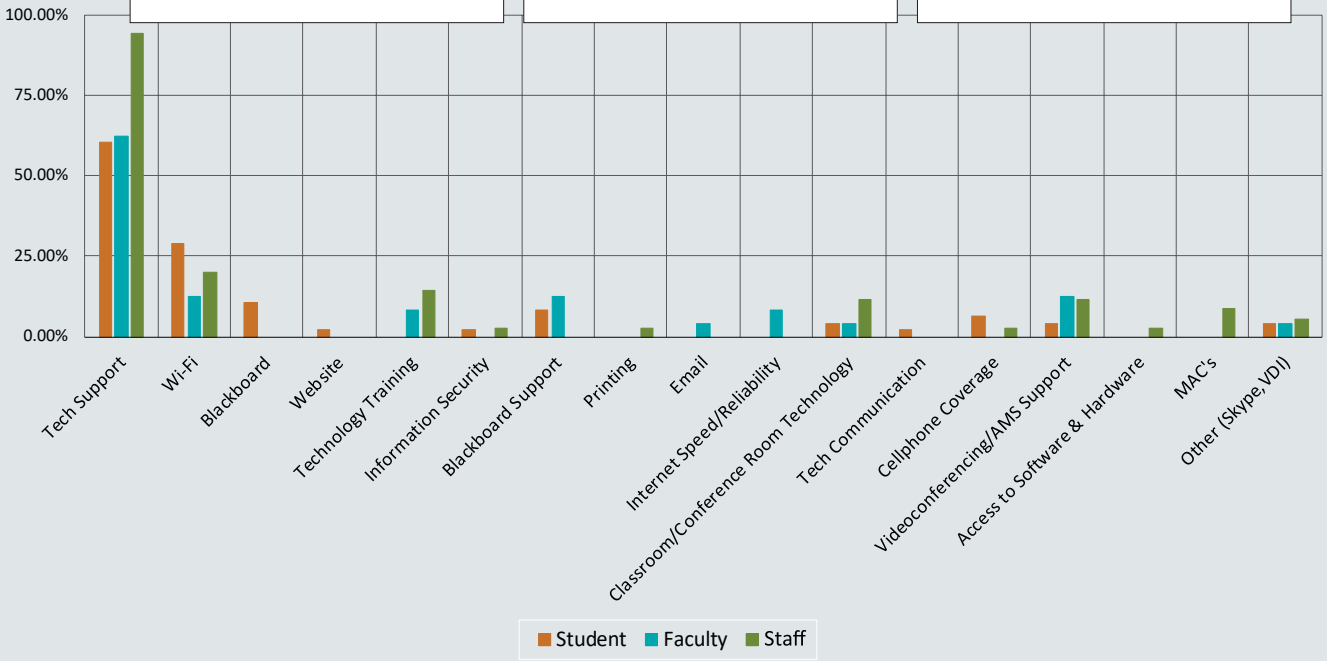
Technical Support	60.42%
Wi-Fi	29.17%
Blackboard	10.42%
Blackboard Support	8.33%
Cellphone Coverage	6.25%

Faculty
Five Most Helpful Services

Technical Support	62.50%
Wi-Fi	12.50%
Blackboard Support	12.50%
Videoconf. & AMS	12.50%
Technology Training	8.33%

Staff
Five Most Helpful Services

Technical Support	94.29%
Wi-Fi	20.00%
Technology Training	14.29%
Classroom Technology	11.43%
Videoconf. & AMS	11.43%



University KnowledgeBase

Assisting users with how-to help

The WSU KnowledgeBase (KB) was launched in May through the collaborative efforts of the various WSU IT support centers across the University. The KB is a shared depository of documents that are designed to assist users with technologies and technology-related services. As co-lead in the project, WSU Spokane ITS helped populate the University-wide KB with 184 unique documents during 2017.

Documents currently in the KB include setup instructions for hardware and software, beginner and advanced account configuration options, instructions for classroom technologies and specialized web tools, tips for navigating and using WSU-specific services, and basic troubleshooting advice. Many of the documents in the KB receive hundreds of views each month and some documents receive thousands of views each month.

Any WSU user can submit documents to the KB, however to ensure clarity and accuracy, all documents go through a review and proofing process before becoming publicly available. The majority of the documents are ITS answers to frequently asked questions, solutions to common misconfigurations, and tips provided by other users. The KB also has the capability to address campus-specific questions. Users interested in accessing or requesting information specific to Spokane campus' technologies and services are encouraged to visit kb.wsu.edu/Spokane. Users interested in generalized information from all campuses can also visit kb.wsu.edu.

Accessibility

Providing accessible technology within learning and meeting spaces

Building on last year's assessment of the physical, technical, curricular, and co-curricular accessibility needs for people with disabilities, our team worked with other WSU stakeholders to revise Executive Policy 7 (previously updated in 2001) and publish the revised policy in June of 2017. The revised policy addresses WSU requirements, timelines, and approaches to accessibility (including Accessible Electronic Information Technology).

In addition to accessibility updates to our web presence, our Accessible Technology support person is working with Student Affairs and Disability Services to address other student accessibility needs in support of the policy revision, particularly within the learning and meeting spaces on campus. One of the chief services that our support person and Student Affairs staff collaborate on are in the provisioning of alternative text and accessible technology for students.

ITS also maintains a presence on the campus Accessibility team, which conducted building walk-throughs and noted areas that require attention (doors, restrooms, etc.) and worked with Facilities Operations on a list of items for remediation. Accessibility options for classrooms and conference rooms are regularly updated on the Campus Room Directory webpage and ITS continues our efforts to help make the WSU Spokane campus an inclusive and accessible environment.

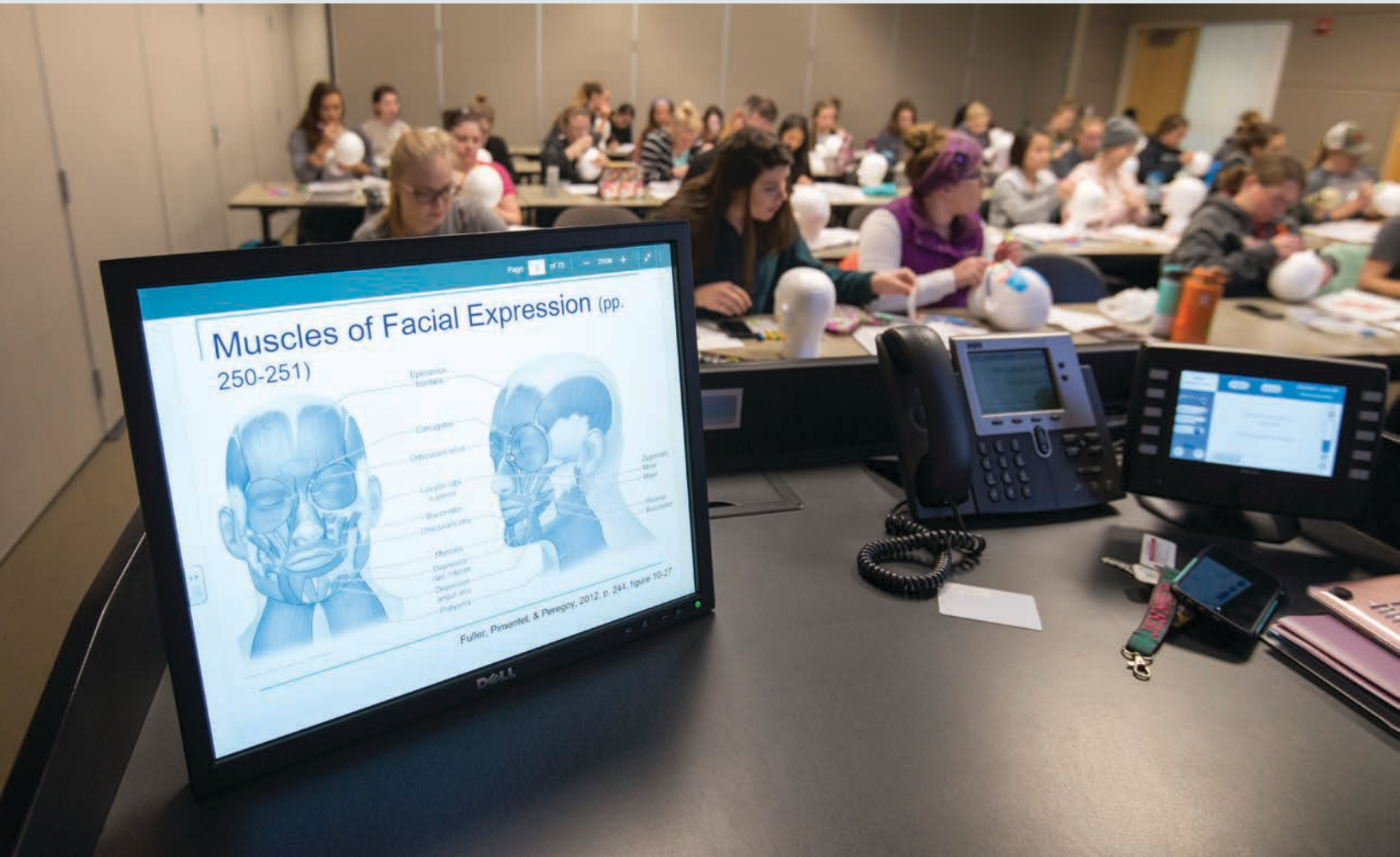
Campus Room Directory

Enabling users to request rooms that better fit their requirements and accessibility needs

The Campus Room Directory, built and maintained by the ITS department, contains information and photos for each classroom, conference room, and public event space at WSU Spokane. Each year, we inventory the educational, presentation, and videoconferencing technology available in each space, in addition to the accessibility features, then update the directory prior to the start of fall classes.

Both the WSU and EWU Student Affairs organizations use the Campus Room Directory to refer room requestors when questions arise about room technology, table and chair configurations, etc. Reviewing the directory prior to scheduling a space enables users to request a room that better fits their requirements and the accessibility needs of each person using the space. The Campus Room Directory also contains contact information for IT support services, allowing for easy access when requesting equipment or support. As we continue to improve campus accessibility, we expect our directory to become even more helpful in promoting this critical initiative.

The Campus Room Directory is available for viewing on the ITS website at: https://spokane.wsu.edu/its/campus-room-directory/.



Our IT Liaison Team

Facilitating communication and cooperation

Members from our leadership team have been assigned as liaisons for campus colleges and/or departments as detailed below. If you have questions about our IT Liaison program, or are interested in dedicating an IT Liaison to your college or department, please contact us at 509-358-7748.

Angela Earley
(509) 358-7971
earley@wsu.edu

- Administration
- Chancellor's Office
- Capital Planning and Development
- Communication and Public Affairs
- Facilities Operations
- Finance Office
- Human Resource Services
- Office of Research
- College of Pharmacy
- Pharmacotheraphy
- Speech and Hearing Sciences
- Student Affairs
- Nutrition and Exercise Physiology
- Small Business Development Center

Bryan Valley
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- Library
- CAFRU (Child and Family Research Unit)
- College of Medicine
- Sleep and Performance Research Center
- Medical Sciences
- Veterinary Medicine
- College of Nursing
- Health Policy and Administration

Daren Noe
(509) 358-7922
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- Criminal Justice
- MESA
- Education

Jason Minton
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- Institute for Shock Physics and Applied Sciences Lab

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ITS

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