

ITS ANNUAL REPORT 2022

Coming Home

WASHINGTON STATE UNIVERSITY



WASHINGTON STATE UNIVERSITY
Information Technology Services



Come Home

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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.

RESEARCH



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.

OUTREACH



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.

EXPERIENCE



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.



Letter from VP/CIO ITS

Hello Everyone,

Reflecting on this past year, I am overwhelmed with pride at the dedication and strength shown by the Information Technology Services (ITS) staff and all of WSU as we made a complete return to campus. Our return home brought many accomplishments and opportunities for improvement as we continued to focus on the four themes of WSU's strategic plan and overcome the challenges that we faced from COVID-19.

With the transition back to in-person learning from remote instruction came the university-wide implementation of WSU's new Learning Management System, Canvas. With this system, we now can provide a more efficient user experience to faculty and students and help them succeed academically.

In partnership with instructors and academic advisors across the entire university, we launched the early academic referral system to support students that may be struggling with their academics, which will help them get back on track for a timely graduation. Working with members of the Faculty Senate, we also

developed a pre-requisite analysis program to help department administrators review student performance in pre-requisite and target courses. This resource can guide curriculum reform, which will ensure students are set up for success in their academic programs. With these proactive approaches to student success, we expect to improve graduation rates.

Working closely with the Bursar's Office, we contributed to modernizing the payment process for students, parents, and business units by helping implement Touchnet, WSU's new payment system. Improvements to Touchnet's capabilities and function continue.

We released a new cyber security awareness training to help educate all WSU employees on cyber threats and the tactics bad actors use to commit cybercrime, reducing the risk of cyberattacks against our institution.

MyWSU now is supported by Amazon Web Services (AWS), thereby strengthening our relationship with the notable industry partner, elevating the platform's performance during high-volume activity, and improving security with the availability of frequent upgrades.

In the past weeks, we implemented the Architecture Review Board (ARB), establishing a clearly defined process for ensuring new services and systems align with university goals and security standards. Reducing risk to the institution, the ARB leads us one step closer to having more standardized processes for the work we do in ITS.

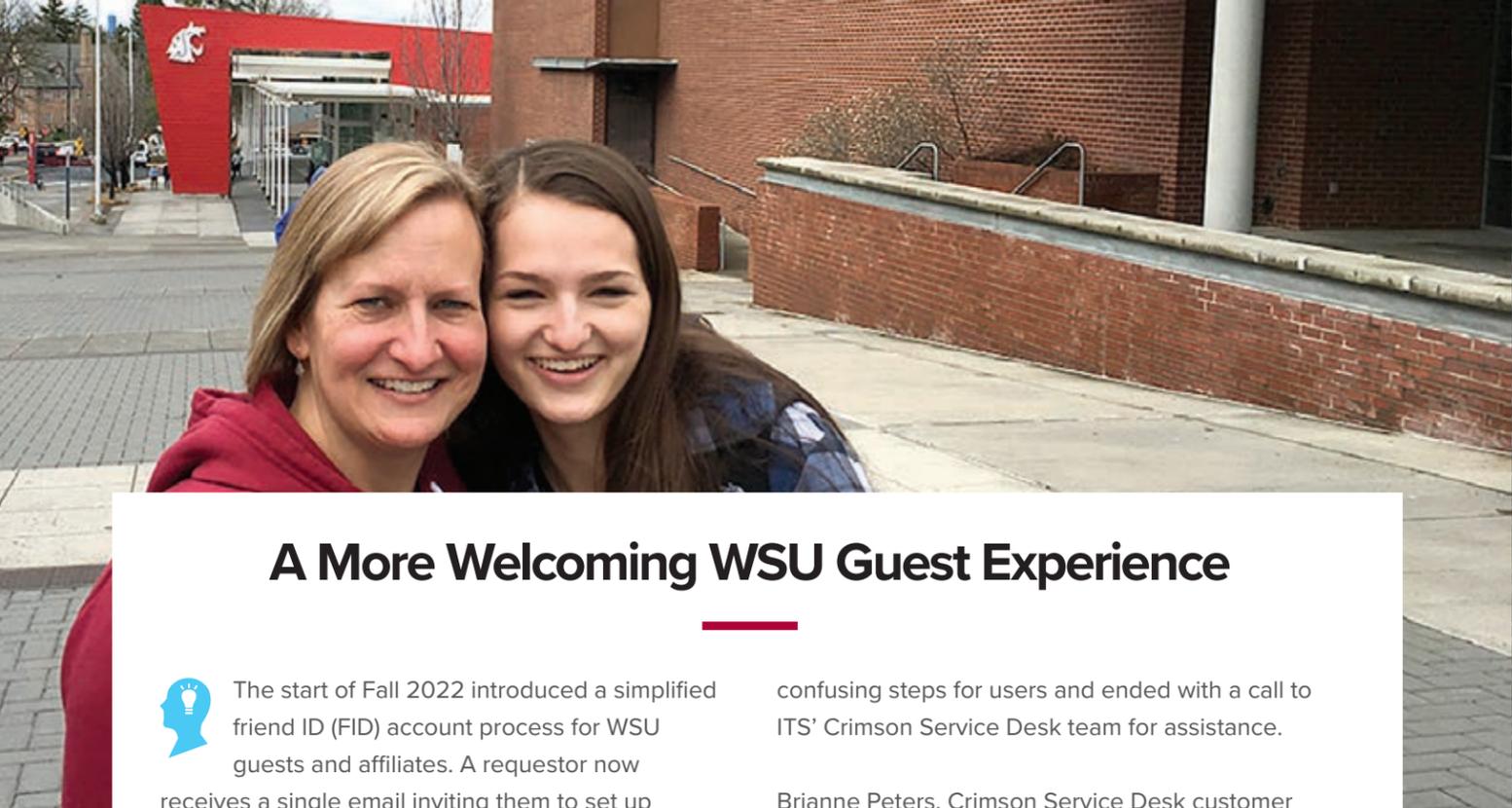
We are also on the verge of launching the Wide Area Network, network services linking every campus with a shared 100-gig internet connection that allows WSU users anywhere in the state to access university-wide resources. The Wide Area Network not only modernizes our networking system, but it also provides an improved connection to everyone on the WSU network.

With all of WSU back home and on campus, we had a great year. As you will see by looking through this annual report, we are constantly working to create and refine diverse technical resources to uphold the primary vision, mission, and objectives of the university. It highlights only several of the many ITS accomplishments achieved this fiscal year through our collaboration with our constituents. I thank everyone who made any and all these accomplishments possible.

For the coming fiscal year, we will continue looking forward in support of WSU faculty, staff, and students. As always, we welcome feedback and ideas on how we can serve you better.

Sasi K. Pillay

Go Cougs!
Sasi K. Pillay
VP of ITS & CIO



A More Welcoming WSU Guest Experience



The start of Fall 2022 introduced a simplified friend ID (FID) account process for WSU guests and affiliates. A requestor now receives a single email inviting them to set up their account. The original FID creation required multiple complex steps, often resulting in hours of troubleshooting with customer support. Account set up is now reduced to a process that takes users just minutes.

Friend accounts offer family members of WSU students access to view tuition charges, make payments, and view tax documents, as well as access to university resources such as the Student Recreation Center when visiting campus. From an academic or business function, friend accounts also provide a means to grant needed access for WSU affiliates and contractors.

Justin Hughes, ITS director, stated, “With a few key changes, ITS was able to simplify the interface, simplify the access, simplify the support.”

With more than 4,700 FIDs created in the past year, Information Technology Services (ITS) examined entering the WSU system from the requestor’s perspective. Often, a FID request resulted in multiple,

confusing steps for users and ended with a call to ITS’ Crimson Service Desk team for assistance.

Brianne Peters, Crimson Service Desk customer support representative noted, “We needed to find a better way to assist folks who had a hard time setting up friend accounts. With the changes we made, the FID creation process started as an 11-step process and was reduced to 4.”

Additionally, with the new process, ITS retired sponsored FID accounts. Now, new affiliates and vendors can work directly with the host department to create a WSU Network ID, offering a more formal and secure process for granting access to new WSU affiliates. Moving away from sponsored FIDs standardizes systemwide access processes while fostering the safety and security of WSU systems and resources.

Not only do these changes improve the experience by reducing the time WSU guests and friends spend creating an account, but the redesign simplifies the technical side of the account creation and support process. Technical support teams across WSU are better equipped to support activating these WSU accounts.

Justin Hughes, ITS director, stated, “With a few key changes, ITS was able to simplify the interface, simplify the access, simplify the support.”



Improving Business through Secure Payment Technology

In January 2022, Information Technology Services (ITS) partnered with WSU’s Bursar’s Office to launch TouchNet, a new point of sale system that simplified the payment process for users systemwide. Integrated into myWSU’s Fluid User Interface, students are immediately redirected to TouchNet to manage any fee activity upon clicking the financial account tile.

TouchNet is used not only by students, but also by friend accounts with third-party access needing to review tuition charges and complete electronic payments. With embedded cashiering capabilities, TouchNet is also an important tool for WSU departments and organizations to manage payment intake.

The myWSU integration established clear communication between the student support platform and TouchNet, as each simultaneously identifies when a charge is posted and when payment is complete. “Our main goal was to make the payment process as seamless as possible,” said technical integration process leader and ITS Manager, Ryan Savage.

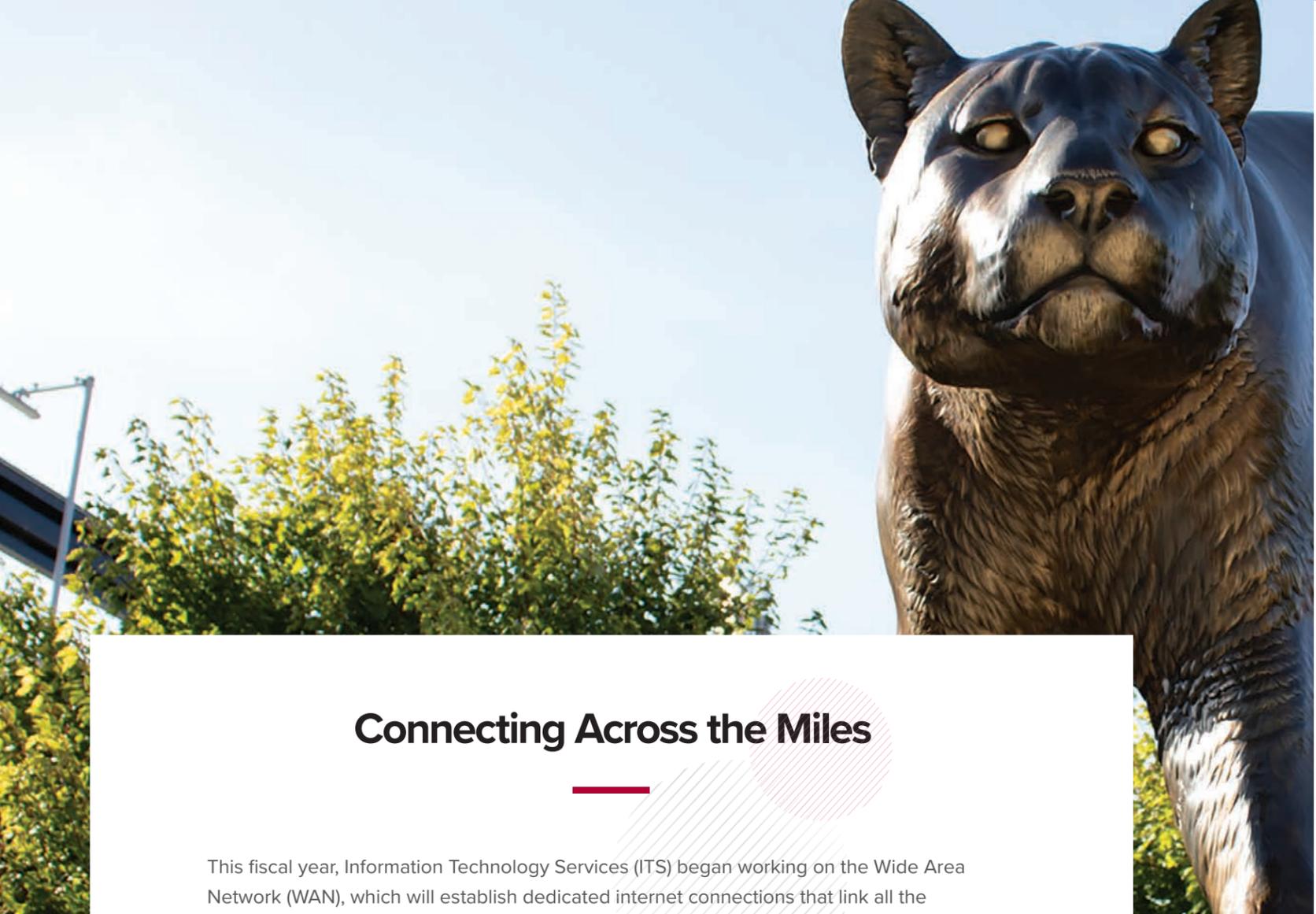


TouchNet also provides a modern interface for WSU users accessing financial information, like payment statements or tax documents, in a single location. This implementation demonstrates the university’s commitment to maintaining the integrity and security of sensitive information and processes. TouchNet also allows WSU to remain compliant with wide-scale standards and requirements set for the management of university payments.

Alongside the Bursar’s Office, ITS’ Enterprise Systems Group worked closely with numerous groups, including Finance and Administration, to create the best experience for all end-users.

“Touchnet is a long-term solution for WSU, providing secure payment options that will continue to expand to meet WSU needs,” said Savage.

With this initial launch, TouchNet introduced important new capabilities for the relaying of student charges, the processing of student payments, and cashiering. The system continues to evolve, with additional features in development. “Touchnet is a long-term solution for WSU, providing secure payment options that will continue to expand to meet WSU needs,” said Savage.



Connecting Across the Miles

This fiscal year, Information Technology Services (ITS) began working on the Wide Area Network (WAN), which will establish dedicated internet connections that link all the campuses together. The WAN will provide improved network services and increased access to campus-specific online resources to WSU users systemwide.

Numerous WSU users and facilities require a specific level of connection to complete work, conduct research, and operate multiple devices, among other tasks, without interruption. The WAN will work to mitigate potential connectivity issues and future-proof the university's access to required networking functionalities.

“The Wide Area Network will offer students around the state stronger connectivity and improved throughput for video conferencing or streaming classes,” adds Bonner.



Using data center facilities, ITS is combining new transport services that

carry internet traffic between different points and building a hub that manages the multiple connections. The transport services from each campus will then directly connect to the hub, allowing all of WSU to share a 100-gigabit internet connection.



“With this new network service, faculty will have improved ability to consume computational resources, access high-performance computing clusters, and collaborate with other faculty across the campuses regardless of where they are in the WSU system. The Wide Area Network will better enable researchers and other WSU users to access resources from other campuses and easily coordinate activities across the university,” says Bill Bonner, ITS director.



By upgrading WSU's connectivity capabilities, students will also see an improved function in ResNet, the on-campus housing network, due to the WAN's faster connection speeds that provide better internet and network services.

“The Wide Area Network will offer students around the state stronger connectivity and improved throughput for video conferencing or streaming classes,” adds Bonner.

Set to save approximately \$245,000 on the university utility budget per year, the WAN will also provide significant cost savings to WSU.



During the initial project phase, ITS collaborated with IT leadership from each department across all WSU campuses to define the needs for this project. Working closely with central ITS and distributed IT technicians, the project team also worked with Purchasing, and Finance and Administration, to review business needs and impacts.

The WAN will connect faculty and researchers, among other users, on all campuses to central university resources, establishing state of the art connectivity levels.

Building the Future One Connection at a Time

In July 2021, Information Technology Services (ITS) developed an integration hub, a tool that improves data management and data integration for new university projects.

The new system helps ITS technical teams move data from one system to another using a low-code, no-code method in which developers write minimal to no code when building the integrations. This solution allows ITS to extract, transform, and load data from multiple sources with increased speed and efficiency into a target application or system.

“In the few years before and during the Workday project, we built 20 integrations with custom code that we could not reuse for other projects. From this project, we saw an opportunity to streamline the integration process by creating an integration hub that would make it easier to build shareable data integrations,” says Karl Riley, ITS Manager.

Riley continues, “In the short time since we introduced the hub, we have built over 100 integrations, significantly increasing the velocity at which we can now provide technical solutions to ITS customers.”

Available to ITS teams and WSU data management users, the integration hub provides wide-scale access to data and the extract, transform, and load integration

process, allowing for accelerated business processes. By automatically storing data, providing reusable components for other jobs, blending data between multiple sources, and enabling rapid integration development, the integration hub reduces ITS maintenance needs and provides cost benefits to WSU.

With its improved integration capabilities, the integration hub helps ITS processes function more efficiently, providing enhanced support for projects and ensuring

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the WSU community receives better services at a rapid speed. The new hub streamlines integration development and implementation, changing how ITS delivers future projects to the university.



Student Support in the Cloud



On September 30, Information Technology Services (ITS) moved WSU’s Student Information System, myWSU, from its former host vendor, Oracle, to cloud provider Amazon Web Services (AWS). During the hosting change process, myWSU experienced a prolonged service interruption beginning on Friday, September 30. The application returned to full function by mid-afternoon on Sunday, October 2.

Benefits of the AWS move for WSU users include improved platform hosting flexibility resulting in reduced slowdowns during high traffic periods such as the beginning of academic terms, improved security, timely access to the most recent feature releases, and a bit of a new look thanks to the updated visual design of the Fluid User Interface.

Technical support of myWSU will also see improved system integrations, maintenance scheduling flexibility, ready access to the most recent security enhancements, and increased frequency of PeopleTools upgrades to biennial versus every four to six years. Technical teams will reduce response time from weeks to minutes to change or scale up needed resources during those start of semester high traffic periods.

With the increased frequency of PeopleTools updates, WSU users will continually have access to the most recent updates, tools, and feature releases within the system.

Following the addition of the medical school’s 12-month academic calendar, it was a challenge to schedule a change of this magnitude. The post-30th day change date was selected in partnership with numerous academic and business departments from every campus to reduce all impact to WSU’s incoming students and faculty, as well as any business processes supporting term start.

ITS is “improving the structure and support of our processes, all while keeping up to speed with innovative resources, updating security, and gaining new features and tools,” says Anden Lewis, ITS project manager.

The ITS technical team also performed service upgrades to the latest version of PeopleTools during the same maintenance timeframe, providing both business and academic myWSU users immediate access to the most recent software improvements available through this new relationship.

With this project now in full effect, ITS is “improving the structure and support of our processes, all while keeping up to speed with innovative resources, updating security, and gaining new features and tools,” says Anden Lewis, ITS project manager.





Refining Data Management



To unify the collection and retainment of university records, Information Technology Services (ITS) began migrating data stored in Business Objects (Webi) to the university-wide data warehouse, Oracle Business Intelligence Enterprise Edition (OBIEE), in Fall 2021.

Currently, Webi hosts older financial and student data and corporate reports that over 500 data users access. Preserving this older data is necessary for departments to remain compliant with the University Records Retention and Disposition policy (90.01) of WSU's Business Policies and Procedures Manual (BPPM), requiring the retainment of different types of data for various lengths of time before its disposal.

"We are unifying the legacy data and reports into one platform with the existing student data and dashboards in OBIEE," says ITS Manager, Corinna Lo, "streamlining the user experience and infrastructure administration when working with such large volumes of data."

Storing university records in OBIEE will reduce the number of data systems ITS needs to maintain, creating a more efficient and

simplified process for support groups and saving licensing costs.

During the migration, the project team worked with data users in numerous areas to conduct testing in OBIEE. With users' feedback, ITS made improvements, and refined processes. ITS also worked with data custodians to approve various changes prior to the official transition to OBIEE.

ITS had the legacy financial data warehouse and corporate reports fully retrievable in OBIEE in September 2022, with support groups hosting multiple training sessions for data users.

"We are unifying the legacy data and reports into one platform with the existing student data and dashboards in OBIEE," says ITS Manager, Corinna Lo, "streamlining the user experience and infrastructure administration when working with such large volumes of data."

Moving to OBIEE creates a unified and efficient source for accessing student and financial records, ensuring the university follows its responsibility to retain data.

Preserving Data While Moving WSU Ahead

Upgrading from the Administrative Information Systems (AIS) mainframe, Information Technology Services (ITS) moved all mainframe data to WSU's current data warehouse, Oracle Business Intelligence Enterprise Edition (OBIEE), on September 30, 2022.

With the mainframe hosting legacy, payroll, finance, and human resource services (HRS) data, Jay Maylor, ITS app developer, found 260 users logged in 1612 times to 18 different AIS applications in June 2022. Users access the system to view employment records from before the January 2021 transition to Workday. Workday replaced much of the mainframe's functionality as new employment records moved into this new system instead of the AIS system.

"Moving to the new reporting tool OBIEE... gives WSU users a new, reliable, and secure process for storing and accessing data," says ITS Director, Justin Hughes.

For WSU business users, continued access to the data in the mainframe is necessary to complete daily job responsibilities and review past data. Keeping the mainframe data and moving it to OBIEE is required for complying with state and university regulations set in WSU's Business Policies and Procedures Manual (BPPM) for the long-term retainment of records and data.

Hughes also notes, "The mainframe runs on a very specific technology, and only a limited number of staff have the technical skills to maintain the application. Moving sensitive data to OBIEE is the more secure decision because its functionalities are within our skill sets, it reduces risk, and ITS can support the system long-term."

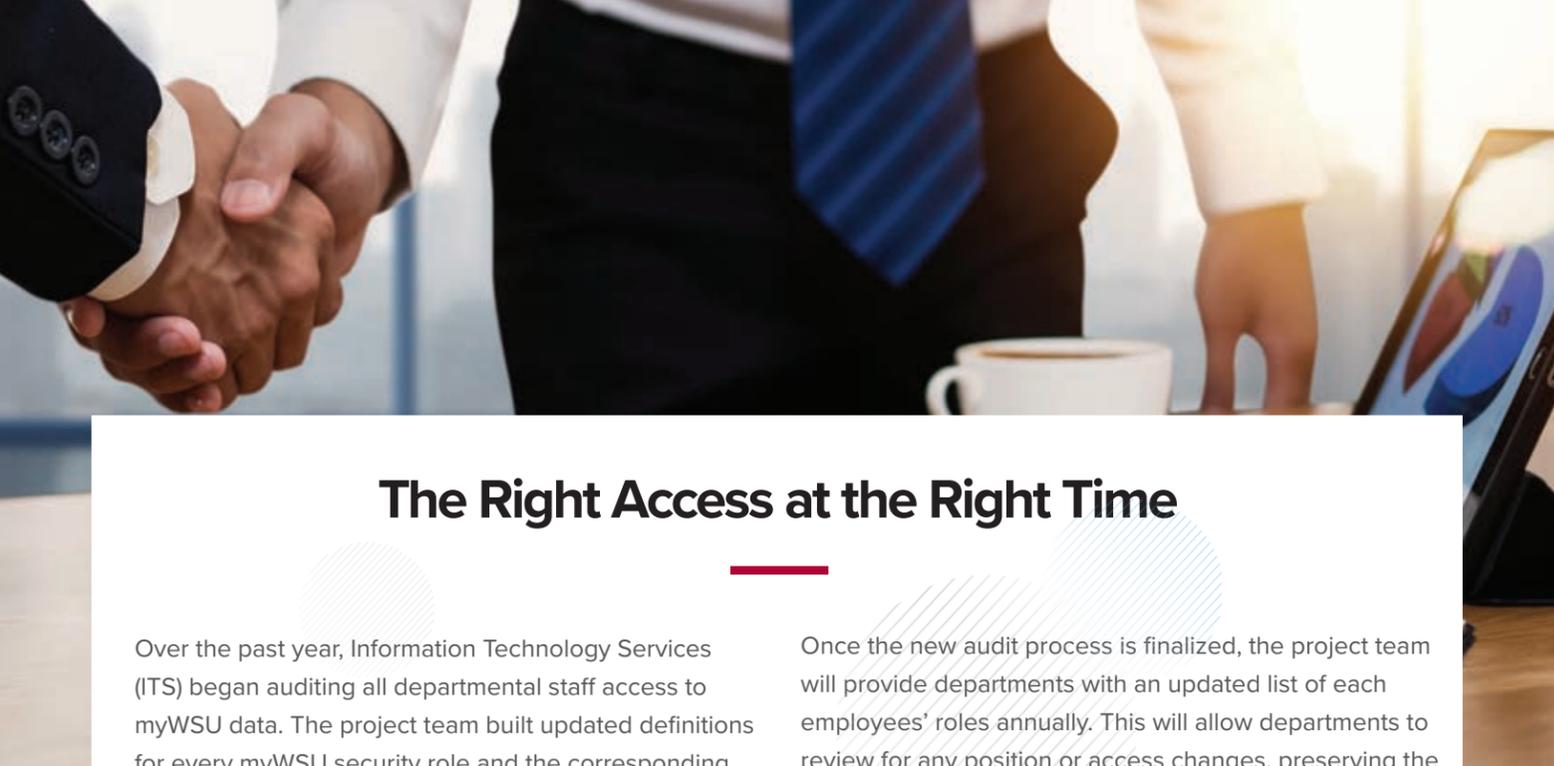
"The mainframe hosted dozens of applications with hundreds of pages of data each, so we made sure to move everything anybody would ever need. Because the goal was to cause as little change as possible, we connected with HRS to get their approval for any upcoming changes with this project. We also reproduced the equivalent display pages in the OBIEE system to match the applications in the mainframe, helping keep users comfortable with this transition," says Karl Riley, ITS manager.

Saving WSU over \$1 million, replacing the AIS mainframe with OBIEE reporting for data preservation provides significant cost benefits to the university.

"Moving to the new reporting tool OBIEE... gives WSU users a new, reliable, and secure process for storing and accessing data," says ITS Director, Justin Hughes.

Modernizing the system HRS, payroll, finance, and other university departments use to access data, the OBIEE implementation enhances data maintenance and storage capabilities, allowing the university to keep up with wide-scale regulations and improve security.





The Right Access at the Right Time

Over the past year, Information Technology Services (ITS) began auditing all departmental staff access to myWSU data. The project team built updated definitions for every myWSU security role and the corresponding access. By developing this role dictionary, going forward department administrators will be able to more efficiently request the appropriate access for staff based on their position and the work to be completed.

Once the new audit process is finalized, the project team will provide departments with an updated list of each employees' roles annually. This will allow departments to review for any position or access changes, preserving the accuracy and integrity of the information ITS manages.

Brianne Peters, Crimson Service Desk customer support representative, says, "With these updates, the people who need and request access for myWSU data will be more confident they are requesting the proper access and will receive timely approval."

The new audit process for security access

requests within myWSU provides an opportunity for the ITS to support business processes and preserve the security of sensitive data.

Stacy Combs, associate director of ITS, emphasizes, "myWSU hosts personally identifiable information (PII) that needs to be maintained and secure. Updating how access requests are processed and managed will ensure everyone at the university has the right access to do their job and do it well, but not so much access that it could become a liability."



With a principal list of the title and myWSU access of each employee, distributed departments including Admissions, Advising, Student Financial Services, and numerous others are partnering to complete these audits of employee access to secure data. The project team has also communicated with area finance officers from 29 areas and functional approvers from 12 areas throughout all campuses.

"Auditing access to myWSU data is vital when considering we are auditing 341 security roles provided across 407 departments within WSU and have found over 10,091 employees assigned to these roles," indicated Jacqueline Southwick, ITS director, "Our job within ITS is to ensure proper security and access processes are aligned and revisited regularly."

"Auditing access to myWSU data is vital when considering we are auditing 341 security roles provided across 407 departments within WSU and have found over 10,091 employees assigned to these roles," indicated Jacqueline Southwick, ITS director, "Our job within ITS is to ensure proper security and access processes are aligned and revisited regularly."

The Next Generation in Project Management at ITS

In August 2022, Information Technology Services (ITS) created an Architecture Review Board (ARB) to better evaluate new ITS initiatives that impact WSU's technology footprint. Made of senior representatives from every central ITS area, the ARB is an advisory board that assesses the implementation plan for a new system or service using a documentation review process, ensuring all project components align with ITS objectives and the WSU strategic plan.

"The ARB standardizes project implementations by providing a clear understanding of all project benefits through a consistent review that helps streamline the approval process. This makes it easy for leadership to consider how a new project will affect the department, ITS' partners, and the entire university," says ITS Director, Justin Hughes.

With a more proactive approach to reviewing new initiatives, "The ARB works to decrease redundancy in the provided ITS services for students, staff, and faculty and identify potential duplication of systems, efforts, and costs," says ITS Security Engineer, Bassim Alshedokhy.

"Fostering communication among project teams and the department, the ARB ensures the right groups within

ITS have been consulted on the possible impact of an initiative before it is approved and before substantial changes take place," says Michael Walters, Chief Information Security Officer (CISO).

Walters also adds, "Because the board will involve itself in all technical aspects of the work, ITS will see significant benefits from this implementation. As the ARB matures within ITS and expands to other organizations, WSU students and users will see improved levels of service."

"The ARB works to decrease redundancy in the provided ITS services for students, staff, and faculty and identify potential duplication of systems, efforts, and costs," says ITS Security Engineer, Bassim Alshedokhy.

The ARB raises the maturity of ITS services and ITS as an organization by identifying risks and helping teams increase the success of proposed projects. By verifying that new initiatives align with university expectations from a strategic, objective, and financial standpoint, the ARB also gives ITS an enhanced process that ensures time and resources are applied appropriately to future projects.

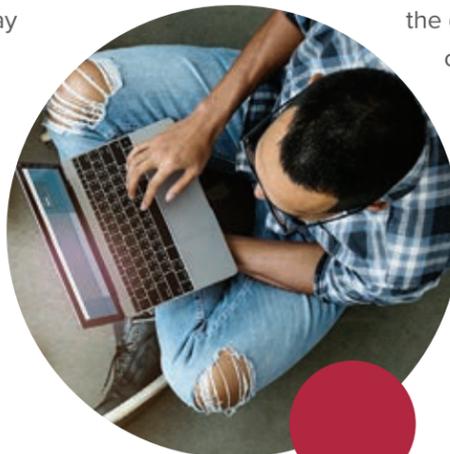


Planning for Success

With a focus on student success, Information Technology Services (ITS) released a prerequisite analysis dashboard in early Spring 2022 that evaluates the relationship between a student's academic performance in a prerequisite course and in the following target course.

 To build this resource, ITS developed data visualization on the Oracle Analytics Cloud platform that helps determine if a student that performs well in a prerequisite course will also succeed in the target course. A direct relationship in the data points, in which high performance in the prerequisite course correlates to high performance in the target course, tells WSU administrators whether a curriculum pathway is functioning as intended.

"The data visualizations inform colleges and departments about the relationship between the outcomes of pre-requisite and target courses. For example, one may use the data to decide if a course can be a corequisite instead of a prerequisite requirement, making the courses potentially more beneficial when taken together and shortening the serial dependency in a student's pathway to graduation," says Corinna Lo, ITS manager.



The program works to improve student success and graduation rates by providing WSU administrators with a tool that helps review student performance through a more robust perspective.

The project team continues modifying the analysis to improve its capabilities for WSU programs with more complex academic pathways.

Now available in Oracle Business Intelligence Enterprise Edition (OBIEE), the prerequisite analysis program

The program works to improve student success and graduation rates by providing WSU administrators with a tool that helps review student performance through a more robust perspective.

allows WSU departments to review their curriculum from a data-informed perspective. Departments can use the data sets to discover potential curriculum challenges and develop more efficient academic tracks that place students on a path to success.



Early Intervention for Student Success



In February 2022, Information Technology Services (ITS) partnered with the Office of the Provost and campus vice chancellors to develop the Early Academic Referral System

(EARS), a tool in myWSU that informs advisors of students who are struggling academically. Through collaboration, advisors and students can work toward solutions to create a successful, stress-free academic path following the submission of a referral.

EARS is available to the faculty, instructors, and teaching assistants of undergraduate and pharmacy professional students across most WSU campuses. The project team also made campus-specific customizations to accommodate different advising processes and needs. Improvements to the resource continue as more faculty and staff use EARS and provide feedback.

Ryan Savage, ITS manager, notes, "EARS is allowing academic partners to proactively ensure students succeed through early notifications of potential issues." ITS built the program's technical components in myWSU,

Ryan Savage, ITS manager, notes, "EARS is allowing academic partners to proactively ensure students succeed through early notifications of potential issues."

refined the interface's display, and added features like the ability to reassign referrals to other advisors.

In line with the university's commitment to student success, EARS provides faculty and staff with a simple tool to mitigate academic setbacks and promote timely graduation.



Transferring Power

Determined to improve the WSU transfer experience, in September 2021, Information Technology Services (ITS) began work on an enhanced transfer resource for students interested in WSU. The new process will allow prospective students to review how their exam scores, like those of Advanced Placement (AP) and College-Level Examination Program (CLEP), and earned credits at other colleges, apply to WSU's program requirements.

Transfer students and non-WSU academic advisors will soon be able to securely access myWSU via a guest authentication process. Students interested in transferring to WSU will be able to input course credit and exam details once and easily access their information later.

ITS Director, Justin Hughes, says, "The university wants to make it easy for students to measure transfer information against WSU program requirements, and to determine where they stand in regard to a WSU program completion."

The goal is also to make the transfer information available at the user's convenience, reducing their need to require additional assistance that may only be available during business hours.

Gary Saunders, ITS director, shares, "these are opportunities where [ITS] can put more information in the hands of students so that they can make better, timely decisions."

ITS Director, Justin Hughes, says, "The university wants to make it easy for students to measure transfer information against WSU program requirements."

Still in development, members of ITS and representatives from the Transfer Center, the Office of the Provost, and the Academic Success and Career Center are continuing the work to finalize the project.

With the modern tools and wide-scale accessibility of this program, WSU will be better equipped to improve university recruitment capabilities, positively impact the transfer student experience, and increase the student success rates of future Cougs.



A Digital Student Experience



For many students, the cost of textbooks can be an overwhelming expense each semester. With the implementation of First Day, a program allowing WSU faculty members to partner with textbook publishers to provide their course materials electronically at a discounted price, the university offers students a solution for high textbook fees.

When faculty and instructors join the program and set pricing for digital materials with textbook publishers, students can choose between buying the physical versions of the course materials or purchasing the First Day digital versions.

Providing the choice between physical and First Day digital materials ensures students with different learning styles have access to all material versions to select the one that best fits their educational needs, supporting their academic success.

For students who favor e-textbooks and electronic resources, First Day provides an easy way to digitally access course materials since students only need an internet connection and a device to view their purchases.

Lenna Wenke, Information Technology Services (ITS) system administrator, says, "Society is very technology driven in everything we do, and implementing First Day moves WSU in that same direction. The program modernizes the resources WSU students need to reach their academic goals."

First Day also provides a significant financial benefit to WSU students. "In the first year of its implementation, with a small population of pilot users, the program saved students over half a million dollars in course material fees," says ITS Director, Gary Saunders.

In the initial project phase, ITS integrated the First Day e-textbook fee into the financial account component of the myWSU profile. After First Day's implementation, the Bursar's Office continued the course fee integration work.

With First Day growing as a program, and with the Office of the Provost soon implementing a policy in the Business Policies and Procedures Manual (BPPM) related to digital course material programs and fees, more students across the entire university will have the convenience of digital textbooks and materials available to them and benefit from its cost-efficient and convenient delivery.

For students who favor e-textbooks and electronic resources, First Day provides an easy way to digitally access course materials since students only need an internet connection and a device to view their purchases.

Learning Managed Dynamically

Since its university-wide implementation in Fall 2021, Information Technology Services (ITS) made several updates to WSU's new Learning Management System (LMS), Canvas, this fiscal year, including the automatic syncing of information and grades from Canvas to myWSU.

"With Canvas, WSU faculty have a new tool that sends all final grades directly to the myWSU grade roster through a simple click of the 'Sync' button in the LMS, providing a more simple and accurate process for posting grades at the end of the term," says Chad Jeffreys, ITS application systems analyst/developer.

 In Spring 2022, ITS built a new page in myWSU where department and campus schedulers can flag course spaces and merge course sections to migrate them to Canvas. This new process enhances course data collection and improves university class scheduling.

Revamping the course content integration process, "ITS also began creating hourly CSV files to reduce difficulties with the new LMS. Producing CSV files gives us more insight into how the course content syncing occurs, allowing us to quickly resolve issues that appear for faculty and students in their Canvas courses," says Anden Lewis, ITS project manager.



This internal change benefits ITS customer support groups by reducing the number of help-request tickets, making the technical teams more available to work on other university projects.

Lewis adds, "Canvas is beneficial to many groups at the university, but for faculty and students, the application works to remove technology as a barrier from being able to succeed academically."

To enhance the student experience, ITS added a pronoun feature to Canvas profiles, creating consistency between the biographic details visible in myWSU and the LMS.

Lewis adds, "Canvas is beneficial to many groups at the university, but for faculty and students, the application works to remove technology as a barrier from being able to succeed academically." Following continued efforts for improvement, the vision ITS had for Canvas' success came to fruition, and the LMS established itself as the efficient platform it is for numerous WSU users.



A More Secure System, One Conversation at a Time

In July 2021, Information Technology Services (ITS) developed a new process for business units to assess IT systems and services, following the creation of several Information Security sections in WSU's Business Policies and Procedures Manual (BPPM). Consisting of a system security plan, a security assessment procedure, and a risk assessment procedure, the new authorization process ensures business units develop and implement technical resources that align with WSU security and privacy standards.



When implementing or managing numerous technical systems or services, WSU adheres to state and federal requirements.

To fulfill a need for similar security requirements governed solely by the university, ITS based the new assessment process from National Institute of Standards and Technology (NIST) policy 800-171. Using NIST 800-171 as the framework for the assessments allowed ITS to tailor the security and privacy controls to environments that are not mandated by federal or grant requirements. NIST 800-171 also provides a broad set of controls that ITS

can apply to federal, grant-funded research activities, enabling business units to obtain cybersecurity maturity certifications.

Creating a system security plan allows department managers and IT staff to identify project details, including data classifications (i.e., classified, or unclassified), external data regulations (i.e., state, or federal laws), necessary system elements (i.e., hardware and servers), and system storage needs (i.e., on premise, in the cloud, or both). Setting a foundation for the next step of the authorization process, the plan identifies associated business units, stakeholders, and individuals that can accept risk.

The plan also helps business units discover areas of security deficiency. Keela Ruppenthal, ITS security consultant, says, "In the case deficiencies are identified, ITS can work with the business units to create a plan of action that notes the identified gaps, actions required to fix any issues, people who are responsible, and a suggested timeline. Information owners can then use this information to drive improvement in their system or service."



To complete the security assessment, ITS uses each security control, as defined by NIST 800-171, to review the system or service and identify how the controls should be applied, how efficiently they are being applied, and which controls will be impacted. By integrating information from the system security plan, ITS can then inform stakeholders of any risks associated with the implementation and recommend actions to mitigate it.

"An important part of information security is helping owners understand the responsibilities that come with managing their area's information," says Steven Conover, ITS security consultant.



ITS leadership, in conjunction with WSU's Chief Information Officer (CIO) and a unit head, vice president, dean, or department chair, then determine if a qualitative risk analysis is necessary. The risk assessment uses the security assessment information and provides information about potential risks of a system or service, giving stakeholders enriched data for making decisions. It identifies potential threats to information systems and data and analyzes the likelihood and magnitude of harm from unauthorized access, use, disclosure, disruption, modification, or destruction, if a threat was realized.

"An important part of information security is helping owners understand the responsibilities that come with managing their area's information," says Steven Conover, ITS security consultant.

This process provides significant information for unit leaders to make more informed decisions when moving forward with proposed systems or services. Chief Information Security Officer (CISO), Michael Walters,

says, "As we build more system security plans, get more assessments in place, and communicate with user groups from system administrators to department chairs, this process will establish clarity in roles and responsibilities for new system implementation."

The authorization process also informs ITS of where technical efforts should be focused when encountering security or privacy events. "When Information Security gets an alert that a security incident is occurring, response time and how quickly the team can perform the appropriate actions is critical. Having the security planning and assessment process now allows us to narrow that window of time by reviewing the information already noted in a plan or previous assessment so we can take more specific and timely responses when the need to manage risk appears, making us a more effective department and institution across the board," says Walters.

"It is important for the WSU community to know that ITS and Information Security can provide a safe place to share project ideas. We can help review project details, and provide recommendations that we can help you refine, or that can be taken to your internal team and independent department IT and security groups," says Bassim Alshedokhy, ITS security engineer.

With a consistent and repeatable authorization process that protects the confidentiality, integrity, availability, and privacy of institutional systems and information, numerous business units can use a clear set of guidelines to prepare for audits and implement new systems and services with minimized risk. By setting a new standard that encourages increased diligence for service or system implementation, WSU will gain resources that meet elevated security and privacy requirements.

Real World Risks, Real World Training

In accordance with the goals of WSU's Information and Security policy (Executive Policy 37), all employees are now required to complete cyber security awareness training. Developed in June 2022 by Information Technology Services (ITS), the new training helps users improve WSU's defenses against social engineering attacks.

With a newly acquired license through Proofpoint, an enterprise security company, ITS made the training available in Human Resource Services' new learning platform, Skillsoft Percipio.

"This cyber security awareness training is designed to engage users and arm them against cyberattacks. The courses in the program cover a broad range of security awareness topics to help users understand real-world security risks, privacy threats and compliance rules," says Keela Ruppenthal, ITS security consultant.

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In response to targeted attacks by malicious actors throughout fiscal year 2022, ITS technical teams and security systems:

- Detected 952,162 (98.9%) messages with URL threats
- Protected 114,189 (99.8%) messages with malicious attachments
- Protected 906,694 (98%) malicious emails prior to any click
 - Detected 45,468 phishing emails with rewritten URLs
 - Identified 217 instances of suspected accounts compromised
 - Worked 21,094 WSU Abuse tickets

To best combat information security risks that threaten the safety of individual and institutional information as well as university systems, the training teaches WSU users internet best practices and how to identify phishing attempts, false URLs, malicious senders, and other potential online dangers.

WSU employees are the first line of defense against cyberattacks. With an increased user population completing cyber security awareness training, the university will see a new generation of cyber security maturity.

A New Environment



Regulated data environments (RDEs) are self-contained, isolated environments in Amazon Web Services (AWS) that directly support research programs. Following their implementation last fiscal year, Information Technology Services (ITS) has received positive feedback from WSU users, including faculty members, researchers, staff, and extension faculty, who use this environment to manage, and store regulated data.

Laws and contracts mandate WSU users working with regulated data to follow specific security requirements to gain access to data or to perform work that creates the data. Unable to download regulated data to local, shared drives, or online platforms like Microsoft Teams, due to security restrictions, users place the data in RDEs, which provide a higher level of security than WSU's traditional services.

"RDEs provide the security tools WSU faculty and researchers need when writing grant proposals and sponsored awards and exemplify WSU's commitment to research and protecting important data."

Because security requirements vary between contracts, ITS builds individual, unique environments to best store the information and ensure the user complies with any data sharing agreement. ITS also creates RDEs to ensure WSU users remain in compliance when governing bodies update data security requirements.

"This past fiscal year, ITS saw a market adoption of RDEs. WSU users are future-proofing their research programs by proactively adopting these environments prior to their need for them. RDEs are becoming a standardized tool when working with regulated data," says ITS Director, Bill Bonner.

Alongside strengthening the security of sensitive data, RDEs are also very cost-effective. "Over the course of a yearlong research program, the cost of the RDE was less than \$600. The research award brought in \$143,000 in revenue to WSU. A portion of this award was direct revenue to the research program, but over 50% of the award supported overhead associated with research. This inexpensive and valuable resource allowed the research team to successfully complete their work," says Bonner.

Receiving the project proposal from the Office of the Provost, Bonner built the existing environments and worked on the technological components, with representatives from the Office of Research providing input and assisting on the business end of the project.

RDEs provide the security tools WSU faculty and researchers need when writing grant proposals and sponsored awards and exemplify WSU's commitment to research and protecting important data.



Under Lock and Encrypted Key

This year, Information Technology Services (ITS) protected terabytes of backup data by implementing encryption safeguards that reduce the vulnerability of the sensitive information stored on the WSU servers.

To start the process, the project team upgraded WSU's backup software several versions to help the encryption implementation move more efficiently. After finalizing the upgrade, the team successfully encrypted all backup data on the university servers and set all backup data to be encrypted.

"Encryption provides a secure environment for the data and ensures that if someone stole a hard drive or the servers themselves, all the stored data is protected and inaccessible," says Jeremy Movius, ITS manager.

By completing the encryption on the backup data housed on the campus systems, ITS is improving its security processes and further protecting WSU information against potential threats.

"Encryption provides a secure environment for the data and ensures that if someone stole a hard drive or the servers themselves, all the stored data is protected and inaccessible," says Jeremy Movius, ITS manager.

By protecting system-wide data belonging to ITS and WSU central services, alongside data belonging to departments including University Marketing and Communications, International Programs, and the Global Campus, the entire university will benefit from backup data encryption added to WSU servers.



Firing Up Savings and Efficiencies

In March 2022, Information Technology Services (ITS) implemented the campus core firewall, a new service available to all IT support on the WSU Pullman campus that centralizes and minimizes support needs. Built to review all internet traffic and determine if it is safe or unsafe, ITS uses firewalls to comply with WSU security and privacy regulations.

Bill Bonner, ITS director, says, "Historically, IT teams across campus would purchase individual firewalls, complete installation, and manage their own hardware. With the campus core firewall, central ITS offers this management as a service now."

Offering secure services to all WSU Pullman IT teams, the campus core firewall improves the teams' ability to protect servers and university devices. The IT teams can now also directly set and manage rules that allow or disallow internet traffic without needing to purchase their own firewalls.

Maintenance and auditing responsibilities have shifted to central ITS with this implementation, better allowing WSU to meet specific security requirements for devices connected to the network. A centralized firewall also allows WSU to comply with requirements for storing sensitive data that impact network security.

"ITS can use this service to support compliance, helping people satisfy business needs at a lower price point," says Bonner.

Since establishing this firewall, ITS has migrated over a dozen departmental units to the new service, helping them avoid spending money on licenses for independent firewall services or new equipment.

"One example of the work we have done is helping Finance and Administration, who previously maintained separate infrastructure

"ITS can use this service to support compliance, helping people satisfy business needs at a lower price point," says Bonner.

firewalls, switches, and other components for the campus video surveillance system, migrate their video surveillance network onto the new service and retire their former system," says Bonner.

While helping technical groups, the new services also benefit other university areas. By streamlining firewall services on ResNet, the internet network used in on-campus housing, students will see improved residence hall internet maintenance.

With this implementation, ITS is providing services that benefit all users on the WSU network and support Pullman IT teams by consolidating technical resources, better managing internet traffic, and unifying the firewall system.

Safeguarding Teamwork at WSU

This fiscal year, Information Technology Services (ITS) is working to enhance the management of regulated institutional data by configuring secure storage and adding new controls in Microsoft Teams.

A secure storage configuration in Teams will apply monitoring and auditing controls that help departments and users securely handle protected health information (PHI) and data protected by the Health Insurance Portability and Accountability Act (HIPAA).

“A secure storage configuration in Microsoft Teams gives WSU users a modern tool to collaborate with colleagues and work with data in a secure environment, fulfilling a university-wide need for more resources that manage regulated data,” says Dan Hamilton, ITS manager.

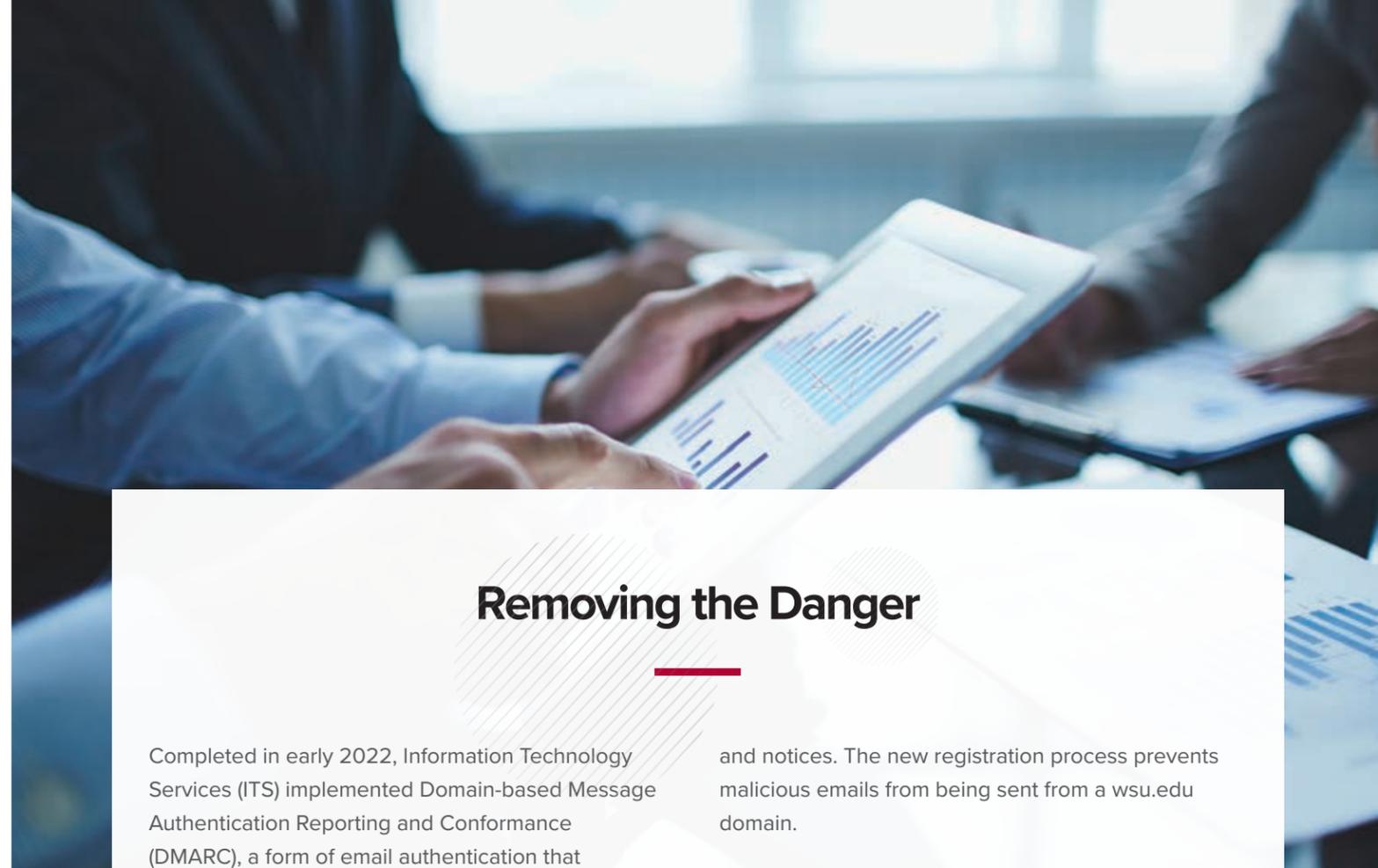
The project team will set up these new security features in the platform based on university requirements for protecting PHI and HIPAA data. As the project develops, Teams has the potential to store and protect other forms of regulated data.

“Many WSU employees and researchers work with protected, sensitive information. A secure storage configuration in Microsoft Teams gives WSU users a modern tool to collaborate with colleagues and work with data in a secure environment, fulfilling a university-wide need for more resources that manage regulated data,” says Dan Hamilton, ITS manager.

ITS completed a pre-audit with a security organization and created a proof of concept to determine the required technical components for implementing secure storage in Teams.

As the project develops, pilot users will gain early access to the new feature, providing feedback that will refine service delivery and usability and help fix back-end issues with the server setup.

Upgrading Microsoft Teams with secure storage will innovate how WSU business users and researchers integrate Teams with their work and will align with the university’s commitment to using protected systems to safeguard confidential, sensitive data.



Removing the Danger

Completed in early 2022, Information Technology Services (ITS) implemented Domain-based Message Authentication Reporting and Conformance (DMARC), a form of email authentication that protects WSU users from online threats like spam or malware to all incoming and outgoing emails.

DMARC is made of 2 sub-technologies: Sender Policy Framework (SPF) and DomainKeys Identified Mail (DKIM). SPF is a form of authentication confirming the location an email is sent from.

“Every time a user clicks on a malicious link and potentially compromises sensitive data, DMARC works to mitigate any associated risk,” says ITS manager, Dan Hamilton.

DKIM provides an encrypted signature on an email verifying the authenticity of the sender.

Many vendors, contractors, and service providers send on WSU’s behalf, and they must now be registered users to deliver all messages, requests,

and notices. The new registration process prevents malicious emails from being sent from a wsu.edu domain.

Phishing and hacking attempts are a high risk to the institution and its users. This new security process ensures all email received and sent out under a wsu.edu domain is verified by and protected under DMARC. When an email is flagged as unsecure, it is deleted or quarantined, reducing the number of malicious emails WSU users encounter.

“Every time a user clicks on a malicious link and potentially compromises sensitive data, DMARC works to mitigate any associated risk,” says ITS manager, Dan Hamilton.

ITS engaged with leadership across numerous departments university-wide to verify that DMARC implementation did not change email business processes.

A significant security benefit, DMARC protects WSU’s identity and reputation by creating safer online connections.

Security Numbers

Email security systems detected
355,744
 individual messages with malicious attachments.

99.8%
 Protected



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.



Email security systems detected
14,241
 individual email messages containing malicious links.

Messages with URL Threats
98.9%
 Protected 952,162/962,966



Received a total of
962,966
 malicious emails.



98% of emails were protected prior to any click



There were
45,468
 phishing emails with URL Rewritten / No Permitted Clicks.



1,249,010
 sessions detected inside the campus network perimeter exhibiting signs of active exploit attempts or the presence of a vulnerability.

Website Numbers



Users
80,521

Total Sessions
113,427

Pages Viewed
161,612

Web Traffic by Quarter

Q1	FY:22	Q2	FY:22
Total sessions	40,182	Total sessions	30,558
Pages viewed	55,049	Pages viewed	42,020
Users	30,895	Users	23,775
New users	29,046	New users	21,959
Q3	FY:22	Q4	FY:22
Total sessions	24,828	Total sessions	17,859
Pages viewed	36,754	Pages viewed	27,789
Users	18,128	Users	12,917
New users	16,247	New users	11,379

Top Visited Pages

1. Mac OS installing VPN
2. CSD
3. ITS home page
4. Multi-Factor Authentication
5. Third Party Access
6. Zoom
7. myWSU Campus Mobile
8. Software Site Licenses
9. Security
10. 25Live classes

“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

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Information Technology Services