



## SIX YEAR COMPENDIUM

2016 - 2022



WASHINGTON STATE UNIVERSITY  
**Information Technology Services**

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# WSU Strategic Plan and Goals

ITS Strategic Plan and Goal Support



WSU Theme 1:  
**Exceptional Research,  
Innovation, and Creativity**

**ITS Goals:** Collaborate across WSU campuses to create a shareable High Performance Computing Environment, restructure WSU's fiber networks for greater access, capacity, and strength.



WSU Theme 2:  
**Transformative  
Student Experience**

**ITS Goals:** Enhancements for WSU's Learning Management System; ensure optimum student access in WSU's residence halls; deploy collaborative student success platform focusing on increased retention and graduation rates.



WSU Theme 3:  
**Outreach and Engagement**

**ITS Goals:** Collaborate across WSU campuses to provide shareable services; establish strong communication presence across WSU through organizational transparency and strong customer focus.



WSU Theme 4:  
**Institutional Effectiveness:  
Diversity, Integrity, and Openness**

**ITS Goals:** Collaborate with administrative WSU units to modernize HR/Payroll/Finance systems; implement Payment Card Industry (PCI) compliant networks and processes; centralize and upgrade imaging system; transition existing email and calendaring.

*“Our measure of success is directly attributed to the successes derived by those we serve, our students, faculty, and staff. Often, this comes only through collaboration with these stakeholders. In other words, **Innovating Together (IT)** is our moniker.”*

*Dr. Sasi Pillay, VP & CIO*





# Continuity, Community, Connection

The only constant is change, and there is no industry or aspect of life where that is truer than in technology. Whether it is change management, customer support, or information security, skimming through this compendium will quickly show that navigating the constant technology changes truly takes a partnership stretching system-wide every year.

Maybe one more constant should be allowed, and that is the dedication of ITS staff to WSU's mission. Each year, the communications team enjoys finding creative ways to reflect the relationship between ITS projects and WSU's mission to support secure research and innovation, institutional effectiveness, and lifelong student relationships. The connections are always clear.

ITS' commitment was never more evident than during our response to the pandemic. Teams across ITS stayed onsite after students and other staff left, to ensure the continuity of critical services. Others in ITS rallied to offer secure online tools for teaching, learning, and paying the bills. It all had to keep going. And so, ITS staff worked to be sure it did.

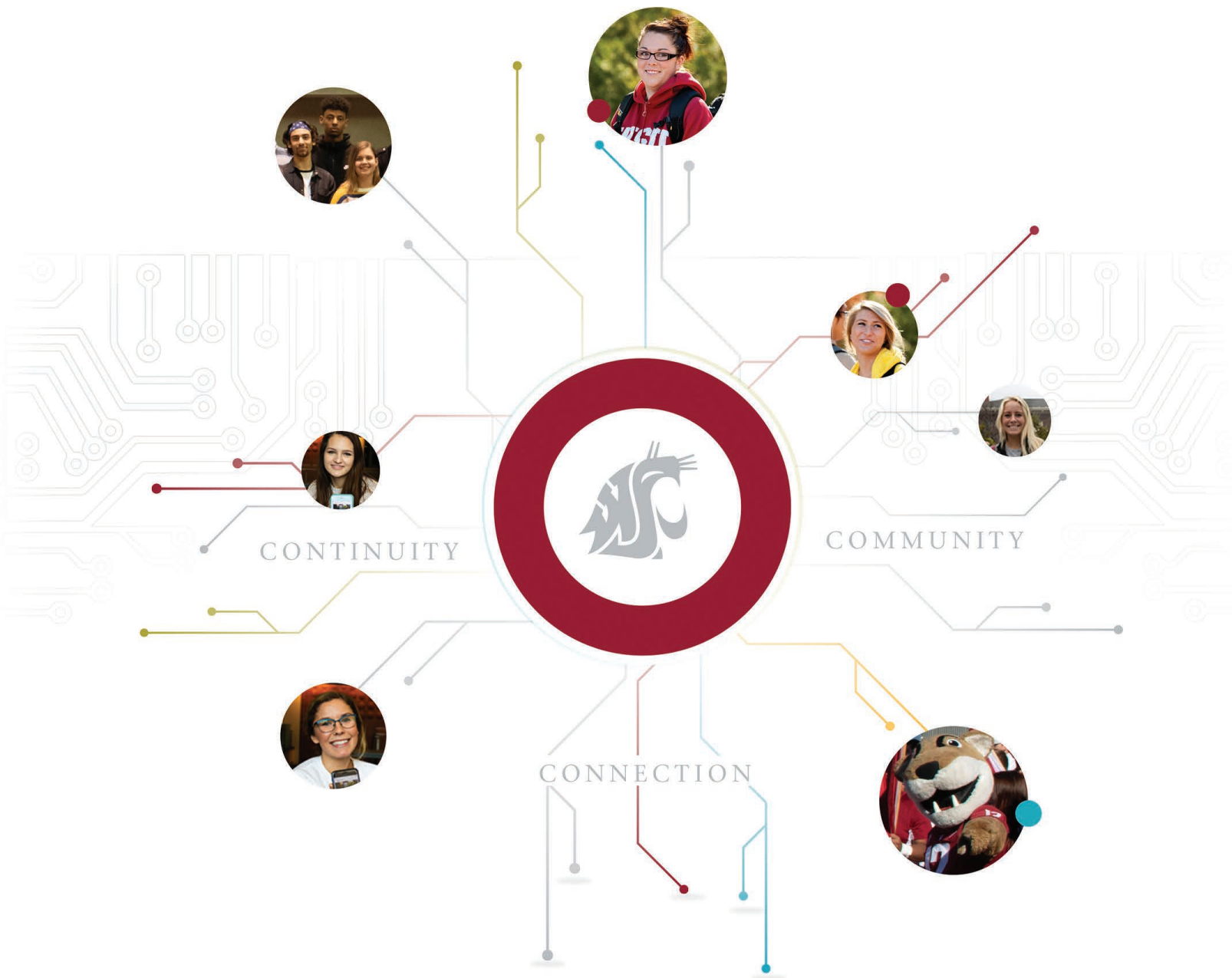
Compiling this report offers a unique opportunity to look back on the past six years. Every year brought further institutional maturity for WSU. As shown in this report, these changes in business and academic needs year over year lead to new, often just in time evolutions in supporting technology. From listening sessions with faculty and students to partnering on continuous improvement in WSU's business operations, ITS confirmed its commitment to be a guiding voice and leader for WSU technology over and over. And the exciting part is the evolution continues, as do the conversations and partnerships moving WSU technology forward to meet the challenges of today and tomorrow.

This compendium's theme could be from our 2021 annual report: Continuity, Community, Connection. Because while our technology may change from year to year, our sense of WSU family never does.

As is always the case, we cannot show everything worked on from 2016 to today. However, we hope you enjoy this brief look back.

Thanks for your continued partnership, and as always, Go Cougs!

Information Technology Services







## Too many good stories to fit in one report, so here are a few extra highlights of 2016.

### New infrastructure

DATA CENTERS: New infrastructure (including much needed storage) to support a requested secondary data center in Pullman. Also replaced aging datacenter switching, routing, and firewall infrastructure in ITS' primary data center.

### Gigabit Passive Optical Networking

Deployed for the first time in a WSU research facility: an entirely fiber optic-based LAN technology, known as Gigabit Passive Optical Networking (GPON).

### Office 365

Completion of Office 365 (Phase I) for students which unified login id and email addresses and gave them access to Office 365 ProPlus.



### Student Data Warehouse Buildout

In 2015-16, a new combined subject area for Student Records, Financial Aid, Student Financials and Student Demographic Information known as the Student Data Warehouse became a reality, thanks to the diligent efforts of ITS' Enterprise Systems Group.

### New server and network infrastructure

New server and network infrastructure serving the new Skype for Business, providing the platform for future Microsoft communications service advancements.





## Online Course Evaluations



In spring of 2015, ESG introduced online course evaluations as a more dynamic, effective, long-term data resource for WSU. Forty-seven departments utilized this new teaching tool. In FY2016, the number of groups utilizing the software continued to grow, with 71 WSU departments across the Pullman, Spokane, Tri-Cities, Vancouver, Everett, and Global campuses offering 180,000 invitations to students in almost 5,500 classes. Over 104,000 of those students completed those course evaluations, providing important program feedback. A note from Kimberly Green, Director of the Office of Assessment of Teaching and Learning: Course evaluations are a particularly useful tool for collecting student feedback on their own learning experiences in WSU courses, and provide one important component to support and continuously improve teaching and curriculum. By spring 2017, all WSU courses will be evaluated (with online support), using instruments determined by each college. The benefits of transitioning to an online course evaluation system include:

- Faculty have electronic records of their course evaluations, including comments.
- Student confidentiality is better protected online than as written comments on paper.
- Students have more time to complete thoughtful responses and provide meaningful comments.
- Students get email reminders to complete course evaluations.
- Students can use mobile devices to complete course evaluations, in class or outside of class.
- The new system allows for more flexibility in reporting and analysis, so the results can be more easily available to chairs, directors, and program coordinators, as well as the faculty themselves.
- Faculty who prefer to not schedule time during class for paper evaluations no longer need to do so.

ESG is coordinating course evaluations with the Office of Assessment of Teaching and Learning, in particular regarding reporting results to instructors and chairs, and orienting instructors in colleges and departments as they move into the new system.

## Serving Students Through myWSU

### WSU Student Official Email Conversion

Beginning in fall 2015, WSU communications to all students with an active academic program and class enrollment officially shifted to route only through their WSU-assigned email account.



Enrollment Management also now has the ability to determine the point in each semester (fall, spring, summer) when new students will have their preferred email (indicated in myWSU) transition from personal email accounts to their new WSU student email account. This change provides a consistency of service to all students, supporting the commitment of WSU and ITS to provide excellent communication to all students regarding enrollment, registration, financial aid, housing, and other critical university information.

### Oracle Mobile Collaboration:

2015 brought the implementation of mobile myWSU! The application installs natively on iOS and Android devices and is specifically geared towards students. Mobile myWSU allows students to see their schedule, grades, financial aid, student financials, and add / drop classes from their mobile devices, i.e. basic student needs. Students can access myWSU anytime, anywhere they have data capabilities. Great news for trips home during the holidays and for summer management of class registrations.



## myWSU Numbers

**81,091**  
unique users this year

**742,585**  
unique IP visits

**15.3 million**  
pages accessed

**Goal:** reduce click-throughs required to get to destination page

**Success:** 41% decrease in pages viewed per session in 2016, and 51% decrease in session times

**Goal:** Offer Students mobile access to key myWSU pages

**Success:** 8,400 app installs since May, 2016 roll out with 25,000 user sessions (as of July, 2016)



# Kamiak: High Performance Computing


ITS made a significant infrastructure investment, along with other research and academic areas across campus, in support of institutional research computing in 2015-16 by participating in the acquisition and management of a high-performance condominium-style computational cluster affectionately known as Kamiak.

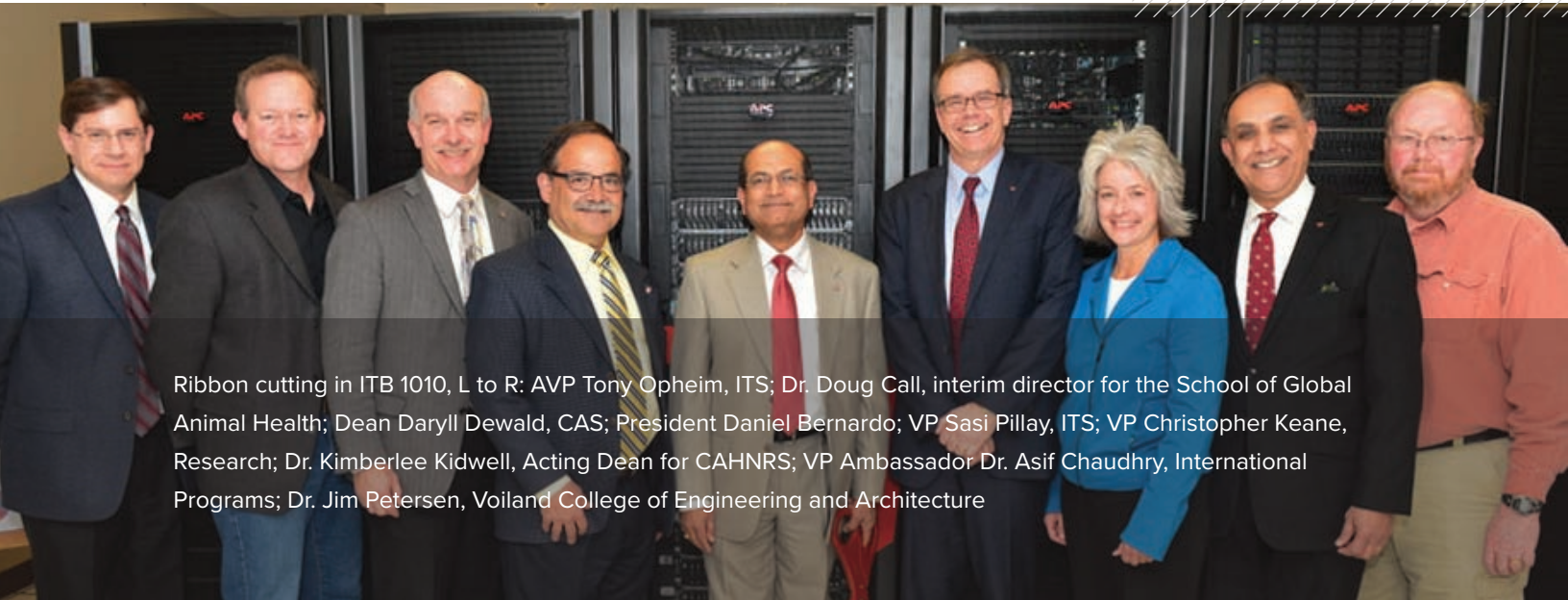
The strategic acquisition of Kamiak provides essential response to the needs of the university's research computing community. Such cutting edge computational hardware and professional support enable researchers to run complex computational simulations exponentially faster.

Kamiak currently contains 77 general purpose computational nodes (servers holding processors, memory, and local storage enabling more efficient operations and performance) providing 1,540 physical cores for high memory applications such as large genome assemblies, fast message passing in high-performance applications, 633 TB of fast, tiered data storage, seven compute nodes with dual Graphics Processor Units (GPUs) and one node with dual Intel Xeon Phi coprocessors. These GPUs and Xeon Phi are specialized processors that, together with the main CPU, allow researchers to accelerate the execution of their code through the use of massive parallelization. These systems can be used to support WSU research

projects such as machine learning, molecular dynamics and genomics, and we are just scratching the surface.

Since its initial acquisition in 2015, Kamiak's infrastructure has already grown through the addition of both centrally funded infrastructure and investigator purchased compute nodes. Kamiak has the future capacity to support 144 nodes for a total of 2,880 physical cores. Purchase of hardware on the Kamiak cluster guarantees investigators on demand, immediate access to resources and priority access to any idle computing capability across the cluster. All of this supports ITS' Strategic plan of developing and sustaining the physical and technological infrastructure, resources, and expertise system-wide to support increased research and scholarly productivity, with particular emphasis on core laboratories and academic computing.

 ITS Infrastructure team members are devoted to systems administration, outreach, application software optimization and training to assist with adoption and use of the cluster by on-campus researchers. It is also connected to the High Speed Scalable Research Core (HSSRC) network designed to allow researchers on Kamiak to move large data sets across the campus as well as to and from collaborating institutions across the nation.



Ribbon cutting in ITB 1010, L to R: AVP Tony Opheim, ITS; Dr. Doug Call, interim director for the School of Global Animal Health; Dean Daryll Dewald, CAS; President Daniel Bernardo; VP Sasi Pillay, ITS; VP Christopher Keane, Research; Dr. Kimberlee Kidwell, Acting Dean for CAHNRS; VP Ambassador Dr. Asif Chaudhry, International Programs; Dr. Jim Petersen, Voiland College of Engineering and Architecture



**86,000**  
unique devices were used to access wireless at WSU Pullman during fiscal year 2016.



Each person averages **3.5 devices** to access WSU's wireless network.



Six 10 gigabit/second connections provide redundant service across WSU Pullman.

This represents a **100 fold increase** in connectivity in the past decade.

## Serving the WSU Community through Infrastructure Development



Infrastructure Services (IS) is an area within ITS devoted to providing and maintaining the foundational technologies critical to the day to day work of the WSU community.

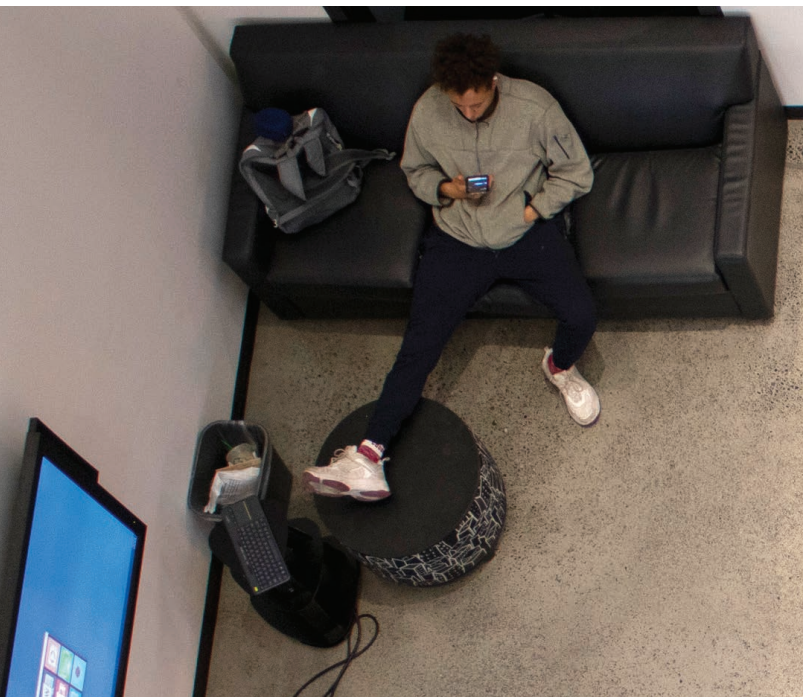
Last year, in collaboration with Information Technology experts spread across all of WSU, IS provided leadership and support of such infrastructure technologies as WSU's mainframe computing, virtual servers, and massive computing storage resources such as WSU's newest High Performance Computer (HPC) Kamiak, designed to provide WSU researchers broader access to a network of research support resources.

IS also worked in 2015-16 to maintain and improve WSU's network connectivity including wired and wireless access, email and calendaring, voice services and telephone systems. WSU's ability to connect each day for teaching, research, and collaboration rely heavily upon IS services, and this team spent the past year working hard to maximize all of our existing network tools and implement the newest technologies available, such as upgrading over 1,000 of WSU's aging wireless access points (each point's capability went from 2-3 megabits of data per second to 40-50 megabits per second).

*...upgrading over 1,000 of WSU's aging wireless access points (each point's capability went from 2-3 megabits of data per second to 40-50 megabits per second).*



# Protecting the WSU Community: Information Security Services & Felicia



The current threat horizon outlook for higher education institutions is as follows (FireEye, 2016):

“Those conducting research programs in areas with potentially high economic payoff, or those supporting sensitive government contracts, will face ongoing risks associated with Advanced Persistent Threat (APT) groups. These threat groups are also likely to continue seeking to compromise academic networks to mask and proxy their activities against secondary targets.

Financially motivated threat actors will remain an ongoing threat, especially against colleges and universities, given that such institutions tend to contain large amounts of personally identifiable information, such as student and other administrative records (e.g. containing government identification numbers), and the perception that these targets have more vulnerable security postures.



More general hacking threats and hacktivists may also show interest in academic networks that offer high visibility, or due to the same perception of vulnerabilities in academic networks.”

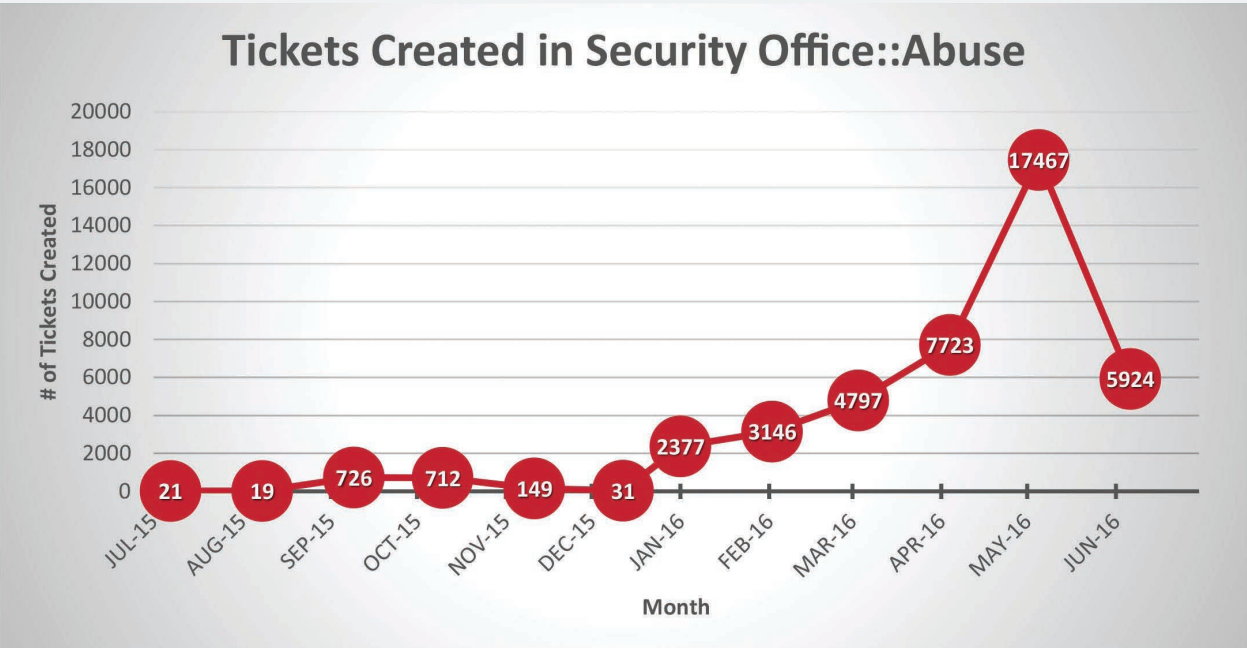
In July 2015, the FBI notified WSU of malicious emails originating from the WSU central Microsoft Exchange and Office 365 student email systems targeting high-ranking officials of the US Government and governments of close allies. WSU immediately worked with the FBI and external consultants to put a plan in place to identify the threat actors, assess the incident, and mitigate the compromised University IT environments, remove known attacker access points, and eradicate the known threat actor footholds.

It was quickly discovered that attackers had leveraged credential theft tools and other advanced malicious software on numerous occasions in pursuit of their objectives to gain and maintain access to, and control over, the university’s centrally managed email and Active Directory systems. Unfortunately, they were ultimately successful in gaining their high-level administrative access objectives.

WSU, in collaboration with the FBI and external consultants, have designed and implemented many new security measures to aid Information Security Services in providing better detection, prevention, and response capabilities for the specific tactics, techniques and procedures (TTP) used by attackers in this incident.

# Information Security Data, May 2016

- Email security systems detected 355,744 individual messages with malicious attachments.
- Email security systems detected 14,241 individual email messages containing malicious links.
- 13.7 % average phishing click-through rate, however certain phishing campaigns spiked as high as 67%.
- ISS’ email security systems successfully blocked 74% of attempts to access phishing URLs from messages where the URL was rewritten.
- 14,096,598 sessions detected at campus perimeter exhibiting signs of either active exploit attempts or presence of a vulnerability. 12.1% of these were rated as “high” or “critical” and blocked.
- 1,249,010 sessions detected inside the campus network perimeter exhibiting signs of active exploit attempts or the presence of a vulnerability.
- 405 instances of suspected account compromise.
- At least 698 instances of internal systems being exposed to malware not blocked by perimeter defenses.





## A Few Extra Highlights of 2017

### ITS Web Presence

(ITS Web Presence combined 15 websites into one central ITS site) and joined social media to offer just in time general info; service notifications.

### Shared Information: kb.wsu.edu

Collaborated across WSU to rollout a central knowledge base of commonly used information across all of WSU campuses.

### Supporting ESF College of Medicine

Student Information System (myWSU) support team configured custom modules to support academic structure, admissions, student records, financial aid, and student financials for our new med school.

### Revitalized IT Building

Located within the new ITS website, our first generation service catalog is growing into what we expect to be the easiest means for customers to get much needed resources for work and school.



### Skype for Business

Retired the unsupported MeetingPlace collaboration software with cloud-based Skype for Business solution.

### Online Service Catalog

Located within the new ITS website, our first generation service catalog is growing into what we expect to be the easiest means for customers to get much needed resources for work and school.





Members of the WSU Board of Regents, and Salah Elgiadi from Spokane ITS, enjoyed a personalized tour with Dr. Pillay, Vice President of Pullman ITS, and Dawn Barnard, Assistant Vice President of Pullman ITS, prior to our ribbon-cutting event in May.

# Construction & Inauguration of the Information Security & Network Operations Center



## WSU Border Security Enhancement Project

Summer of 2017 finds WSU with a highly responsive, collaborative ITS security program reaching across the state. Thanks to an investment of close to \$3 million over the past two years, WSU now employs a newly updated security operations monitoring center equipped with industry-leading tools and state of the art WSU-wide monitoring equipment, as well as critical local threat protection monitoring and mitigation capabilities at the Pullman, Spokane, Vancouver, Tri-Cities, and Everett campuses.

WSU is now poised as a higher education leader in information security operations. As President Schulz discusses in the Drive to 25 initiative, WSU transforms lives and contributes to a better society.

Through its connectivity and security enhancements, ITS is excited to support the groundbreaking work of WSU's researchers, faculty, and staff. Information Technology Services supports transformative student experiences through more secure, more reliable access to student services, online course resources, and the constant connections students require while studying at WSU.

WSU's information security team is a critical partner across Washington State University. As important as connectivity is to our academic community, staying engaged both across and outside of WSU's information borders comes with serious risk.

The challenge for WSU's information security team is constant examination of network access from a cyber-attacker's perspective.

WSU's ITS security group is better prepared to respond today and into the future.





# Fiscal Year 2017 Information Security Activity

Malicious Actions  
Detected

653,460,658

(including phishing)

Phishing Emails Sent  
to WSU email accounts

3,326,107

Phishing Emails Blocked  
Prior to reaching user mailbox

3,083,765

## 1st CyberSecurity Awareness Summit

Information Security Services hosted over 100 students and professional WSU staff who came to hear industry experts such as FBI, FireEye, and Proofpoint. ITS is looking forward to its 2nd annual event on October 25th!



Michael Walters, Dr. Pillay, Matt Kunkel, FireEye  
Presenter, Terry Boedeker



Information Security Services  
demonstration team



FBI representatives with Dr. Pillay, Matt Kunkel,  
Michael Walters



Visiting with students





## Office365/OneDrive



Following WSU students move to Microsoft Office 365, this fiscal year ITS moved the rest of the WSU community to cloud email and calendaring services.

ITS coordinated mailbox verifications of more than 12,000 central exchange mailboxes for employees, rooms, locations, and departments across WSU. All mailboxes migrated from WSU's on premise email service to Office 365, area by area, over the summer of 2017. After completion, over 95% of all WSU staff, students, and faculty are now on the same email/calendaring system with a dramatically increased email storage capability of 50 gigabytes

Centralization of WSU student and employee email/calendaring function provides:

- Enhanced collaboration thanks to calendar sharing capabilities.
- Single mailboxes for students who are also employees.
- Increased security thanks to reduction of duplicate security profiles and configurations.
- Reduced cost through elimination of redundant systems providing the same type of services across WSU.

Office 365 provides WSU a variety of cloud-based collaboration services across its campuses.

## WSU Wireless

In 2017, Information Technology Services was pleased to announce universal access to “WSU Wireless” services from Pullman, Spokane, Everett, Vancouver and Tri-Cities campuses. Anyone from these five campuses with a WSU Network ID can instantly access the wireless network whether you are at your home campus or at one of the other four. No additional sign in, access requests, or guest user limitations are required for those with a WSU Network ID.

Personnel from all Campuses worked collaboratively to deploy this service. Our intention is to make similar access possible across extension offices and research extension centers located throughout the state.



Next, ITS will look at providing access to wireless networks for WSU students, faculty and staff using WSU Network ID, globally, wherever eduroam is supported. At the present time, the WSU Spokane Campus has already deployed the eduroam service.







# myWSU Campus Solutions 9.2 Upgrade Project Enhancing User Experience



Enterprise Systems Group is progressing through the Campus Solutions (CS) 9.2 upgrade project within the myWSU environment. This upgrade will allow WSU to leverage the new features and robust capabilities with-in the new CS 9.2 version to develop a more modern and flexible user experience including a richer mobile platform. This project will be completed in two phases with the first phase focused on the technical upgrade. The technical upgrade will include provisioning new servers, installing the CS 9.2 software, converting from the CS 9.0 to the CS 9.2 version and configuring the new CS 9.2 version to integrate within our myWSU environment. This phase was completed the first week of July 2017 and students, faculty and staff will notice little or no difference after the technical upgrade is completed.

After the initial deployment of CS 9.2 in early July 2017, ESG is launching into the second phase of the project, focusing on implementing and delivering innovative myWSU experiences. These new experiences will use the fluid user interface to provide a consistent and mobile-friendly access for our student self-service pages (Student Enrollment, Academic Advising, Financial Aid, Student Financials, Admissions and Campus Community) and for our administrative pages. The new user experiences will be available for students beginning November 2017 and to all myWSU pages by July 2018.

# ITS Change Control Board

ITS added an additional peer review in its change management process in FY 2017 that is now responsible for coordinating weekly review of all proposed changes (maintenance/upgrades/shutdown, etc.) to existing systems and services, emphasizing timely communication of potential impact and support resources to both customers and other technical staff within and outside of central ITS.



The Change Control Board (CCB) areas of responsibility include review and approval of production change scheduling, review of change results, and finally, review of problem resolution. Multiple Pullman units and WSU campuses voluntarily participate in the board and contribute feedback to these change reviews.

With more than 325 changes being planned and reviewed since its inception a year ago, this new change management process is highly effective in reducing unplanned outages and assisting customers and staff to better plan for infrastructure and information security changes.







## A Few Extra Highlights of 2018

### JIRA: All about that service

Enterprise Systems launched a new era of customer service with the November ITS migration to JIRA's Service Desk for all customer service tickets.

### Welcome Home

In response to the record numbers of incoming freshman students expected for fall term, ITS is teaming up with Housing and Dining Services on a number of residential connectivity enhancement projects this summer.



### Okta: Next Level Security

WSU has the ability to require multiple security elements to verify a user's identity before granting access to enterprise applications and sensitive data.

### A New myWSU

The first major MyWSU enhancement since its introduction in 2012, the Fluid User Interface (FUI) project responded to student feedback for improved functionality and ease of access to essential information resources.

# K-20 and Internet Exchange

This year’s collaborative redesign of WSU’s Internet connectivity architecture from 20 to 40 gigabits per second coming into Pullman doubles WSU’s bandwidth capacity and stems from WSU’s new relationship with K-20, a high-speed, high-capacity network that connects education organizations across the state of Washington. K-12 schools and educational organizations rely on the K-20 network to run hundreds of applications that support school administration, video conferencing, distance learning and operations and the resource has tremendous capabilities for the higher education community.

By having the Point of Presence (POP) in Seattle, any geographic limitation is eliminated, and WSU is provided competitive pricing and great selection of services and providers.

Communications architecture planning extended in Seattle where WSU’s first POP internet exchange (IX) router is going into the Westin Building, a major server hub for internet traffic. Through collaboration with the Pacific Northwest GIGAPOP and WSU, this is the first presence in the planned internal WSU network (an intranet) that will eventually consist of multiple router locations providing fully dedicated support for WSU teleconferencing, business, and research communications around the state. Eliminating third party data management, the new router network offers maximum speed and low latency by allowing WSU sole access to its own network. Whether you are working with colleagues in Pullman, Tri-Cities, Everett, or at one of WSU’s more remote extension offices, you will have the same access as if all parties were on the same campus. Video conferencing across the various regional locations will particularly benefit from the fully dedicated internal data highway, eliminating delays and service disruptions for high quality team collaboration conversations.



Faster internet, greater bandwidth, and resilient communication networks for research projects, business services, and student entertainment are a major wins for WSU both today and as it grows into a top 25 university, offering essential speed and efficiency delivery of data traffic.



# Increased Data Capacity

In a project developed throughout FY 2018, Information Technology Services is transferring all Pullman data and voice network services from the current decade-old, 10-gigabit-per-second equipment to new 100-gigabit-per-second campus infrastructure equipment.



*...a 10-fold increase in capacity, which compares to going from driving on a single-lane road, to a 10-lane highway.*


WSU Pullman’s network cabling equipment provides data transportation every day across campus for emails, voice network services, and more. Yet with aging cable “lanes”, data traffic faces eventual slowdowns and potential service-impacting issues. This million-dollar equipment update gives Pullman campus a 10-fold increase in network capacity to support the next decade of network applications and data growth.

Tony Opheim, Associate Vice President of ITS, commented, “WSU Pullman’s data traffic needs are well met for years to come with this invaluable infrastructure investment.”





# Unified ITS Help Desk

 Begun in January 2018 with a scheduled September implementation, ITS is consolidating multiple help desk groups into a single, shared Tier 1 customer support resource. As the central focus for the pooled support from CougarTech and Enterprise Systems help desks, customers receive all of the benefit: one call or email takes a customer directly to needed assistance.

## What is Tier 1? Is there a Tier 2...or Tier 3?

Central ITS support is organized into four customer service tiers. Self-service through WSU’s knowledge base (kb.wsu.edu) and ITS’ website (its.wsu.edu) is considered Tier 0. Tier 1 is the support offered by email or phone through (consolidating) help desk centers. Tier 2 service takes the conversation to the technical production support team. They are called into action as needed following conversations between the customer and Tier 1 team.

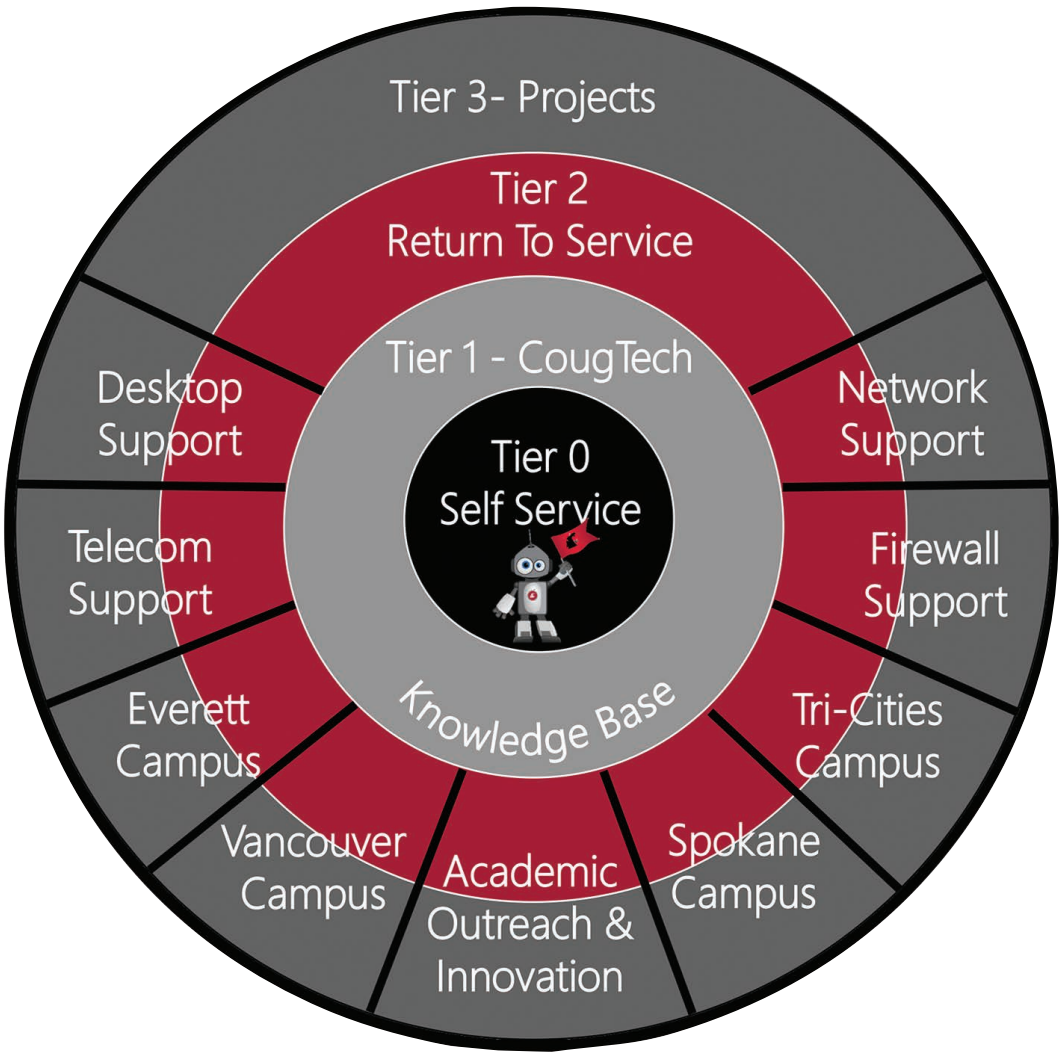
The final Tier 3, is project planning. Tier 3 results from a need that goes beyond a quick solution, requiring more time and resources to get the desired outcome for the customer. Tier 3 looks at a new solution that can very likely serve the needs of a larger group.

## How does ITS measure success for the upcoming unified help desk?

Vice President and CIO, Dr. Sasi Pillay prioritizes our ability to work within our service level goals to close all tickets within five business days. Since conversion to JIRA ticketing in November 2017, ITS has an 80% success rate on the 60,000 tickets (or customer requests) processed. While that is a great start, it definitely leaves room for improvement going forward.

ITS is also monitoring total tickets resolved at Tier 1 that do not require additional Tier 2 resources. With a goal of 70% Tier 1 completion, percentage of tickets completed at that level is very important as ITS focuses on total contact ownership; when assigned, a customer service team member sees a request through to resolution with zero dropped tickets.

Satisfied customers: A true measure of success for ITS.





## Workday for WSU's Modern Age

Since the 1980s, WSU has gone from one to six campuses, employed almost 4,000 more faculty and staff, doubled its research expenditures, and quintupled its operating budget. However, throughout this era of growth, WSU experienced no updates to the core processes and systems supporting the corresponding business growth. WSU's legacy processes and their supporting electronic systems are paperwork heavy, obsolete, and at growing risk of failure with each passing year.

Today, the WSU Modernization Initiative, a partnership across multiple units of WSU, including a technical team led by ITS' Associate Vice President, Michael Corwin, is setting the stage to update human resource, payroll, and financial processes and systems. This past fiscal year, the Modernization team accomplished several key milestones on the path to revolutionizing WSU's business structures. During the winter months, top vendors presented potential cloud-based business solutions to WSU audiences following calls for system integration and software vendor proposals.

While students were planning spring breaks, Prosci, an outside training partner, provided the first change management training to a packed house both locally in Pullman and via live stream to attendees across the state.

Collaboration between Human Resources, Finance & Administration, and ITS generated numerous evaluation committees across Pullman campus whose feedback supported the cloud-based comprehensive Enterprise Management System, Workday, as the best choice for WSU's modernization needs. Following feedback from on-site interviews, reference checks, and internal WSU evaluations, a thirteen-member WSU team named Deloitte as the strategic integration

partner to work with WSU and Workday going forward.

With vendors chosen, the next Modernization focus became the funding model. While costly to implement at a time when WSU is scaling back spending, this initiative is long overdue and critical in driving improved business efficiencies for years to come. In WSU's strategic landscape, Modernization efforts strongly support WSU's need to reduce expenditures, streamline countless business resources, and ultimately strengthen WSU's drive to become a Top 25 university.

In light of its critical nature, the Modernization team gained budget approval by the WSU Board of Regents in May 2018, allowing for continued progress to implementation phase. With full implementation to begin late in 2018, the university expects to be fully converted by summer of 2020.



Over the remaining two years of this project, ITS is excited to continue to partner with the other modernization development team members across the university to teach, engage, and build stronger relationships as they build WSU's supporting business structure into a truly modern, cloud resource.

*Modernization efforts strongly support WSU's need to reduce expenditures, streamline countless business resources, and ultimately strengthen WSU's drive to become a Top 25 university.*

## First Consolidated Email Service in History of WSU

Completed in June, a multi-phase Office 365 email migration project replaced seven different departmental WSU email services, rolling them all into one centralized service, Office 365 Exchange Online.

Prior to this change, many WSU units utilized unique email tools that often resulted in service limitations when communicating with other areas of WSU. Tony Opheim's project team, led by Bill Rivers, brought the entire university together under the cloud-based service, unit by unit over the course of the year, coordinating the transfer of millions of active and archived email records for each group individually, to ensure continuity of information access during the transition.

*Dan Hamilton, project team member, stated, "This change removes the need for on-premises infrastructure, allowing consolidation into the cloud and reduces risk, cost, and future overhead."*

The new Office 365 email service provides opportunity for increased employee productivity supporting future university growth and stronger communications through online features not available before, such as enhanced calendaring features and more.

Thanks to the project team's efforts, some employees across the state have WSU mailboxes for the first time, and all WSU employees are now able to communicate more effectively as a community.

# Hacktober: Increasing Student Safety Online

As their first experience with independent living, many students come to WSU with little understanding regarding the value of their personal data in today’s cyber culture. Tom Ambrosi, WSU’s Chief Information Security Officer, indicated WSU’s Information Security team blocked 40 billion malicious attempts to get past their significant security resources in fiscal year 2018. Forty billion attempts in a year equates to 110 million attempts a day, 4.5 million each hour, or roughly 76,000 each minute.

Helping students understand how these figures impact them today and as they move into the workforce is an important job, but there is no reason you can’t have a bit of fun along the way.

*“Why should your home WiFi be secured with a password?”*

Information Security Services’ (ISS) first Hacktober Trivia Contest, held in conjunction with October’s National Cyber-Security Awareness Month, offered a month-long discussion with students regarding cyber-security, introducing information regarding risks and cyber-safety with a few perks along the way.

Daily trivia questions on ITS’ social media channels offered students, faculty, and staff the opportunity to be included in numerous prize drawings, with hundreds of community members joining the fun and submitting responses.

ITS student employees staffed tables in the CUB, asking fun cyber-security questions and recruiting social media followers in the hope of continuing these important dialogues beyond the October event. Weekly prizes included WSU coffee mugs, blankets, sweatshirts, and the month wrapped up with grand prizes of two Kindle Fires.

Cyber-savvy and styling Cougar gear, too!



# Cyber-Security Awareness

As part of October’s annual National Cyber-Security Awareness Month, Information Security Services (ISS) hosted its second Cyber-Security Awareness Summit Oct. 25 in the new Elson S. Floyd Cultural Center with livestreaming to Spokane, Vancouver, and Tri-Cities campuses. Agnes Kirk, the state’s Chief Information Security Officer, kicked off the day with her keynote address highlighting that Information Security is a team sport and all of us need to engage in cyber-security.

In a message often repeated at WSU, Kirk reminded attendees,

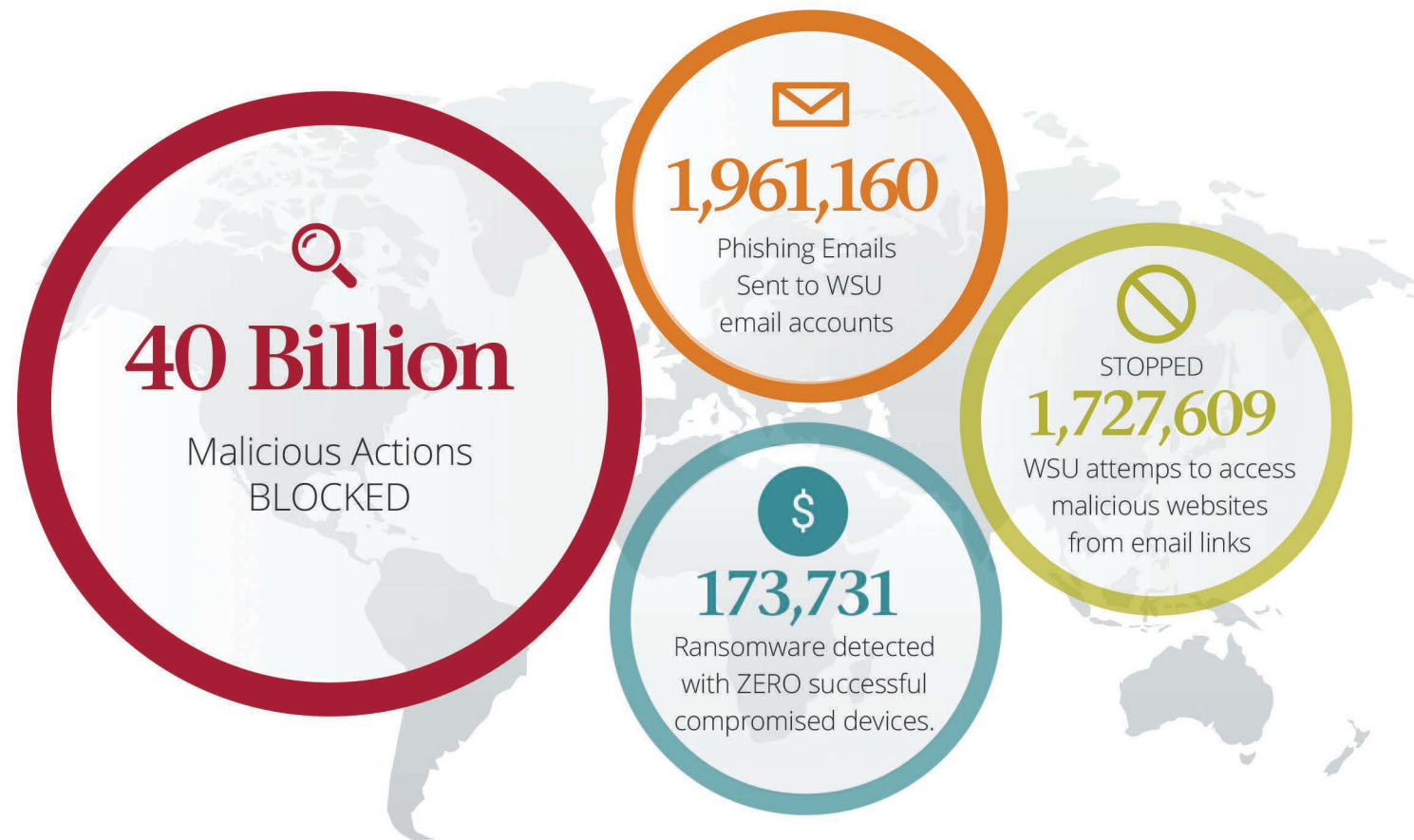
*“Don’t click on links. Go to that url yourself...the sophistication of malware is tremendous.”*

Additional industry experts continued to share best practices and trends in data security throughout the daylong event, encouraging attendees to enhance cyber-knowledge, join the cyber-security career field, and always be diligent regarding cyber risks while avoiding a culture of fear.

ISS reminds us: When you receive a suspicious email, err on the side of caution. Forward every suspicious email to [abuse@wsu.edu](mailto:abuse@wsu.edu). The response team is quick to let you know the steps taken to shut down any malicious activity. As Kirk pointed out, our data is valuable:

*“We are the commodity, so it is up to all of us to engage thoughtfully and with great care.”* Agnes Kirk, WA State CISO





## Information Security

Roughly 40 billion malicious actions took place against WSU's information network this past fiscal year. While that number sounds implausible, WSU's ITS security team, led by Chief Information Security Officer, Tom Ambrosi, faces this quite astounding truth every day as they work to identify and manage cyber risk for the WSU community.

For every blocked hacker, many more launch new attacks. According to a 2016 University Business report on higher education cyber vulnerabilities, higher education is the industry sector with the highest number of data breaches: since 2005, higher education institutions have been the victim of 539 breaches involving nearly 13 million known records.

This should come as no surprise considering the enormous amount of sensitive data held within a university's business and student information systems-data that includes the personal information of current students and faculty, applicants, administrative staff, alumni, collaborators, research and project participants, vendors, and even parents.

Along with the volumes of data, WSU's information infrastructure is tremendously complex, constantly moving across national and international connections and allowing personal student devices access for needed research, academic work, and entertainment. Protecting data integrity in the face of constant movement and volumes of information creates a pressing need to both identify and prioritize acute areas of risk.

*The No. 1 issue for higher ed IT leaders (in recent years) is information security, according to EDUCAUSE, a nonprofit association of higher ed IT leaders.*

So how does ITS prioritize information security risk management at WSU? Where are resources directed when trying to manage five million malicious actions per hour and thousands of malicious emails every day?



In FY 2018, Ambrosi's team prioritized front line protection, confronting the two million phishing emails received. They focused on user education to slow the growth of impacted students who fall victim to these very convincing emails, stopping 1.7 million attempts to access malicious websites through incoming email links.

Ambrosi offered cyber-security discussions and education resources for the WSU IT community, bringing information security partners to WSU to educate and discuss the future of cyber-security.

Next-generation security technology planning included concentrated effort toward cloud security as WSU works toward cloud-first solutions with many of this year's

technology integrations and updates including the WSU mainframe cloud migration, the modernization project's selected cloud-based vendor, Workday, myWSU, Office 365 Exchange Online, SharePoint Online, and more. "The cloud can provide strong security capabilities and terrific productivity resources for WSU," Ambrosi said, "however, it requires a heightened level of diligence in our information security efforts."

Multi-factor authentication vendor, Okta, sets the stage for WSU to add to its access management capabilities. Once implemented, Okta allows WSU to require additional verification steps when accessing WSU information resources, but in return for the extra steps, user information is significantly more secure.

WSU deeply values an open, collaborative academic environment that provides transformative student experiences, and exceptional innovation and creativity in research. Information Security Services is the guardian of those models every day, striving to provide safe passage on WSU's journey to being a top 25 school.

### Top Higher Ed Information Security Concerns



Phishing



User Education



Cloud Security



High-profile information security strategies



Next-generation security technology planning



Identity access and management



Governance over data security



Unsecure personal devices



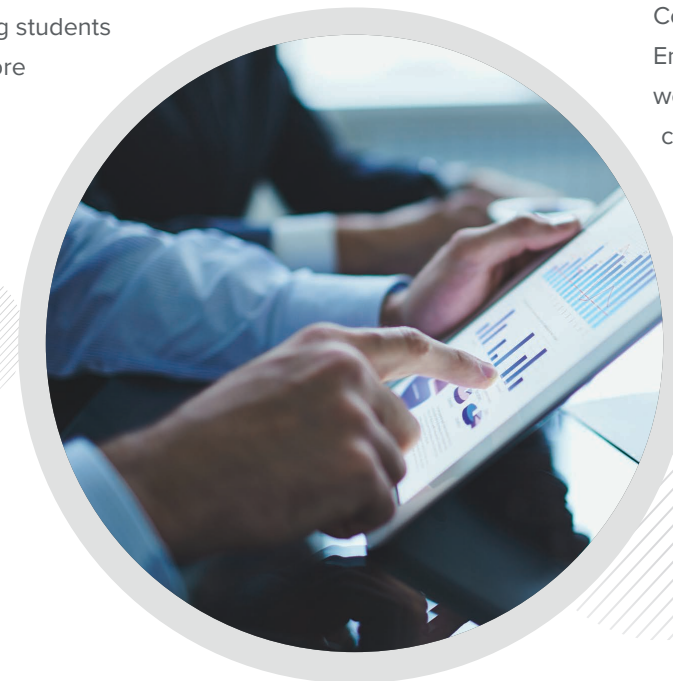
## A Few Extra Highlights of 2019

### Hacktober 2.0

Second annual trivia contest offered a month-long discussion with students regarding the importance of being #cyberawareCougs, reminding students of the importance of being more cybersecure every day

### From Cougtech to CSD

Crimson Service Desk now combines the staff and resources of two long-standing groups, student-facing CougTech and business-facing Enterprise Systems Help Desk as well as a technology support portal, [crimsonservicedesk.wsu.edu](https://crimsonservicedesk.wsu.edu).



### ITS Customer Center

WSU's Information Technology Services invested months exploring network integration, user interface design and order processes to offer the new business customer support software.

### Mainframe Disaster Recovery

"WSU's migration from on premises to MaaS with a redundant disaster recovery protocol took WSU business data process recovery from several months to a maximum of two days. WSU data has never been as well prepared to recover from a disaster scenario," shared mainframe architect, Dave Gibney





# Face to face: Zoom teleconferencing

Zoom, the new telecommunications tool for WSU, officially rolled out to all university users in early July 2019. This cloud-based software aligns with ITS’ missional shift to online software as a service (SaaS), eliminating expensive infrastructure requiring hardware maintenance and higher operational costs. Transitioning to Zoom now allows Information Technology Services to focus more resources on Quality of Service (QoS) when engaging with users across the WSU system.

An easy fiscal decision, acquiring Zoom Pro videoconferencing licenses for all current WSU students, staff, and faculty also offers WSU considerable savings in time and employee effort. The prior telecommunication tools created challenges when business required flexibility and breathability. Designed to handle density in scheduling, Zoom removes barriers such as limited licensing or available resources.

In its first month of use, Zoom experienced dramatic user engagement:

- 3,002 unique meetings across more than 30 countries with 13,515 participants conducted over 654,480 minutes.
- 1,392 users offered feedback, with a 97.05% positive satisfaction rate.
- The Zoom Service Team has a 100% satisfaction rate on tickets for supporting users across the university.
- 4,650 registered users.

Bryan Valley, assistant director at WSU Spokane, shared that integrating this new tool is not only a financially responsible decision, but also “empowers undergraduate and graduate education more than we ever had before. We can say ‘yes’ to a lot more.”

On an academic level, Zoom offers students interactions and experiences thinking and working beyond the brick and mortar classroom. Faculty will not be limited to engaging only during office hours on campus and students can meet online easier for group collaboration. Videoconferencing now easily handles the fast-paced environment of the University while providing improved instant messaging functionality, audio and video sharing and recording within the application, and network authentication’s security.



“Zoom presents an opportunity to modernize our infrastructure in a way that adds new capabilities for faculty, staff and students while removing restrictions on the types of devices that can participate in video conferencing. We believe these factors will provide an improved videoconferencing experience at Washington State University, both internally and externally,” said David Cillay, vice president for Academic Outreach and Innovation.

*“Zoom presents an opportunity to modernize our infrastructure in a way that adds new capabilities for faculty, staff and students while removing restrictions on the types of devices that can participate in video conferencing. We believe these factors will provide an improved videoconferencing experience at Washington State University, both internally and externally,” said David Cillay, vice president for academic outreach and innovation.*

Augmenting existing academic and business resources for connecting, sharing ideas, and collaborating across geographic barriers, Zoom allows for the current systems of synchronous communication to move beyond many existing constraints, allowing for asynchronous meetings via recorded meetings and automated transcripts. Christopher Coons, director of educational logistics & technology, noted “This transition provides an opportunity to review and simplify business processes by leveraging the capabilities of a more modern tool.”

Part of the SaaS videoconferencing implementation involves ensuring the software remains effective and useful. Each year ITS will assess the cost, value, and service reliability in addition to evaluating future technologies over a 3-5-year life cycle.







WSU students enjoying WSU Wireless

## Stop By For A Visit: WSU Guest Wi-Fi



In early 2019, WSU Pullman completed the migration from a restrictive, aging guest wireless system to an open, self-service resource with the introduction of ClearPass. Initially tested at WSU

Spokane, the new service allows users to self-register for Pullman’s guest wireless network in a matter of moments directly from their own devices, for the first time in WSU history.

Prior to this change, only users with a registered Friend ID (FID) or those visiting specific locations on campus such as Compton Union’s visitor information desk could acquire a temporary guest wireless account. Access could only be obtained through interaction with authorized campus staff. The introduction of ClearPass eliminated the need for manual processes and special requests, instead creating access for campus guests to connect within minutes from any location where WSU wireless access is available. All an individual needs

*May and June saw over 9,000 guest account activations, an excellent start to the value and convenience the new service provides.*

is an email account to complete their registration process. ClearPass walks new users through the simple registration steps to complete connectivity.

“Improving the user experience for parents and other guests,” said Dave Peckham, system engineer and project lead, “ClearPass allows visitors to stay connected with a simple email verification and a straightforward registration process.”

Completed in partnership with Housing and Residence Life, guest WiFi reduces demands on CUB and Residence Life staff by directly managing WSU Pullman’s substantial guest traffic during campus events such as spring commencement and move-out, and offers parents and students attending Alive! Sessions important wireless access during hectic campus visits. May and June 2019 saw over 9,000 guest account activations on the new system, with no access issues reported.

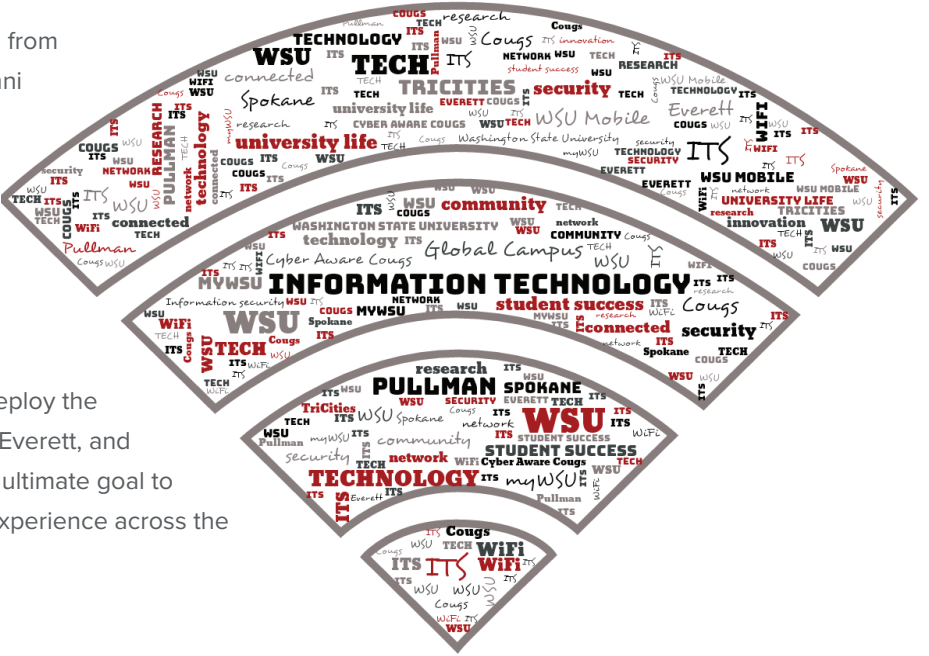
According to Craig Howard, director, Admin SVS Information Systems for housing and residence life, “Aruba Clear Pass guest wireless network has greatly improved our customer service by providing a self-service wireless experience for our customers and enhanced network security; we now have a one to one relationship between user name and session. In the past, we would assign one user name and password for perhaps several hundred users.”

Another key benefit noted by the technical support team for Housing and Residence Life, students living in WSU Pullman housing are able to authenticate Internet of Things (IoT) devices such as smart beds and gaming systems to the ResNet wireless network, reducing demand on other connectivity resources, and improving user experience.

Garnering immediate attention from current WSU families and alumni across the state, many at WSU are excited for the improved access offered when they head to Pullman for football and family weekends this fall.

Plans are in development to deploy the new process across Tri-Cities, Everett, and Vancouver campuses with the ultimate goal to standardize guest Wi-Fi user experience across the entire WSU system.

*“Improving the user experience for parents and other guests,” said Dave Peckham, system engineer and project lead, “ClearPass allows visitors to stay connected with a simple email verification and a straightforward registration process.”*







## ONE STOP: WSU MOBILE



The future of mobile student resources arrived at WSU this year when ITS introduced The WSU Mobile ecosystem in February. The mobile app, a combined effort by a collaborative advisory board across multiple WSU areas including Student Affairs and Information Technology Services, provides centralized access to many mobile-friendly WSU resources such as Blackboard, myWSU, GET, transit options, and more.

Vice president and chief information officer, Dr. Sasi Pillay, explained the idea of an app being an ecosystem: “WSU’s mobile eco-system allows an individual to simplify identifying and locating necessary mobile applications when they arrive at WSU. An ecosystem is a single platform that houses multiple mobile application links, offering the individual the confidence to manage information needs quickly and easily, without confusion. They are able to focus on the one environment that does all of the work for them.”

With almost 5,000 users accessing the application for close to 45,000 sessions and more than 373,000 page views in its first months of use, developers anticipate broad adoption across the university and are already evaluating further enhancements.

Future development includes possible user customizations, resource prioritization, and other features to make WSU Mobile an invaluable daily tool for all WSU students.

*“WSU’s mobile eco-system allows an individual to simplify identifying and locating necessary mobile applications when they arrive at WSU. An ecosystem is a single platform that houses multiple mobile application links, offering the individual the confidence to manage information needs quickly and easily, without confusion. They are able to focus on the one environment that does all of the work for them.”*

Easily maintained and offering room for growth, the ecosystem’s ultimate goal is to offer system-wide resources for WSU students, guests, faculty, and staff across all WSU areas. Building on vital apps such as myWSU and Blackboard in its initial rollout, more departments and offices are joining WSU Mobile all the time.

If your department would like to explore being a part of the new mobile eco-system, reach out to [crimsonservicedesk@wsu.edu](mailto:crimsonservicedesk@wsu.edu) for more information.





## Students helping students through mobile design: Mad Hat Hackathon



Information Technology Services partnered with WSU's newest technology-friendly building, the Spark, to host the first ever MAD HAT (Mobile App Design Hack-A-Thon) coding event on Saturday and Sunday, March 23 and 24, 2019. With more than 150 registered student participants, MAD HAT kicked off Saturday morning with Dr. Sasi Pillay, VP & CIO of Information Technology Services, welcoming more than 150 registered student participants.

"Our intent and goal for having this first ever mobile app hackathon is to provide students with an introduction to WSU's new mobile eco-system, the centralized platform providing a single access point to multiple WSU apps and websites," Pillay shared, "and give them the opportunity to identify and develop student-generated ideas to add to WSU Mobile."

Event coordinator and ITS director, Guy Westhoff, organized students into teams based on skill levels and interests, ensuring balanced team structures. Following initial training, students spent Saturday accessing their team's mobile app development environment to storyboard and map out app ideas. Technical support during this process, both onsite and online, included team members from both Information Technology Services and visiting developer Ex Libris' technical team members.

Students designed their mobile apps based on a problem statement and the judging criteria provided in the opening session. The problem statement: identify information or resources helpful to students in the new WSU Mobile Ecosystem application, and once identified, design that app. The judging criteria for the student designs included audience reach, ease of use, innovation, and need.

The four winning designs are now in the process of further development within the ITS WSU Mobile support team, including preparation to present to the WSU Mobile governance committee for review and possible inclusion into the WSU Mobile app.

WSU Mobile is currently available free to all students via both the Android and iOS app stores.

*"Our intent and goal for having this first ever mobile app hackathon is to provide students with an introduction to WSU's new mobile eco-system, the centralized platform providing a single access point to multiple WSU apps and websites," Pillay shared, "and give them the opportunity to identify and develop student-generated ideas to add to WSU Mobile."*

*The four winning student teams include:*



**First place winners:**

Emily Feay, Connor Rosentrater, Brianna Lawson, Karl Estes, Blake Coulter, and Micah Priddis



**Second Place winners:**

Angel Castaneda, Tyler Meyer, and Paul Schaffer



**Third Place winners:**

Troy Kirin, Carlos He He and Christopher Roberts



**Student-choice award winners:**

Kellan Mebane and Vikram Singh



## A Connected Community: Cougnet

WSU is altering its statewide network architecture from a collection of individually designed and supported locations with independent internet connections to operate very much as a typical single campus operates. Each location connects to the statewide network much like a person's hands are connected and function as part of the whole body.

CougNet, a project destined to unite WSU's locations across the state through a high-speed network backbone and intranet, evokes a Disney-esque vision of Futureland at WSU: university researchers and students collaborating across the state through high fidelity online courses, extension locations enjoying robust connectivity to larger campuses, and powerful cybersecurity with system-wide visibility standing guard over it all. Like Disney's Imagineers combine science and imagination, CougNet is the vision of dreamers in WSU's Information Technology Services being put into motion.

"WSU is a single university geographically dispersed," ITS CIO Sasi Pillay said. With physical campuses in Pullman, Spokane, Vancouver, Tri-Cities, and Everett, and extension or research offices in all 39 Washington counties, working together and staying connected is paramount to achieving the goals of the University.

Beginning with a direct 10G link from Pullman to Spokane in place by the end of calendar year 2019, the project will ultimately provide a 10-gigabit connection for each campus. Remote extension locations will likely start with smaller connectivity speeds, working up to match the 10G by the end of the project. A fiscal win, WSU is already realizing nearly \$100K savings annually from the locations now added to CougNet.

CougNet also creates an intranet connecting each WSU campus, extension office, and research location. The internal network natively includes continuously monitored, secure connections. High-speed connectivity within the virtual walls of WSU allows campuses to offer their unique capabilities, whether research or classroom oriented, to other campuses. Video conferencing without leaving the internal WSU network improves online course quality. Maintaining a single, redundant intranet significantly lessens the financial burden of maintaining separate internet connections and security across each location, making this a solid fiscal choice for ITS dreamers.

"A high-speed network backbone and intranet are instrumental in advancing our ability to support the drive to 25," CIO Pillay explained. "This structure supports our mission of teaching and learning and offers WSU credible choices for implementing disaster recovery and continuity of operations in the cloud."

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WSU TRI-CITIES



WSU VANCOUVER

*Richard Eisenman, ITS network and security architect, measures success for CougNet across two axes. "The first is technical, reviewing hard metrics designed into the system to measure comparative traffic performance and reliability. The second is organizational, looking at how the project has improved our ability to deliver the educational resources our students, faculty, researchers, and staff depend on."*

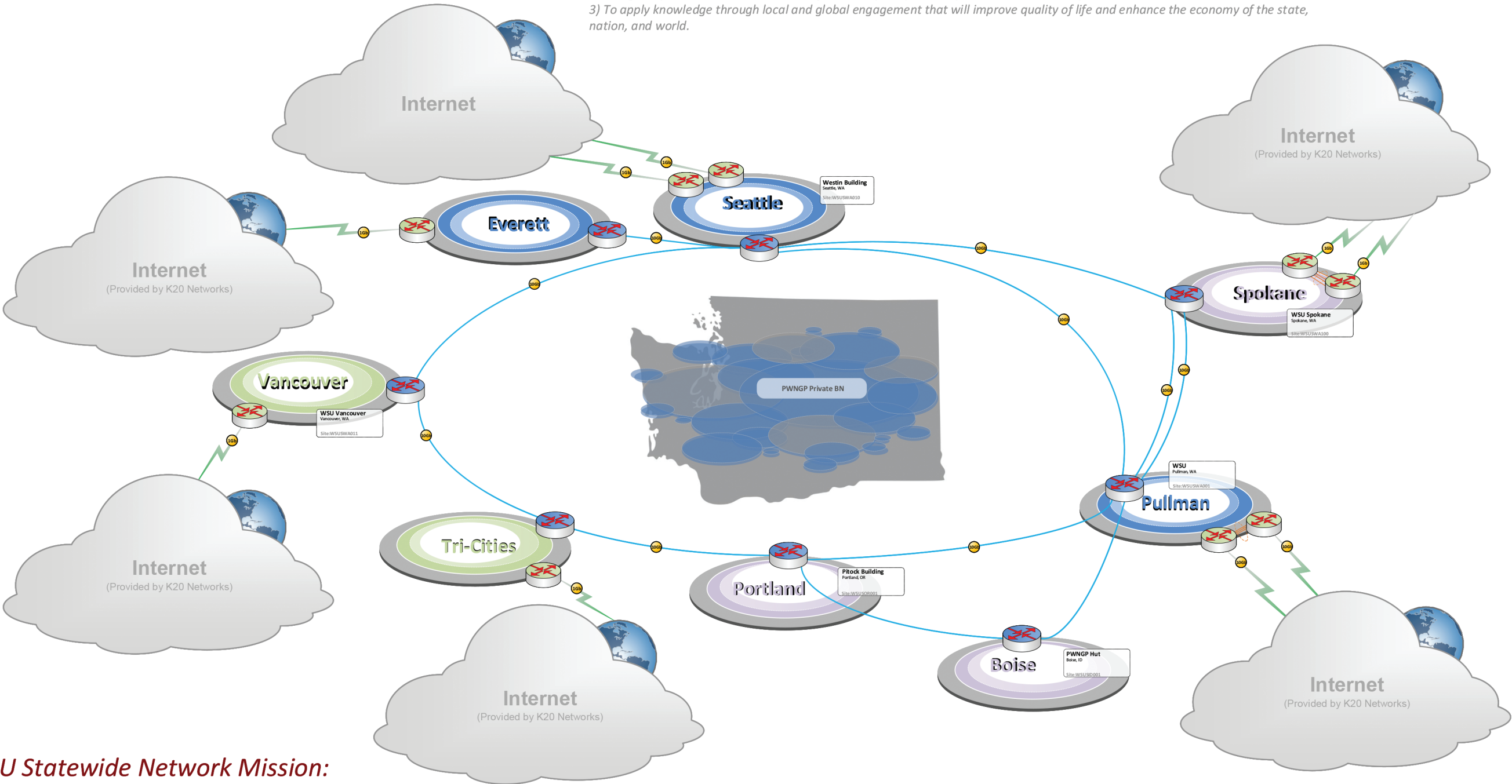


WSU EVERETT



V: WSU will be one of the nations leading land-grant universities, pre-eminent in research and discovery, teaching, and engagement.

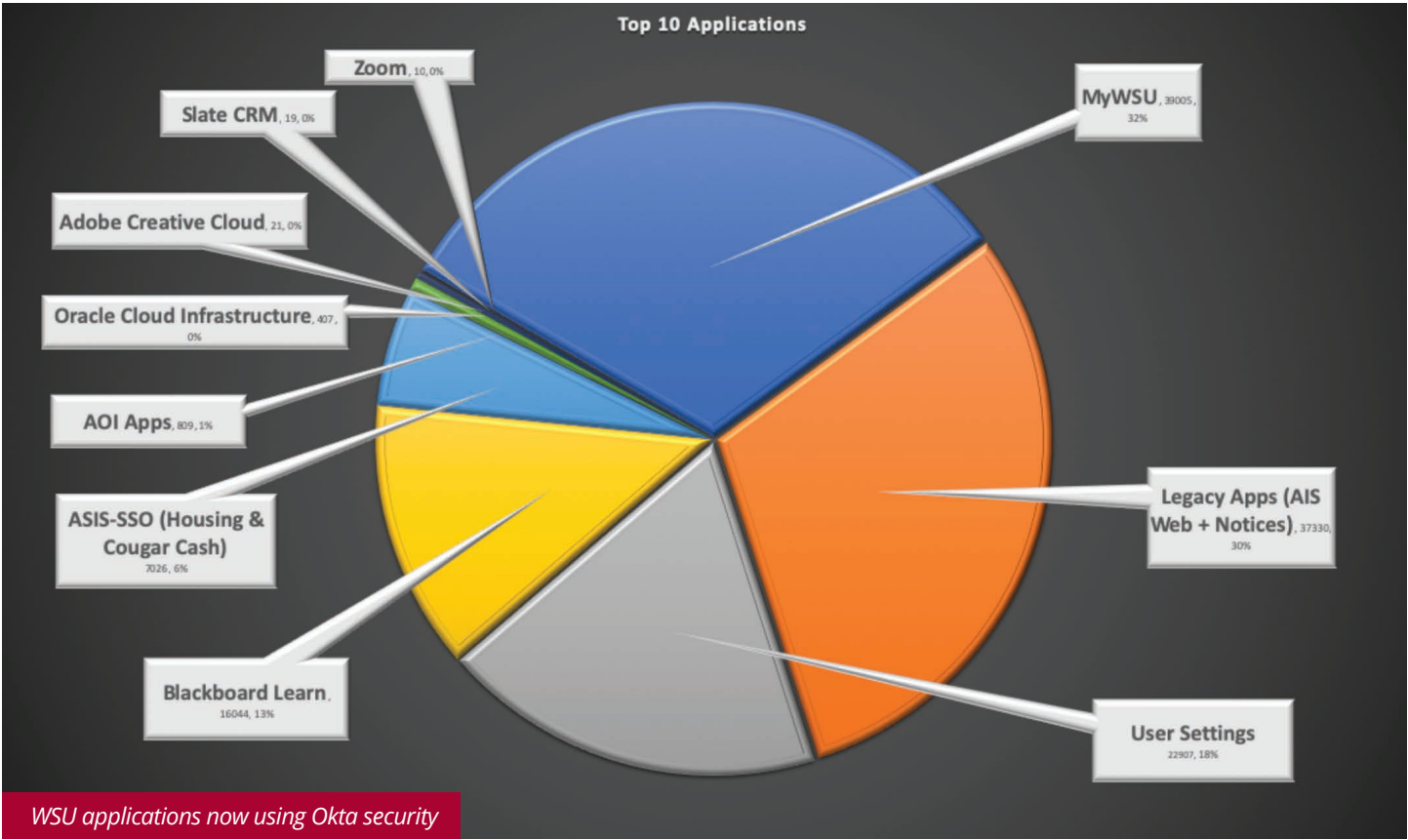
M: Threefold:  
 1) To advance knowledge through creative research, innovation, and creativity across a wide range of academic disciplines.  
 2) To extend knowledge through innovative educational programs in which students and emerging scholars are mentored to realize their highest potential and assume roles of leadership, responsibility, and service to society.  
 3) To apply knowledge through local and global engagement that will improve quality of life and enhance the economy of the state, nation, and world.



## WSU Statewide Network Mission:

- 1) Deliver information high-speed through the WSU System from any location at anytime.
- 2) Advance the Washington State University telehealth initiative in collaboration with both the public and private sector.
- 3) Provide and enhance access for all to WSU online education.
- 4) Provide economic development and become an economic engine at the county, state, and national levels.





# Okta: New Cloud Authentication

ITS completed the first phase of Okta implementation, an advanced cloud authentication resource, with the migration of more than 53,000 WSU users in spring 2019. This multiphase project supports WSU’s constantly growing information security needs, as well as the multi-million dollar business modernization project expected to roll out to the WSU system in July 2020.

Cloud authentication by industry-leading provider, Okta, delivers mobile-friendly self-service password reset interface, strong security tools network-wide, and opens the door for further security protections in the coming months. A manual process requiring Crimson Service Desk support prior to



this migration, cloud authentication brings self-service password recovery when a user forgets their password by allowing users to set up preferences for security questions, text and phone recovery. Self-service password management, not accessible for many international students in the past, is also now available to them. Okta’s functionality eliminates losing network access on nights and weekends due to a forgotten password and no after-hours technical support. They no longer need to wait until support is available during normal business hours, but can access recovery information and restore passwords anytime; a practical solution to a critical student support need.

*“WSU is using some of today’s most advanced information security technology to reduce compromised accounts, a top priority across all of higher ed.” Sasi Pillay, VP & CIO*

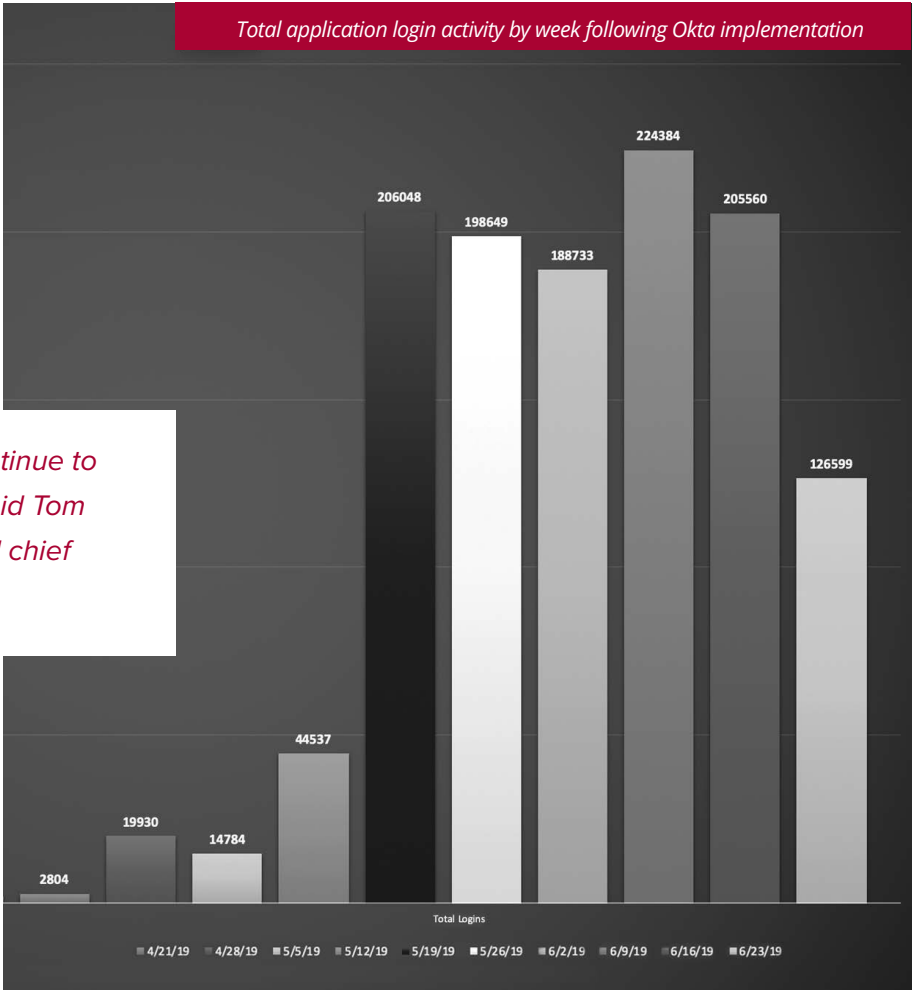
Information security in the higher education community is a growing concern as discussed in the 2019 Stay Safe Online article, “The Adoption of Multi-Factor Authentication in Higher Education.” Many universities worldwide are finding it necessary to incorporate security measures...into university culture “in response to phishing incidents, increasing government information security and data protection requirements, and institutional support for improving information security on campuses.”

According to Dr. Sasi Pillay, vice president and chief information officer, “Managing information security needs is an essential component of everything we do at WSU. Protecting student and university data is like oxygen, we need clean air to be healthy and accomplish our goals. We need secure resources and processes as well.”

Eighteen WSU applications shifted to requiring the new cloud authentication in order for users to obtain access including myWSU, Blackboard Learn, Cougar Card Self Service, and many Housing and Residence Life resources. More applications continue to come online as ITS works alongside colleges and business units to understand their unique business needs. Next year’s Workday implementation, the business modernization application, will immediately utilize the new authentication protocols upon rollout.

The next phase of cloud authentication scheduled for late 2019 brings multi-factor authentication (MFA) to the WSU community. MFA requires users to integrate additional security steps beyond the traditional password before they are able to access protected accounts and network resources. Allowing students, faculty and staff to take an active role in protecting personal and university data, one-time codes received via text or phone eliminate a hacker’s ability to access student data via a single password security structure.

*“Cloud authentication allows WSU to continue to reduce threat surface and exposures,” said Tom Ambrosi, ITS assistant vice president and chief security information officer.*



No Rest: Security Data

Malicious actions blocked:

49,441,663

events blocked at the border



40,642

blocked by Intrusion  
Prevention systems



1,048,576

blocked malicious websites

1,653,265

blocked malicious messages

1,816,449

messages with URL threats



\*Phishing emails sent to WSU email accounts:

55,635

Total tickets received  
through abuse@wsu.edu:

239,724

critical network threat events  
identified and blocked







## A Few Extra Highlights of 2020

### Current Term Withdrawal

Launched on May 11, 2020, the new CTWS streamlines student's withdrawals by housing the entire process within myWSU.

### MyWSU Academic Planner

"[The Planner] shows you all of the courses you need in one place, ensuring confidence the student has all the information they need to move from setting goals to accomplishing them." - Darren Michael Yocum, Executive Director ESG

### Crimson Service Desk

In its first year, Crimson Service Desk took in 53,313 requests for assistance. With the new Ask Butch online resource, as well as more than 1,500 self-help articles, CSD remains the one-stop-shop for assistance at WSU.



### ITS Endpoint Management

Working 60 hours a week, the team requested to remain onsite as essential staff, successfully preparing endpoint workstations to accommodate the state Covid response mandates on time.

### Canvas

Partnering with AOI and the Faculty Senate, ITS continued preparations for Canvas, WSU's new Learning Management System (LMS), set to be fully implemented by fall 2021.



## A University Working Together: Teams Collaborative Software

In January 2020, Information Technology Services (ITS) officially rolled out Microsoft Teams, a modern project management service that moved beyond simply replacing the Skype for Business communications tool university wide. A main hub for Office 365 programs like Word, Excel, and Planner, Teams makes student, staff, and faculty collaboration easier than it has ever been.



Users can set up channels, an organizing system, based on the needs of a project. Each channel offers the ability to create and collect a unique set of files, assignments, relevant websites, and other needed resources. Team members can then add, edit, and download project materials, while reliable version tracking ensures that document changes are transparent and flexible.

The rollout of Teams across the university was initially conceived as a months-long process going well into the summer of 2020, however operations were sped up in early January to meet already growing community needs. ITS Information Systems Manager, Daniel Hamilton, Enterprise Endpoint Manager, Eric Jacobs, and the ITS Communications team quickly built out and delivered introductory user trainings in January to support adoption of the service, with more than 900 WSU staff and faculty attending. Early training and adoption became more important than anyone could have predicted once COVID-19 required the sudden shift to remote collaboration to support continued business and academic needs.

“We’ve gotten valuable feedback on how Teams is helping people communicate in remote environments,” says Hamilton. “It has helped WSU employees with the new, non-traditional work schedules and continued productivity.”

During the COVID-19 era, Teams offers a simulated office environment. With its easily navigable channels, one-on-one and group chat feature, and built-in filing system, teleworking staff easily check in with a supervisor or pass off documents for review.

In addition to staff and faculty, however, the most engaged Teams have been those run by students, with highly collaborative groups like the Associated Students of Washington State University (ASWSU) using some of the most active instances of Microsoft Teams at WSU.

“I can’t express how appreciative my team and I are for having MS Teams,” says one Voiland College of Engineering and Architecture student. “We love how easy it is to share documents, work on them together, and keep them organized.”

“I think it’s the ease-of-use for chat, and the ability to easily collaborate,” says Hamilton of why students might be so drawn to Teams. “Also, mobile integration. Students have other tools for these scenarios, but I don’t think a lot of those other tools are as mobile-friendly as Teams.”

In addition to Teams’ ability to merge the workflows of large groups and organizations, the software has a built-in classroom component currently being explored through multiple pilot tests at WSU. AOI and WSU’s Faculty Senate are investigating the potential for Teams to augment the university’s existing Learning Management Software (LMS).

“There’s a lot of opportunity and value that the university can get out of Teams,” says Hamilton. “I think it’s important that we continue to explore the functionality and how we can use it to support WSU’s mission.”

*“I can’t express how appreciative my team and I are for having MS Teams,” says one Voiland College of Engineering and Architecture student. “We love how easy it is to share documents, work on them together, and keep them organized.”*

That Teams has been so well received, and still offers so much untapped potential, makes the service such a great fit for WSU’s current learning and work environment. As the academic experience continues to evolve and adapt to the fluid needs of today’s world, it will be tools like Microsoft Teams that help keep productivity focused, organized, and moving forward at the pace we have come to expect, no matter the obstacles.



“The ability to collaborate effectively as educators and students contributes to more effective research,” shared Dr. Sasi Pillay, VP & CIO of WSU, “our goal with a tool like this is to allow students to go beyond anything they may have experienced in a learning environment and discover a new world of partnership through shared ideas and resources. The classrooms of today are not one-way conversations, but a dialogue using innovative technology such as teams. These students and educators are building lifelong relationships that will change the world.”





## Video Conferencing at WSU

When Information Technology Services (ITS) deployed the initial Zoom pilot at WSU in the summer of 2019, benefits offered by the new service quickly became apparent. Users are now able to schedule and attend small to large-scale meetings and webinars via a streamlined cloud application accessible anytime, anywhere on desktop, mobile, or web more easily. And with chat, recording, and screensharing utilities all rolled into the same package, Zoom offered users surprising simplicity in adopting a complex software.

Prior to the pilot, the ITS project committee tasked with assessing WSU's existing video conferencing system for both cost and effectiveness found the legacy system cost roughly \$150,000 a year plus periodic added upgrade fees and was limited in its ability to support an increasingly mobile university community. Moving the aging system to the cloud and modernizing to include recording capabilities and other needed functionality would increase annual costs to over \$300k a year. Offering a cloud solution ready to go to work right out of the box at a flat rate of \$85,000 per year, Zoom's versatility and scalability solved multiple challenges at once.

Along with dramatic cost savings, the functionality confirmed Zoom is the choice for WSU's video conferencing needs. Whether it is two students connecting for a quick study session or an administrator broadcasting a webinar to the entire university community, Zoom offers a solution. It is the ad hoc nature of Zoom that makes it such an efficient tool, says Director of Infrastructure at Spokane, Bryan Valley.

"When we want to have a meeting, how many hoops do we have to jump through to accomplish this? With Zoom, one person schedules it, and the invitees accept it. No moderator requirement allows improved efficiencies and timeliness in our business and academic operations."

Given the green flag to move the product migration ahead, the Video Conferencing Infrastructure team, led by Manager Travis Williams, fine-tuned a Zoom training and support system with no hint of the unexpected lifeline their team would offer to the WSU community in the coming months. When the spread of COVID-19 led to campus shutdowns in March 2020, thousands of students, faculty, and staff suddenly needed immediate

access to the new application to continue working and learning in their new remote environments. The Zoom support team was ready. Newly registered Zoom users increased from 2,500 to more than 31,000 virtually overnight. Suddenly, data showed as many as 40,000 weekly Zoom meetings, including more than 600 concurrent sessions at any given time. Records were being broken daily, including total Zoom sessions held by an individual-almost 150 meetings in a single week by one WSU faculty member. Overnight, Zoom became the one resource almost no Cougar could be without, allowing heightened one on one student support during this challenging transition in learning environments.

"We were really, really fortunate that we evaluated this product at the beginning of 2019 and implemented it when we did," said Williams. And while the decision to move to Zoom could seem fortuitous, Associate Vice President and Deputy Chief Information Officer for ITS, Tony Opheim, sees Zoom's success at WSU as a combination of good fortune, good decision making, and good support.

*"Zoom is a 360-degree solution, looking at WSU needs from all possible angles and investing thoughtful planning and skilled staff, as opposed to just throwing technology at a problem." Tony Opheim*

"There's an old saying: 'I'd rather be lucky than good,'" adds Opheim, quoting Baseball Hall-of-Famer Lefty Gomez. "But my qualification on that? It's better when you're both."

On the development side, one of the more important aspects of Zoom's cloud-based format allowed the video conferencing team to prioritize user experience and support, rather than frequent hardware refreshes and other maintenance, paying off dramatically during COVID-19. "If WSU had still been using the old infrastructure, we wouldn't be able to do what we're doing today," says Williams. "The 30,000 users that are connecting from home? We couldn't do that."



Along with curbing the tide of Zoombombings by implementing heightened security measures and training faculty on best Zoom security practices, Williams' team quickly followed Zoom rollout with an upgraded option offering compliance with the Health Insurance Portability and Accountability Act (HIPAA). Users in sensitive positions at WSU can request HIPAA-compliant Zoom which allows disabled meeting recording, removes user data from the dashboard, and encrypts chat. As COVID-19 forced the high volume of WSU students, faculty, and staff who routinely work with healthcare and other sensitive information into a telework context, being able to easily and affordably migrate such users to this version of Zoom was a valuable upgrade offered at an important juncture. And, best of all, the HIPAA-compliant version of Zoom came at no additional cost to the university.

"It is a testament to the product selection, preparation, and the talented support team in place that WSU's Zoom customers have experienced zero service outages," shared Opheim. "Zoom is a 360-degree solution, looking at WSU needs from all possible angles and investing thoughtful planning and skilled staff, as opposed to just throwing technology at a problem."

With Zoom, ITS is more capable of supporting reliable, high-capacity collaboration across WSU and beyond, while protecting our user community at the same time. As the university experience grows more complex in response to our changing world, Zoom, and the dedicated staff at ITS behind it, has made the road ahead seem far less daunting.

## WSU ZOOM: July 2019 – June 2020

**537,723**  
Meetings

**2,567,334**  
Participants

**23,278,968**  
Meeting Minutes



**35,561**  
Registered WSU  
Zoom users



**359**  
Webinars with  
**12,287**  
participants



Highest number of  
simultaneous meetings  
at one time  
**912**



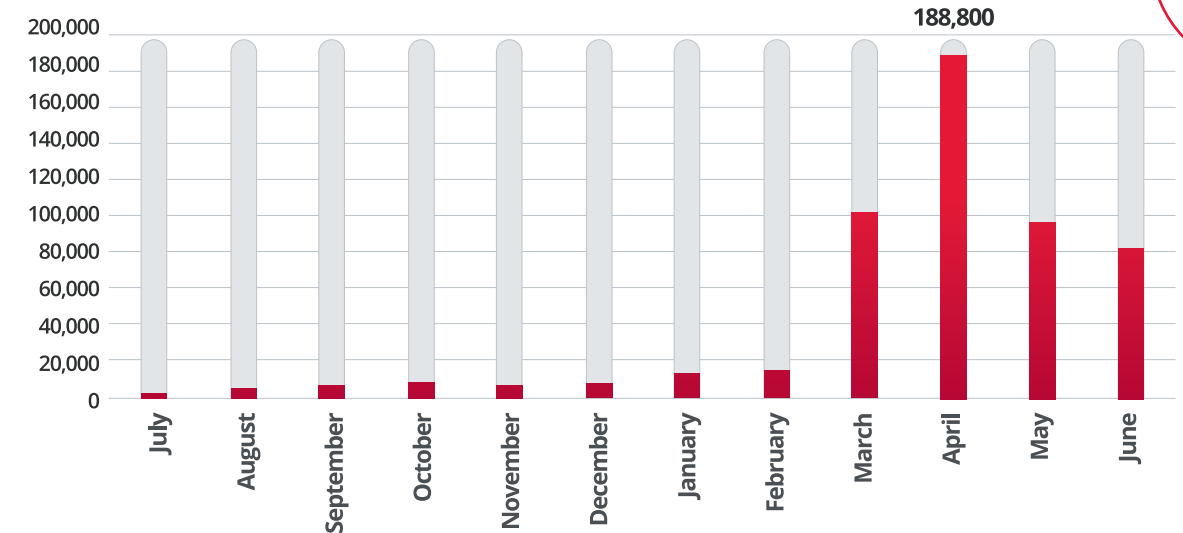
Transformative  
Student Experience



**464,266** meeting participants completed post-meeting surveys  
with **98%** positive feedback

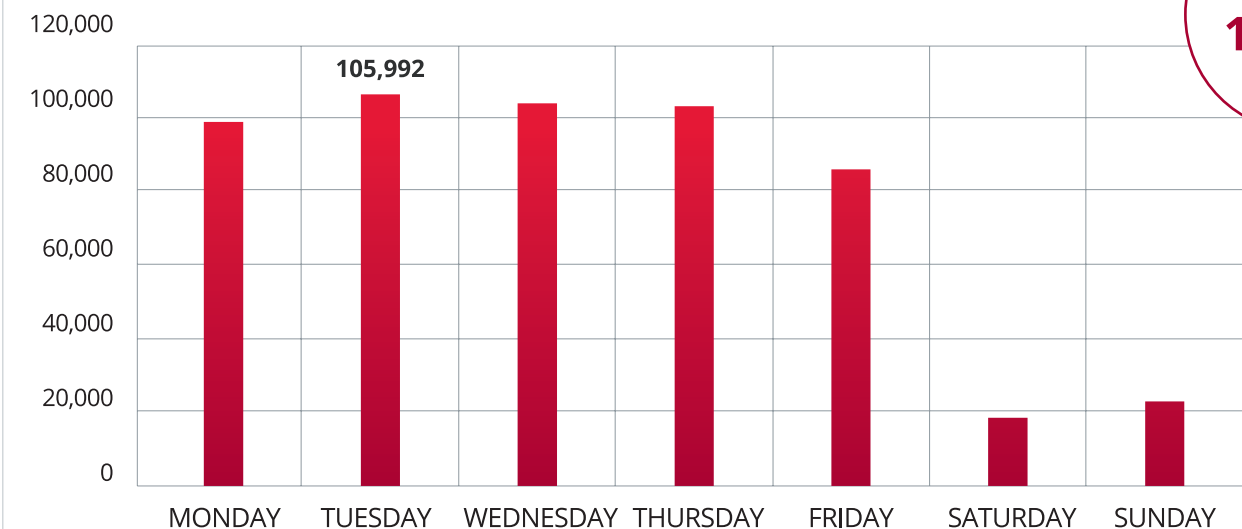
## WSU ZOOM: July 2019 – June 2020

### Total WSU Zoom Meetings by Month



April  
**188,800**

### Total WSU Zoom Meetings by Week



Tuesday  
**105,992**



## Looking to the Future: Workday at WSU

After close to forty years, five university presidents, five added campuses, and thousands of graduates, WSU's once-innovative, mainframe-based business support software, Administrative Information Systems (AIS), is being replaced. Following Board of Regents funding approval in 2018, the business modernization initiative at Washington State University is expected to roll out to university users on January 1, 2021.

Typically, organizations of WSU's size utilize an implementation partner for the technical implementation once a final product is selected. This work often includes the creation of integrations, conversion files, and report construction. The implementation partner often employs a team to build integrations and reports. WSU's modernization team, sponsored by Finance and Administration, opted to go a different route after selecting Workday as their new cloud-based business solution, partnering with Information Technology Services (ITS) staff to carry out the technical integration, conversion, reporting work, and security implementation. Uniting with the project's leadership team and outside implementation partner, Deloitte, ITS undertook several key technical project areas.

The ITS implementation team quickly focused on creating the new WSU Workday environment, preparing millions of data records to be loaded into tenants, developing business reports, and working with numerous departments on external integrations for applications sharing data to and from Workday. Finally, ITS staff went to work ensuring user and application security would support WSU's data integrity for decades.

The first implementation piece focused on tenant builds, or constructing the application environment. Data mapping identified systems and information needed for pulling data into Workday. Many groups across the university partnered with ITS and Modernization for months, mapping and validating data for each new tenant, and refining business processes for Workday configuration. WSU's move to a new software system required the marriage of existing data with updated business processes.

The conversion team completed five successful tenant builds over the course of the project, with two more planned prior to rollout this January. Each tenant is built from the ground up, including the creation of customized fields, configuration of business processes, and loading of data to ensure the processes are robust and able to be replicated. By the third environment build, WSU's data load success exceeded 99%, a number not typically expected in these implementations until conversion processes have matured and the team is much closer to final tenant build. Today, data load success is closer to 99.8%, closing in on the goal of 99.9%.



While a solution for many WSU business needs, Workday will not replace all existing software for business, research, and academic support. Marrying data transfer between Workday and external software is essential. The Workday integration team collected more than 160 software integration requests, collaborating with more than 40 WSU departments and outside vendors to complete close

to 100 separate application integrations to date, along with numerous supporting data load processes. With technology needs constantly changing, integration will become a long-term sustainment process in WSU's Workday team.

A robust resource within Workday, business reporting is a financial planning tool identifying how well WSU is managing its resources. Working with Deloitte's implementation team, more than 1,000 identified reports have been reduced to less than 500 by the reporting development team. However, the number of requested reports is growing daily. "Reports are a moving target," shared Corinna Lo, project lead. "As people learn this new system, they realize Workday's process changes require reporting changes. Workday's capabilities offer new ways to view and manage data."

The final piece of the development picture is security. There are two primary types of security roles built into WSU's Workday environment by project lead Stacy Combs and her team. The first role is position-based and remains with a position once provisioned, regardless of staffing changes. When new hires are assigned into an existing position, they will have the required working access on their first day to information for that position.

***"Workday is an efficiency win for both the employer and the employee in so many ways,"***  
***-Stacy Combs, Project Lead***

The other primary security role is user-based, assigned to individual workers. Once hired, employees receive a Workday role providing them access to needed self-service resources in the software. Employees track their time, leave, complete travel requests, expense reports, and more. Supervisors and employees who approve time and leave receive added security provisioning allowing them access to view and approve their staff's leave reports.

In the past, security provisioning for new hires required days or weeks of paper forms moving manually between departments. Additionally, WSU's Workday

structure now offers unique security roles for a broad list of functions including purchasing, hiring, and much more. "We've incorporated Multi-Factor Authentication, so users will have secure, seamless access between

***"Once Workday is implemented WSU will see streamlined, efficient financial processes leading to timely financial reporting and analytics."***  
***- Dawn Barnard, Area Finance Officer***

Workday and myWSU. Workday is an efficiency win for both the employer and the employee in so many ways," shared Combs.

Each step along this journey, Workday's implementation team continues to partner with functional areas to find and meet needs. The many months of end-user input is essential to the successful implementation of Workday on January 1. Dawn Barnard, Area Finance Officer for Information Technology Services, is just one of the numerous functional area Super Users within Workday's Change Network tasked with facilitating her unit's staff, managers, and leadership into their new roles in Workday as quickly and seamlessly as possible. Participating in end-user input sessions and numerous planning and testing discussions over the past two years, she believes the Workday Financial, HR, Payroll systems and integrations will transform all administrative processes and procedures as we know them today. "Once Workday is implemented and processes are stabilized," she commented, "WSU will see streamlined, efficient financial processes leading to timely financial reporting and analytics."

"The modernization initiative at WSU offers a much-needed business solution," shared Dr. Sasi Pillay, Chief Information Officer for WSU. "Responsive, integrated business workflows and reporting are essential to effectively supporting WSU's mission. We are excited to partner with the project leaders on the technology development for a project so important to WSU, and I am proud of the work my team has done."





## Guarding the Gates: GlobalProtect VPN

WSU life is increasingly mobile these days. With so many faculty and staff accessing WSU resources and research via secure remote connection, Information Technology Services' (ITS) responded with implementation of a robust virtual private network (VPN) software application, GlobalProtect, on July 8, 2019.

As part of the shift from old to new, the team supported both systems for an extended period while support teams updated processes and prepared to move to the new secure access resource. GlobalProtect ran parallel with Cisco's limited, aging legacy SSLVPN service at WSU's Pullman and Spokane campuses. It quickly became clear in spring 2020, as COVID-19 forced much of WSU to remote work locations, that WSU would be transitioning to an entirely online workplace. The result? Completing the move of Pullman and Spokane's VPN users to GlobalProtect became an instant, urgent priority.

*"[GlobalProtect] VPN puts the university in a position to more effectively satisfy security requirements," says Bonner. "So, we're now seeing better security audit results, a top priority for our service team as we support WSU's mission for institutional effectiveness, innovation and engagement."*

ITS Network Security Engineer Laurie Hickey's team was faced with an enormous task, similar to a war room scenario. The team dropped all other priorities, whiteboarding questions, solutions, vital resources, partners, all to configure an entirely new network architecture in a matter of days.

"They upgraded every single WSU Palo Alto firewall across the state, ensuring remote access to critical WSU resources for users being introduced to telework in a very abbreviated schedule" recalls Tony Opheim, Associate Vice President and Deputy Chief Information Officer for ITS. "And they burned the candle at both ends to make it happen."

In a partnership with the Collaboration and Directory Services (CDS) at ITS, the network engineering team did make it happen, with the first big push to the new VPN successfully executed on March 19—just one day after campuses shut down.

"It was impressive to see," says Network Security Engineer, Brian Russell, of the effort. "These were tasks that should have taken four or five months, and the team did them in three weeks."

With all of WSU's VPN users ready to access GlobalProtect, the next question to answer was could it truly keep up with such a dramatic spike in demand right out of the gate. Maximum number of potential concurrent users prior to COVID-19 with the legacy VPN was ample at 508. The

new service's limit increased concurrent user access to more than 65,000 slots available. WSU's VPN service changes were not unlike going from a horse drawn carriage for getting around the land grant university, to hitting 200 mph behind the wheel of a 700-horsepower stock car. Almost at once, the network engineering team saw instances of more than 1,300 VPN users at a time, reflecting a 60% increase in VPN use with room for exponential added growth.

"This change benefits everyone at WSU," says Bill Bonner, Director of Network and Cloud Engineering at ITS, "faculty, and staff, but also students, who can now gain access more readily to library resources and some of their private college resources, as well."

The GlobalProtect VPN also offers the network engineering team greater control over remote user access. When the team assembled the new infrastructure, they rerouted VPN authentication to now pass through administrative groups, meaning activity within individual networks could be more tightly controlled and monitored by specific area and systems managers. Better controls mean improved security posture which mean better protection of WSU data from research to personally identifiable information (PII) for students and employees, and much more.



"The new VPN puts the university in a position to more effectively satisfy security requirements," says Bonner. "So, we're now seeing better security audit results, a top priority for our service team as we support WSU's mission for institutional effectiveness, innovation and engagement."

Though the campus shutdowns and massive shift to teleworking presented many new challenges, the success of the new VPN infrastructure and the team that continues to support it is helping the WSU community move forward with more ease, support, and confidence.





# Equipping Cougs: Loaner Laptop Program



When WSU shifted the remainder of spring 2020 semester online following March’s spring break, Information Technology Services (ITS) quickly rallied to respond to those students without the tools necessary to successfully transition to a fully online academic experience. In a matter of days, ITS partnered with WSU’s Provost team to launch a program offering brand-new loaner Google Chromebooks shipped directly, free of charge, to Cougs in need.

Supporting students who are without access to important hardware has long been a passion of Vice President and CIO Dr. Sasi Pillay’s, and when the moment arrived, the Provost’s office was in a good position to pull the necessary fiscal resources together and quickly make Dr. Pillay’s vision a reality. The team sorted through many details in a truly brief period to ensure the program’s success. “The immediate challenge was finding a vendor who could deliver 200 machines, and do it quickly,” said Associate Vice Provost, Dr. Craig Parks, who spearheaded the effort with Dr. Pillay. “Once we had the machines, [it was about] getting them inventory tagged, software installed, shipped out as fast as we could, and so on.”

*“I see the Loaner Laptop Program, and programs like it, as absolutely vital for our students.” Dr. Craig Parks, Associate Vice Provost*

To make this happen, a small brain trust, as Dr. Parks calls it, was formed between departments, with Dr. Pillay and Dr. Parks leading and troubleshooting, Office of the Provost Communications Coordinator Todd Mordhorst working directly with students on requests, deposits, and returns, ITS Enterprise Endpoint Manager Eric Jacobs handling inventory, ITS Inventory Coordinator Sam Syms shipping the computers out to students, and Crimson Service Desk Manager Anden Lewis overseeing technical support.

Immediate decisions were made to use Google Chromebooks, as the machines were simultaneously affordable and right for students’ current needs, which revolve heavily around video streaming and conferencing. Furthermore, the affordability of the Chromebooks made it easier for students to purchase their computers if they so wished, at WSU’s cost of \$300, after

having borrowed it for the spring and summer sessions.

“In this day and age, most people, including me, assume today’s students have some kind of computing device at home, and that’s not correct,” says Dr. Parks. “I see the Loaner Laptop Program, and programs like it, as absolutely vital for our students.”

Within two weeks, over 115 laptops shipped out to WSU students from every campus and throughout the country. To date, 162 machines are serving students in need. “I could not have been happier with how quickly we were able to get the program off the ground,” said Dr. Parks.

The Loaner Laptop Program has been a remarkable success, even inspiring the Provost Office and ITS to once again partner to deploy the Wi-Fi hotspot program enabling students’ access to the internet and WSU educational resources at no cost. Understanding how vital these kinds of access support initiatives are for students, Dr. Parks and Dr. Pillay aim to keep them running and expanding as WSU heads into the Fall 2020 semester and beyond.

“With programs like the Laptop Loaner Program,” Dr. Pillay shared, “Cougs everywhere can leave worries about technology behind and focus instead on what really matters—their studies, and an all-around transformative student experience.”



## WSU's COVID Response, Coming Together in an Extraordinary Time

Working through the technology needs arising from WSU abruptly shifting from six campuses to thousands of home offices seems comparable to transferring a saddle from one horse to another in the middle of a race—while the rider is still in the saddle. Working in WSU's central Information Technology Services during CoVid-19 felt similarly chaotic as the virus response created immediate operational changes and technology became an all-consuming topic each day.

Throughout the growing strain on customers and partners, Information Technology Services (ITS) staff kept the WSU community safely in the saddle and able to complete the remainder of spring semester. Where support could be completed remotely, certain ITS team members continued working on site as the state shutdown extended repeatedly, ensuring network connectivity and security remain at the level needed for displaced students and instructors alike.

Repeatedly during these past weeks, Information Technology Services staff innovated and implemented new ways to improve and simplify technology to stay a step or two ahead of needs.

WSU's new telecommunication resource, Zoom, broke record after record, going from approximately 2,500 registered users in February to more than 31,000 users in March with millions of minutes in Zoom meetings. The top individual Zoom user, a WSU faculty member, hosted 132 Zoom meetings in a single week.

Microsoft Teams rolled out earlier this spring, just in time to offer state of the art file sharing and collaboration for students, faculty, and staff. Since its rollout, Teams users completed 13,000 group calls or meetings via Teams, over 2 million chat messages, and over 50,000 channel messages, by the more than 10,500 new users.

"Teams saw dramatic increases in utilization," shared project manager, Dan Hamilton, "doubling and quadrupling across various application elements such as calls and chat messages in those first few weeks of WSU's stay home, stay healthy initiative."

Crimson Service Desk (CSD), the ITS technical help desk for users across the university, created a first of its kind Zoom virtual service desk model where customers could join anytime during business hours and receive live assistance. Along with introducing Zoom service desk, CSD fielded more than 12,000 email and phone requests for assistance during March and April, and saw dramatic increases to self-help knowledge base resources online while also supporting the very new 'Ask Butch' live online self-help resource.

The ITS website, designed to offer centralized information and resources including the Cougs Online Toolkit, experienced more than 32,000 visitors reviewing 61,000 pages of information; information such as instructions and links for obtaining secure remote access via the brand new GlobalProtect.

Barely having replaced the end of life Cisco AnyConnect, which allowed a maximum of 500 users, GlobalProtect gained more than 5,600 users almost overnight who could suddenly work from the safety of their home while still accessing secure business resources behind WSU firewall protections.

*"ITS, and WSU, were fortunate to already have the next generation of remote access to enterprise applications and data on deck and ready for implementation," shared Deputy Chief Information Officer, Tony Opheim, "The project team instantly responded to changing needs and effectively accelerated GlobalProtect's rollout for thousands of customers across WSU, offering a timely solution in a time of crisis."*

Individual identity security continues seeing some of the most targeted threat levels thanks to the changing technology landscape at WSU. CoVid-19 inspired malicious actors hoping that remote workers

and students are not safely tucked in behind robust organizational network security. WSU's security walls continue to stand strong thanks to technology and trained staff already in place, ready for days like these.

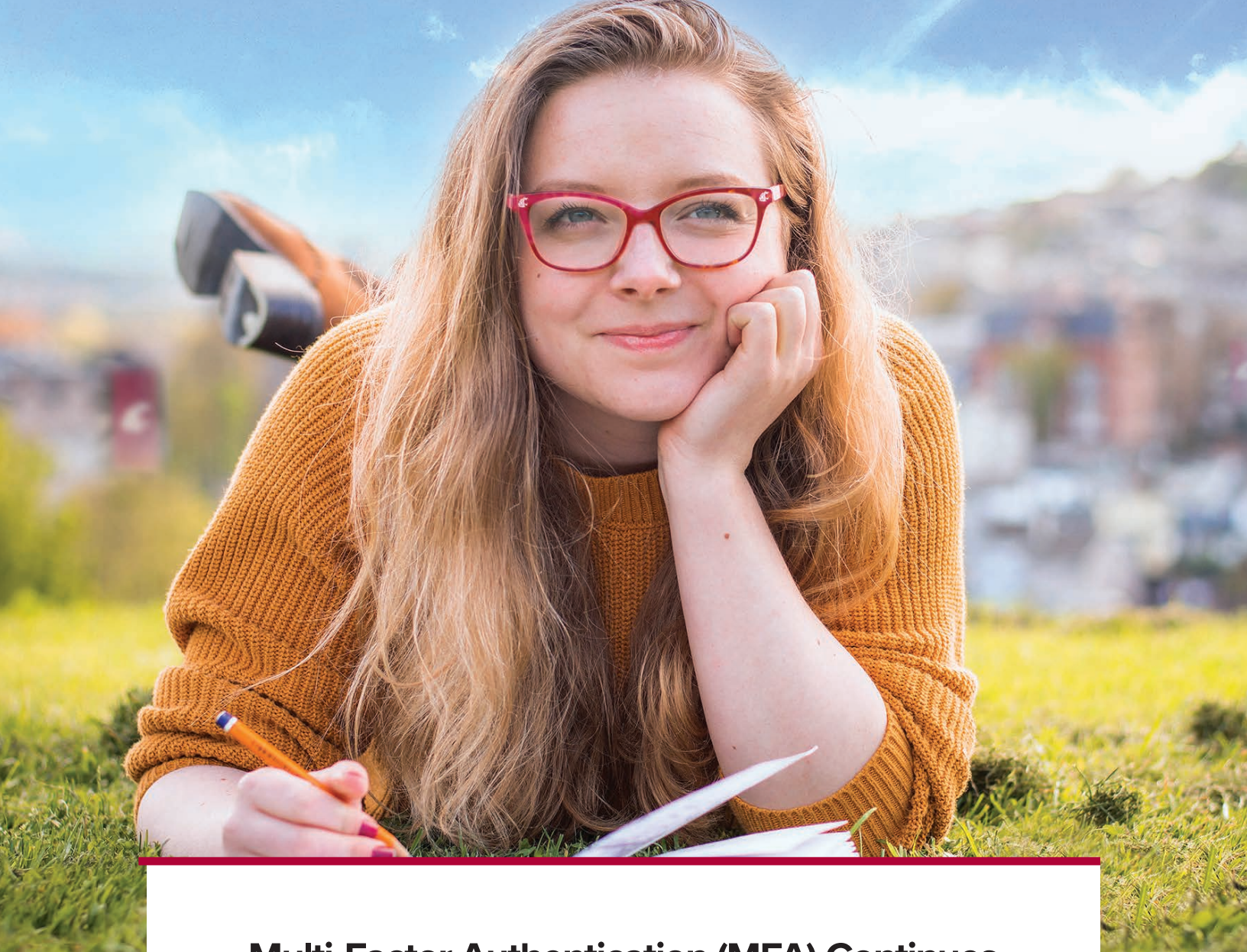
WSU's technology environment dramatically shifted during this unprecedented safety initiative. Thankfully, Information Technology Services is the perfect pairing of dedicated staff and industry-leading resources that made it possible to continue teaching, paying people, and performing groundbreaking research.

With May's commencement exercises behind us, WSU can officially claim success in navigating an amazing and strange spring term. However, ITS teams are already months past the end of spring studies. Amid CoVid-19 support, project teams have also been preparing for future technology solutions, software updates, and user trainings. The technology needs of WSU today, even in the face of a worldwide pandemic, were prepared for over the past year. And the technology needs of tomorrow are already well laid out plans being finalized and carried out.



"ITS, partnering with numerous technology and business professionals across WSU," said Sasi Pillay, Chief Information Officer and Vice President, "celebrates the completion of spring semester and the approach of summer term. We made it, Cougs! And we did it together." #WSUTogether





# Multi-Factor Authentication (MFA) Continues

Following two years of phased preparations, Multi-Factor Authentication is set to come online as WSU’s new guardian when accessing more than 90 departmental and university-wide applications beginning August 4, 2020.

Whether it is phishing emails with links to malicious websites collecting personal credentials, ransomware holding individuals and organizations hostage until they pay up, or groups waging all out cyber warfare, it is becoming increasingly challenging for information security teams to stem the tidal wave of bad actors in today’s digital landscape. Many everyday technology users struggle to navigate these heightened security risks, often using the same passwords across personal and business accounts.

Even the strongest passwords are security dinosaurs, far too easy a target for today’s cyber-criminals. “In regular assessments prior to Okta password management implementation last year,” shared Tom Ambrosi, WSU’s Chief Information Security Officer, “numbers showed an average of 1,000 compromised accounts each month that required reset by our information security team.”

WSU is not alone. Across higher education, more than 80% of recent data breaches are due to compromised login credentials, i.e. compromised passwords, according to recent Educause data. Universities are significant targets for cyber criminals due to the collaborative culture. A single university

*“We are striving to exceed identity protection standards established by the financial industry, who set today’s gold standard in customer protections,” shared Dr. Sasi Pillay, Vice President and CIO. “WSU students, faculty, and staff should feel their information is safe whenever accessing WSU resources. We are accomplishing that with MFA.”*

account holder might have direct access to multiple academic and business department data, including research, payroll, student information, and more. Get those passwords and hackers get the keys to the kingdom.

The move to heightened information security is timelier than ever, considering CoVid-19 pandemic’s need for distance compounded technology vulnerabilities. The expanded attack surface, or potential opportunities across cyberspace worldwide, inspired a 350% increase in global phishing attempts between January 2020 and March 2020 according to Google’s Transparency Report.

August’s major MFA rollout is the last step in this multi-phase security platform transition. In spring 2019, WSU shifted to cloud-based identity management offering improved self-service and recovery of network passwords. Phase two in December 2019 piloted identity verification, an added code

when logging in, on one of WSU’s student information system, myWSU. WSU’s customized myWSU application serves as an important central resource for students, faculty and staff when managing academic schedules and needs, accessing employee resources, and more. Protecting this extensive database of personal and business information offered an ideal first stop for MFA, and WSU’s 50,000 active community of users quickly adopted the new process.

In addition to increasing cyber security at WSU, the implementation of MFA for so many important university assets moves the university one step closer in its Drive to 25 mission, as every one of the top 25 universities in the country, as well as all of WSU’s peers in the PAC 12, are currently using some form of added identity verification.



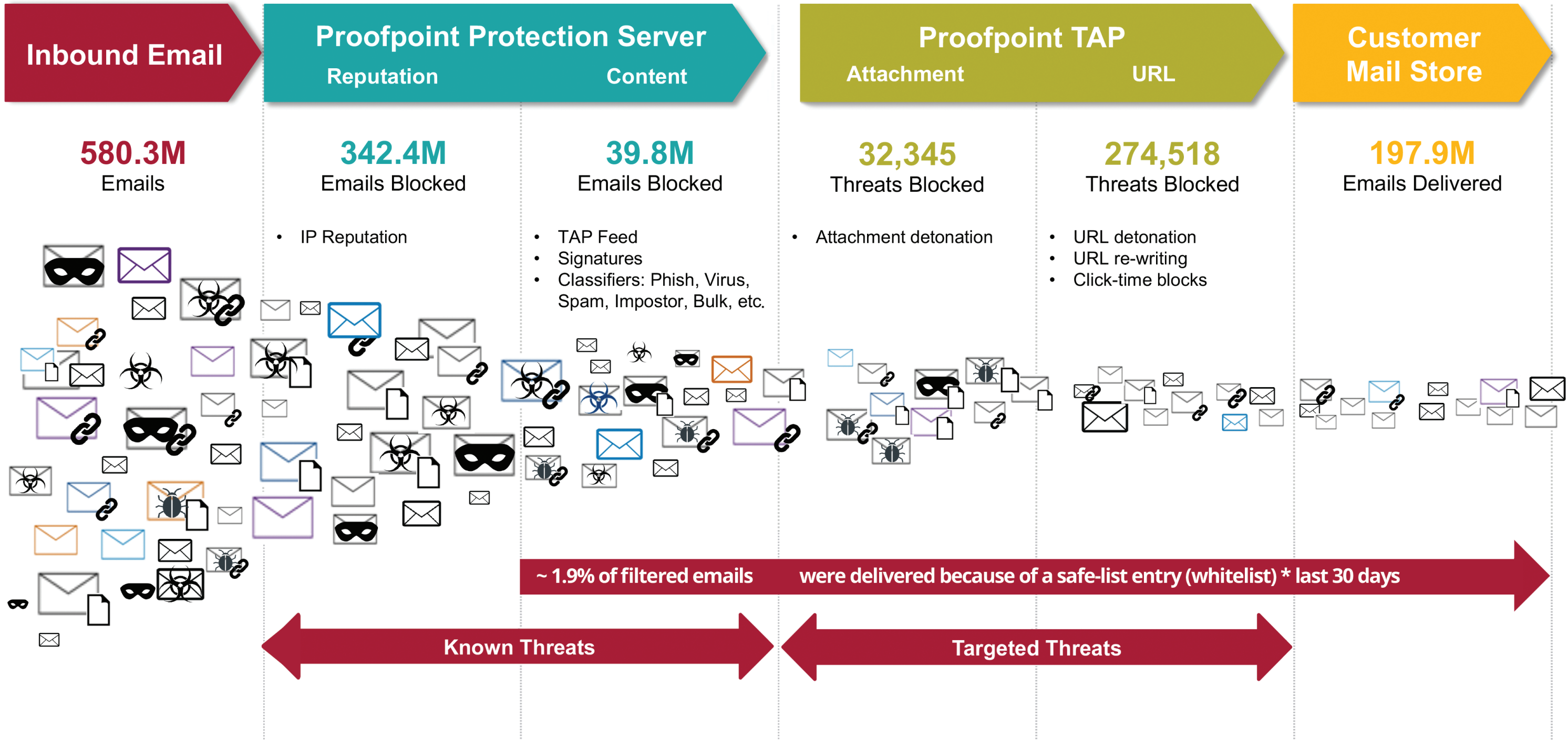
Phishing emails are still the most common and successful method of compromising accounts. However, MFA at WSU is an effective new tool in WSU’s information security arsenal, dramatically reducing the threat posed by compromised passwords. A hacker may succeed in obtaining login credentials but is unable to access target accounts since they are unable to obtain the added authentication code provided to the true owner of those credentials.

“We are striving to exceed identity protection standards established by the financial industry, who set today’s gold standard in customer protections,” shared Dr. Sasi Pillay, Vice President and CIO. “WSU students, faculty, and staff should feel their information is safe whenever accessing WSU resources. We are accomplishing that with MFA.”



# Threat Protection Statistics

July 1, 2019 to June 30, 2020







ITS COMPENDIUM 2021



## A Few Extra Highlights of 2021

### DMARC & Encryption

WSU users are added to a secure registry in order to utilize the protected wsu.edu extension when sending emails. Also, in a matter of a few clicks while creating an email, encryption protects it from being viewed by anyone other than the intended audience.

### LMS Proof of Concept

ITS project staff partnered with Microsoft, creating a proof of concept for a Teams LMS.



### Capturing remote student experience

Supporting a positive student experience drove an important Fall 2020 student survey built and delivered by Information Technology Services (ITS) in partnership with the Office of the Provost.

### Planning for the future: HPC Growth

ITS and the HPC management team at WSU's Center for Institutional Research Computing (CIRC) came together once again in 2020 to lay out the next generation of ITS infrastructure adjustments capable of supporting future HPC deployments.



## Attestation: The Path Back

As WSU worked to offer safe return to campuses across the state in fall 2020, the university teamed up with Information Technology Services (ITS) to create needed daily COVID-19 attestation software. The application's development originated primarily to ensure the safety of essential workers returning following lockdown, but quickly increased to include all campus visitors at the recommendation of the Attestation Committee, with representation from the Accessibility Center, the Provost's team, Administrative Services Information Systems (ASIS), and Environmental Health and Safety (EH&S).

Using the new software developed by ITS, WSU welcomed back numerous Cougs and guests for the 2020-2021 school year who may have otherwise been unable to safely access needed on-site labs and academic spaces.

Following an expedited development schedule, ITS launched attestation for students in myWSU, creating a simple process to allow students return to spaces such as the Student Recreation Center in Pullman for the first time since March 2020. With just a few clicks, the daily form verified students were not experiencing COVID-19 symptoms nor had been exposed to a COVID-positive person. Students reporting any symptoms were recommended to self-quarantine and visit their health care provider. With the help of the Accessibility Center, the attestation system matched the needs of accessible technologies, featuring a green checkmark for yes, accessible to those with color difficulties and easy to approve immediately.

Orchestrating the attestation system in record time to meet the tight August rollout, ITS continued to collecting feedback to improve the user attestation experience. One major roadblock identified by students, the multi-factor authentication process (MFA) required by myWSU was cumbersome, especially for those living on campus who had to present their attestation information multiple times in a day. Additionally, if myWSU had a service outage or was undergoing maintenance, students ran the risk of not being able to access a building until the service was restored.



In response to these issues, ITS worked through the fall semester to improve the process, implementing Attestation for Students in the WSU Mobile application in January 2021. The mobile version, mirroring the format in myWSU, ran independent of the larger software platform to allow continuity of service in the event of outage. The mobile version also eliminated the MFA process, significantly speeding up the procedure for all involved.

Technical developers built off the previous logic to create and customize the experience in the mobile app. "The beauty in this programming is that it allowed us to go in and take out what we did not want such as MFA and add in improvements such as arrival testing. We were not limited in our abilities to customize the application to the everchanging student experience amid a pandemic," CIO Sasi Pillay said of the project.

Many of the fall's functional improvements originated from ASWSU focus groups sharing feedback on

behalf of the student body. The direct feedback proved to be extremely helpful to the project team, allowing the addition of features including arrival testing for the spring semester. From these conversations, ITS successfully reduced the number of questions to be completed daily for students, allowing them to move more quickly through attestation and focus on other important academic needs.

Ryan Savage and his technical team worked on much of the behind-the-scenes mobile integration. "Using information from myWSU, we built a path between the two platforms allowing myWSU to constantly talk to the WSU Mobile app. If there is any service outage affecting myWSU, all completed WSU Mobile attestations will automatically sync back to myWSU when the application is back online."

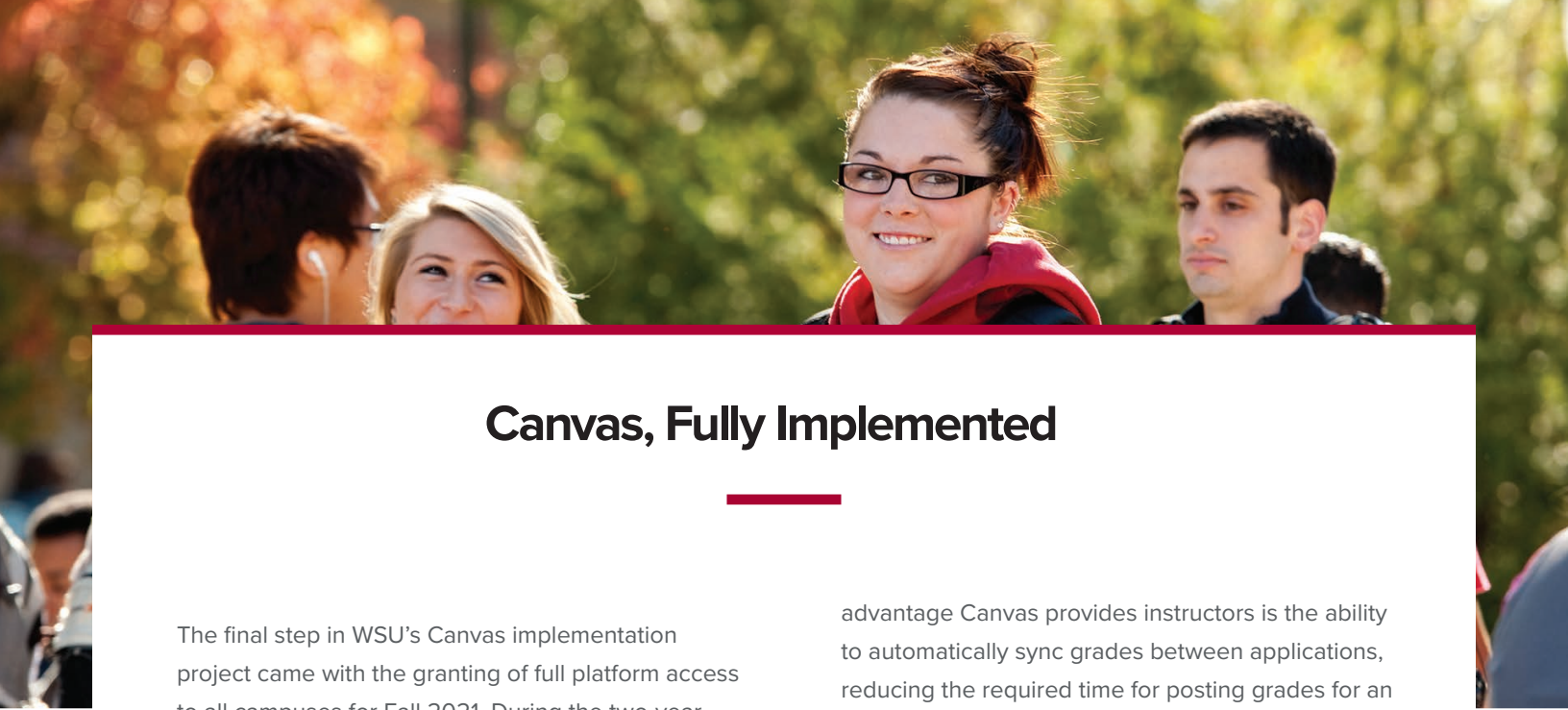
At its launch, more than 5,000 students, staff and faculty switched their daily attestation method to the new app, citing its ease of use as a large improvement. Simplifying this process allowed students to streamline their return to campus life. In ITS' continued commitment to the student experience during COVID-19, attestation provided a path back to campuses for WSU.

*"We were not limited in our abilities to customize the application to the everchanging student experience amid a pandemic,"*

*CIO Sasi Pillay said of the project.*








# Canvas, Fully Implemented

The final step in WSU’s Canvas implementation project came with the granting of full platform access to all campuses for Fall 2021. During the two-year project development, a university-wide effort formed across all campuses to prepare for the transition from Blackboard into the new Canvas Learning Management System (LMS). With representatives from the Faculty Senate, the Office of Academic Outreach and Innovation (AOI), Information Technology Services (ITS) and consultation from Global Campus Chancellor and WSU Vice President, Dave Cillay, the project team thoroughly completed necessary due diligence to ensure the transition would benefit both students and faculty.

 As an application, Canvas is a superior LMS, offering updated features and a user-friendly interface. Used across higher education, many students entering WSU are familiar with Canvas, having used it in high school. Excited to discover the upcoming launch, these students repeatedly provided positive feedback regarding Canvas’ messaging, calendaring, proctoring, and the availability of more class materials in one location.

More than just a student-facing solution, Canvas also improves teaching tools for instructors, an important factor for the change. “The new LMS was selected in response to requests by faculty. With the help of the Faculty Senate, we were able to find a new application offering numerous benefits to instructors that they are excited to use,” said Anden Lewis, the Canvas Implementation Project Manager. One

advantage Canvas provides instructors is the ability to automatically sync grades between applications, reducing the required time for posting grades for an entire class into a single action.


A win-win for students and faculty, the new software also presents an opportunity for researchers, advisors, and administrators to examine student analytics through the Canvas Data service that were not easily available in the past. Canvas Data allows collection of datasets that can be used for important reporting and queries regarding student behaviors, including student success rates, classroom engagement, and more.

Canvas Data is available now and will also be wrapped into future projects for the university, such as the creation of the planned Student Success Dashboard. As part of the Student Success Initiative, Canvas’ analytics functionality aligns well with WSU’s goal to create a comprehensive student progress tracking dashboard. “This project involves collaboration with several university systems to optimize the effective use of this information from students. We plan on creating a singular space that showcases student success metrics, tracking information such as their last login to the online course space in Canvas, confirming whether they are actively involved in the class. Analytics are so important, offering more and earlier intervention opportunities when students fall behind,” said Lewis.

Budget-friendly while offering industry-best functionality, Canvas is an LMS solution for the entire WSU system.

# Amplifying Career Application

This year, ITS partnered with the Carson College of Business (CCoB) to integrate Suitable, CCoB’s student success application, with myWSU, creating a one-stop shop to track a student’s path to graduation.

 To increase the value of their degree when going out into the workforce, CCoB students complete required, non-academic activities, or student milestones, in addition to their academic coursework via the Career Amplifier program. These added milestones are designed to implement career readiness for WSU graduates in their chosen business career, however the administrative overhead and tasks created a burden for CCoB.

In early spring of 2020, CCoB approached ITS with a question: how can we track non-academic requirements more easily for our college and our students? Prior to this discussion, non-academic attendance was tracked through Suitable with traditional degree requirements recorded in myWSU, separate tasks requiring numerous staff hours.

All potential improvements pointed to providing a centralized, automated resource for all the information.

ITS Business Analyst, Dipti Vishwanathan, led the project team in creating the cooperative data relationship between myWSU and Suitable where automated data feeds move constantly between the two applications, milestones are updated as they are completed and advising information is up to date anytime. If a student is missing a degree requirement, advisors can more quickly spot an issue and intervene early to redirect the student’s course- and non-academic work.

Reducing manual enrollment management also became an immediate project benefit for university staff. “As a result of the work we’ve been doing with [ITS], we have

already noticed a remarkable decrease in the amount of time and frustration for students and advisors in the overall registration experience within our college.” shared Stacey Lynn Smith-Colon of the College of Business. “

On the admissions side, we have seen a significant drop in the number of permissions we have been required to enter this semester, at this point only 34 across all classes. At this time last year, we had already entered 316 permissions for Spring 21 B\_A 201, which is just one class” she continued.

“The new system is also significantly beneficial from an administrative viewpoint, as it directly ties into successful graduation processing. Now, when we are performing degree clearance, we are confidently working with accurate data every time we check a student out,” said ITS Interim Executive Director, Darren Michael Yocum. “This is the type of project where ITS teams can add multi-faceted value. Students benefit, staff effort is reduced, and we are using resources already in place at WSU, so there is no increase in cost, just an increase in value.”

“Career Amplifier is a great initiative. Employers today are not just looking for training in theory. They’re looking for individuals with hands-on experience, professional development, and communication skills. This particular program shapes our graduates to be ready for their future interviews, equipping them with transferrable skills,” shared Vishwanathan.

Career development, tracking credits, and improving efficiencies are all checked off with the completion of this project.







# Strengthening Infrastructure through Upgrades

In September 2020, Information Technology Services (ITS) completed two valuable database upgrades to offer improved business support for years to come.

The first change was a shift from Oracle to a Microsoft SQL Server, both software products with the primary function of storing and retrieving data for various other software applications across a network. What is the reason for such a change in similar products? Dramatic functionality potential and more than \$200,000 in contract renewal savings.

Since many at WSU are familiar with Windows platforms, users came into the new database environment

immediately more comfortable with the software’s format, an ideal user experience with a software upgrade. This allowed ITS to quickly work with user groups to successfully transfer over 1000 named users, one million images, and 40 million files into the new production environment in a matter of months. Users quickly discovered the modern SQL Server platform expedites the speed and availability of data while also significantly enhancing ITS’ disaster recovery with agile backup and restore capabilities.

At the same time, ITS also upgraded the separate Oracle Data Warehouse environment to an advanced cloud database, Oracle 19, a large jump in quality with no added cost.



A crucial business resource for many at WSU, the Data Warehouse is particularly valuable to the Institutional Research group at WSU who utilize the environment for data analysis requests guiding key administrative decisions. Beyond the valuable information the office shares across campuses from their work, Institutional Research serves the State of Washington as a trusted data provider of WSU and higher education data.

Presenting the comfort of little to no change from a user standpoint, Oracle 19 is equipped with heightened troubleshooting potential for technical staff and includes several data warehousing machine learning capabilities for technical staff to explore in the future. “Among the new features, the ones we have utilized include holistic functioning which allows for easier aggregation and SQL sequel statements. Beyond that, there are several enhanced data warehousing machine learning efficiencies that we are excited to explore,” shared data architect Cameron Zapf.

According to Gunjan Sinha, project manager, “these two database upgrades continue to strengthen the infrastructure of WSU, making powerful changes to cross-departmental productivity.”

Working through a tight timeline and from a remote environment, CIO Sasi Pillay credits the success of this project to honest, frequent dialogue on project goals and combined effort across ITS, Institutional Research, and the Business Intelligence team to meet those goals. In enhancing WSU infrastructure and saving money, these two upgrades were a win-win for the university. “In these upgrades, we have found a means of cost avoidance while bringing new features to our arsenal. We are encouraged to continue to seek out options, such as this, to be good stewards of the money that is given to us” he said.

*“These two database upgrades continue to strengthen the infrastructure of WSU, making powerful changes to cross-departmental productivity.”*

*- Gunjan Sinha,  
Senior Director Information Technology Services*



## A Strong Partnership: WSU's Foundation & ITS Data

WSU's December 2020 move from the aging, legacy Administrative Information Systems (AIS) business application provided an excellent opportunity for Information Technology Services (ITS) to transition the WSU Foundation's donor matching tools into a new era.

WSU's Foundation, relying on ITS data technology, joins Cougar family members with important donor opportunities used to fund scholarships, research programs, buildings and more. Being the central intake for financial records, including donations, AIS became a valuable information source over its decades of use, tracking gifts along with the donor's relationship to WSU, such as graduation year or area of study.

However, the AIS system presented significant efficiency issues. "WSU student life cycle includes being actively enrolled students who then graduate and become alumni, having an opportunity to provide funds back to their school. In AIS, there was no easy mechanism to distinguish between the original student account and their separate WSU alumni account, creating extra effort to eliminate duplicates and get effective relationship data," said WSU's Chief Information Officer, Dr. Sasi Pillay.

The primary step in modernizing the Foundation's data reserve was a revamp of their match-interface system, the means to extract and match alumni with suitable donor opportunities. Justin Hughes and his project team in ITS quickly found the solution to tackle this issue right in WSU's own technology toolbox. WSU's student information system (SIS), myWSU,

presented as an ideal replacement platform for match-interface needs. As the source of all student IDs, the modern, cloud-based myWSU can align donor match information for individuals by relying on their unique WSU ID, regardless of any enrollment status changes. Duplication is a thing of the past. "The new system is designed around preventing duplicate records, saving the Foundation significant time that can now be spent focusing on larger missional discussions," shared Dr. Pillay.



Connection, continuity, and community are all cornerstones of WSU Foundation's work to turn relationships among students, alumni, and organizations across the state and beyond into continued financial investment in tomorrow's students.

*"Moving to myWSU is the first step in modernizing the Foundation's operational resources," said project director, Justin Hughes.*

*"Future plans include identifying opportunities for additional data automation and efficiencies through no- or low-cost use of technology already working for WSU."*

*- Justin Hughes Project Director*

## Workday, All Aboard

"After close to forty years, five university presidents, five added campuses, and thousands of graduates, WSU's once-innovative, mainframe-based business support software, Administrative Information Systems (AIS), is being replaced..." ITS Annual Report 2020

The fourth Information Technology Services (ITS) update regarding WSU's Workday implementation is the most exciting. All the meetings, all the years of planning and the many hours of development and testing finally brought WSU to the successful December 2020 launch of Workday, WSU's new administrative suite for finance, human resource, and payroll needs. Already a dramatic milestone for the university, COVID-19 made the final implementation even more remarkable with a fully remote staff supporting the production tenant's go-live during the pandemic.

The final piece, arguably the most challenging element of any technology change, was supporting an entire university community through the transition to the new software application. The software looked and functioned quite differently than the DOS-based AIS, used different terminology and search structure, and replaced paper-driven processes for many employees who would now complete time and leave reporting in Workday. To assist new users, the project team developed a library of online training materials, tips and tricks brochures, and

provided live group training sessions for staff along with implementing a service desk to provide individual customer support.

While the Modernization team organized all the needed resources, departments across the university worked to ensure their employees completed required trainings. In ITS, a team organized meetings and reviewed training materials, sent weekly updates, and answered any questions necessary to support staff adjusting to this change.

With almost 40 years of business activity in the legacy IBM mainframe, adopting Workday was anticipated to be a challenging adjustment for WSU users. However, this transition provided opportunities for the WSU community to come together, embracing the new business solution, reaping the benefits of a stronger, more secure platform for WSU users, and supporting each other in the process.



User feedback shows a positive response to time and leave requests being completely online, offering convenience and ease for employees. Additionally, on the payroll side, users indicate processes require less time and effort resulting in increased productivity in other work areas.

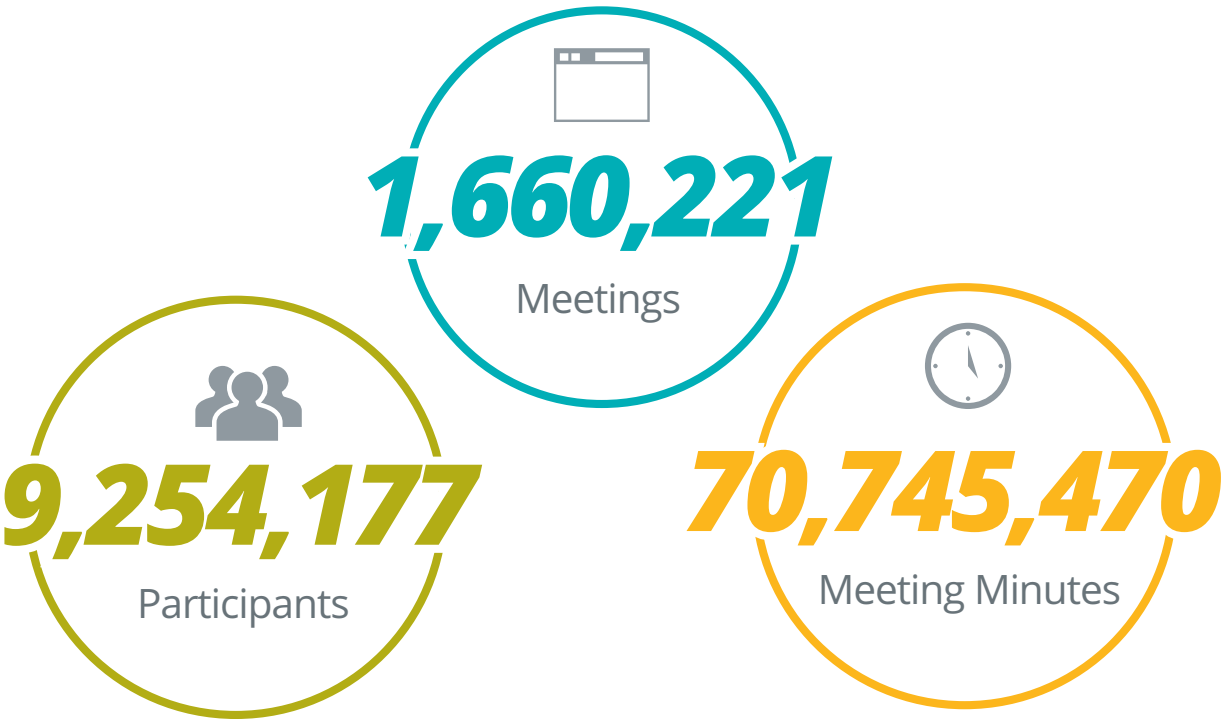
At the end of FY21, continued training and resources are available for WSU users as the university strives to better familiarize with Workday.





# Zoom 2021

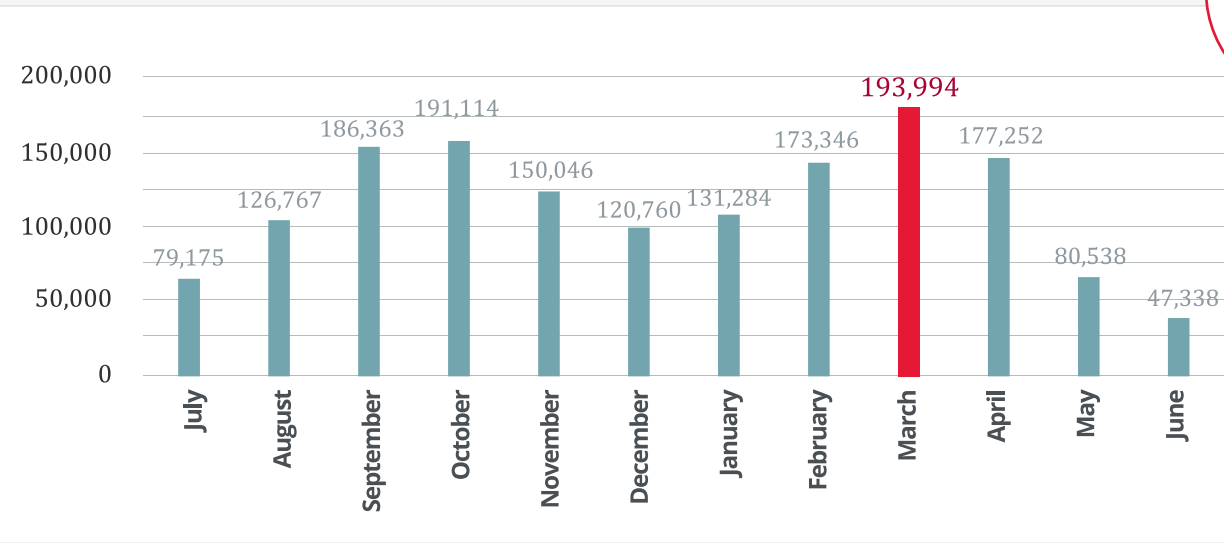
Zoom is the choice for WSU's video conferencing needs. Whether it is two students connecting for a quick study session or an administrator broadcasting a webinar to the entire university community, Zoom offers a solution.



**98%** Positive feedback for Zoom surveyed post-meetings with **2,155,847** instances of reported feedback during that timeframe.

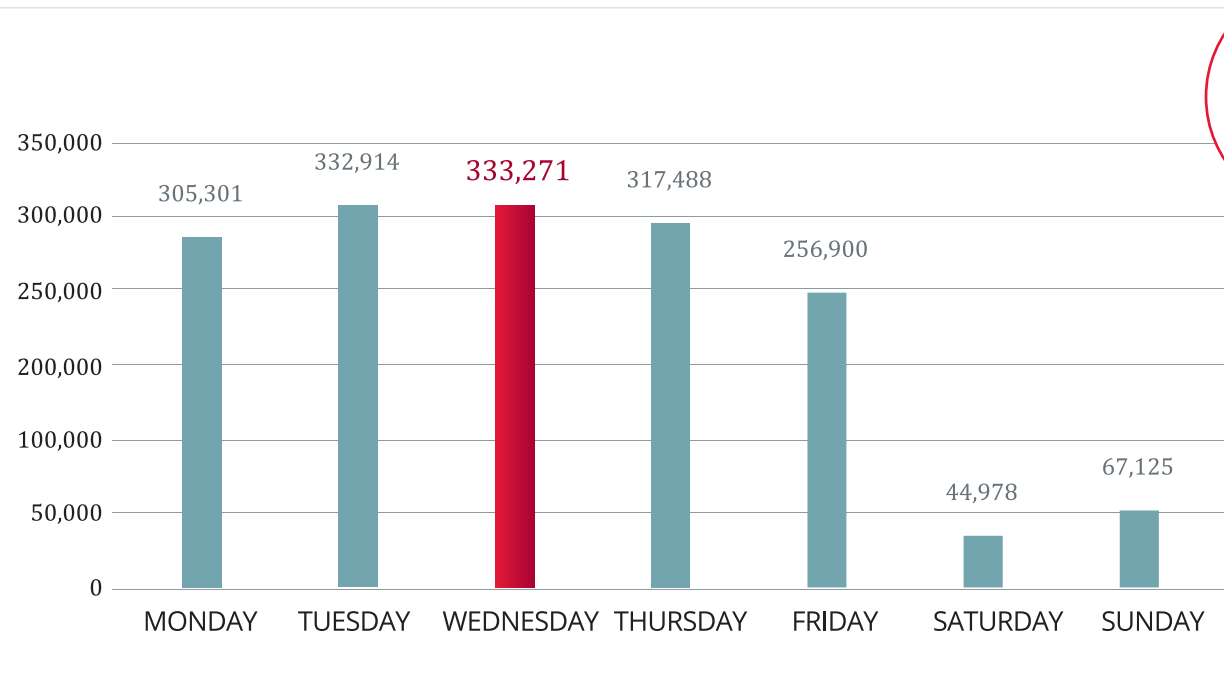
# Zoom 2021

Total WSU Zoom Meetings by Month



March  
**193,994**

Total WSU Zoom Meetings by Week



Wednesday  
**333,271**

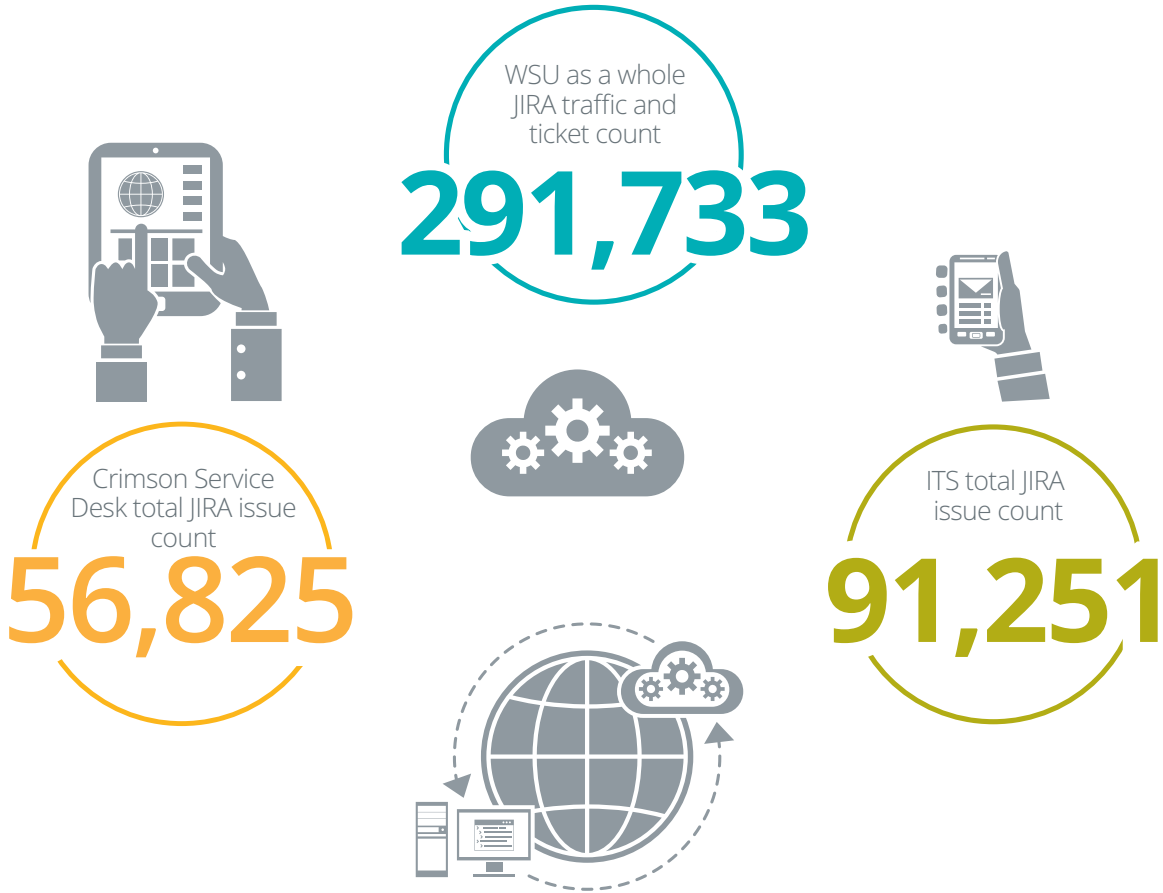


# Information Security 2021



# Jira Services 2021

Atlassian's Jira product is a project management and service desk resource for ITS and numerous groups across the university. The customer tickets, or support requests, allow timely, excellent customer support for daily business and academic needs year-round.







## 2022 Preview

### Architecture Review Board

ITS developed the next steps in its change management program, building the ideals and program parameters to introduce an Architecture Review Board in FY23.

### RSA

Supporting WSU's Data Initiative, Crimson Service Desk is completing audits and process revisions for security roles within MyWSU. Student and business data will be more secure than ever.

### Adobe Site Licensing

Adobe is now available for all WSU staff and faculty after contract changes to offer full Creative Suite to classified staff. Staff are now also immediately synced upon hire to receive access thanks to Azure team support.

### Information Technology Service Management

ITS began a multi-year project to move WSU help desk and project management into the cloud. Multiple vendors offered presentations, RFP is in progress.



### TouchNet

FY22 offered families a much simpler, user-friendly means to pay tuition and other fees.

### myWSU to AWS

ITS is preparing to move myWSU from Oracle to cloud-based Amazon Web Services, saving time, money, and improving hosting support.

### Numerous student success initiatives including

- Academic Planner updates
- Early Academic Referrals
- MS Bookings
- FirstDay
- Suitable
- Pre-requisite analysis
- Continued Canvas updates





WASHINGTON STATE UNIVERSITY  
**Information Technology Services**