Accomplishments Report

2017-18

UC **SANTA BARBARA**
Division of Student Affairs
Student Information Systems & Technology

Organization Chart

SIS&T Executive Director

Project Manager

Communications Coordinator

Director of Student Systems IT Infrastructure, Security & User Support

Director of Strategic Architecture & Platform Integration Svcs.

Director of Data Services & Business Systems Support

Director of Student Information Systems & Software Dev.

Administrative Services Management Officer

Client Systems Architecture

Application Architecture & Software Engineering

Business Intelligence & Data Services

Admissions Information Systems

Data Center & IT Operations

Identity, Cloud, Security & Integration Architecture

Vendor Systems Management & Support

Financial Aid Information Systems

Development Support & Systems

Graduate Division Information Systems

Help Desk & User Support

Registrar Information Systems

Network Architecture

SHS/CAPS Information Systems

Student Services Information Systems

Connect with SIS&T

http://sist.sa.ucsb.edu

@ucsbsist

@ucsbsist

http://bit.ly/ucsbsistvid

Executive Summary

Resilient. Student Information Systems & Technology (SIS&T) staff are the embodiment of this term. In 2017-18, we experienced moments of challenge that gave birth to renewed strength, increased competence, and deeper dedication to each other and our communities. As one of the longest standing information technology and communication organizations on campus, we have achieved a certain level of maturity in our 24 years. Made wiser by typical growing pains — changes in technology, changes in leadership — and our long-practiced commitment to excellence prepared us to successfully face events we never hadto before, such as the Thomas Fire.

Joe Sabado,
Executive Director
& Student Affairs
Associate Chief
Information Officer

In this report, you will learn how members of our team (locally and remotely) responded to what became the state's largest wildfire in modern recorded history, while also coordinating and collaborating on several major projects with aplomb. In 2017-18, we delivered significant enhancements to applications used daily by students, we introduced innovative ways for staff and faculty to use data to improve their effectiveness, and we focused on developing ourselves by certifying a record number of staff participating in Securing the Human training.

I intentionally practice aspirational leadership because I see that not only is SIS&T nestled within UC Santa Barbara's IT ecosystem, but it also has a well-earned place amongst a constellation of other service-oriented IT and communication organizations in the field of higher education. As we inch closer to our 25-year milestone, I try to imagine any way we could possibly be better prepared for the big unknowns, but it all comes back to *resilience*. Never have I known a more responsible, adaptable, and people-oriented staff; they light our path for continued success.

As a final note, I want to acknowledge the recipients of our inaugural SIS&T Spirit Awards (listed at right). Our staff inspired me to initiate this new tradition for which our peers have an opportunity to nominate, select, and recognize those who most demonstrate our values: Diversity & Inclusion, Innovation, Collaboration, and Service to Others.

Enjoy this report, and please share your feedback at joesabado@ucsb.edu.

We provide Student Affairs and the broader UC Santa Barbara community with business-driven, secure, innovative, and technology-enabled solutions and services. We are solution-oriented professionals, lifelong learners, and collaborators who provide excellent customer service to help our partners achieve their goals and promote the University mission.

SIS&T Spirit Award Winners

SIS&T Spirit Award for Teams:
The Fire/Emergency Response Team

Diversity & Inclusion:
Victoria Bebko

Innovation:
Allen Biehle

Collaboration:
Allen Biehle

Service to Others:
Logan Franken

SIS&T Units & Scope of Responsibility

Administrative Services (Admin Unit)

The Admin Unit manages fiscal operations and human resources for SIS&T, and it also provides full administrative support for the department.

Data Services & Business Systems Support (DS/BSS)

The DS/BSS unit is comprised of two teams that work in synergy with the rest of SIS&T to provide services to a wide range of Student Affairs and UCSB departments. The **Data Services (DS)** team provides database design and development, vendor application integration, and business intelligence solutions in support of new projects and existing implementations. The **Business Systems Support (BSS)** team works with Student Affairs departments to provide project management, selection, and implementation of vendor systems, and business process analysis and improvements.

Infrastructure, Security, and User Support (ISUS)

The ISUS unit provides stewardship of SIS&T's IT and security infrastructure, while supporting customers' computing and IT needs. Sub-teams within ISUS respond to system emergencies and security events, maintain critical infrastructure (networks, servers, databases, and backup systems), integrate in-house and vendor systems, and provide holistic IT support to SIS&T's partners/customers. Systems are kept up to date with security patches, and staff receive ongoing training and support in resolving problems as they arise.

Strategic Architecture & Platform Integration Services (SAPIS)

The SAPIS team is a small, but critical team

Services Provided

SIS&T provides the following services to Student Affairs, the Graduate Division, and the Department of Economics:

- Application development and maintenance
- Web development
- Project management and business process analysis
- Procurement, contracts, and vendor relations management
- IT operations
- Windows server support
- Security and disaster recovery
- End-user support
- Data and Business Intelligence services
- Virtual Private Network (VPN)

in the SIS&T department. SAPIS provides architectural, automation, and security services that support an array of projects and systems managed by SIS&T on behalf of the division of Student Affairs and UCSB campus.

Student Information Systems & Software Development Services (ISSD)

The ISSD unit comprises six teams that provide custom software development, websites, web applications, information systems, vendor system implementations, and related support to meet the needs of Student Affairs, the Graduate Division, and campus at large: Admissions Information Systems (ADIS); Financial Aid Information Systems (FAIS); Graduate Division Information Systems (GDIS); Registrar Information Systems (RGIS); Student Health Services and Counseling & Psychological Services Information Systems (SHS/CAPS); and Student Services Information Systems (SSIS).

Meet Our Staff

During the department retreat in June, SIS&T staff pause for a group photo, while holding onto the paper plates taped to their backs earlier in the day. During the paper plate activity, everyone walked around the room, writing down on the paper plates the qualities they appreciated about each person.

Staff Per SIS&T Unit

SIS&T ended 2017-18 with 62.5 full-time employees (FTE), plus two part-time student staff. Below is the percentage breakdown of employees in each SIS&T unit.

49% ISSD
8% SAPIS
14% DS/BSS
19% SSIT
5% Admin
5% Exec*
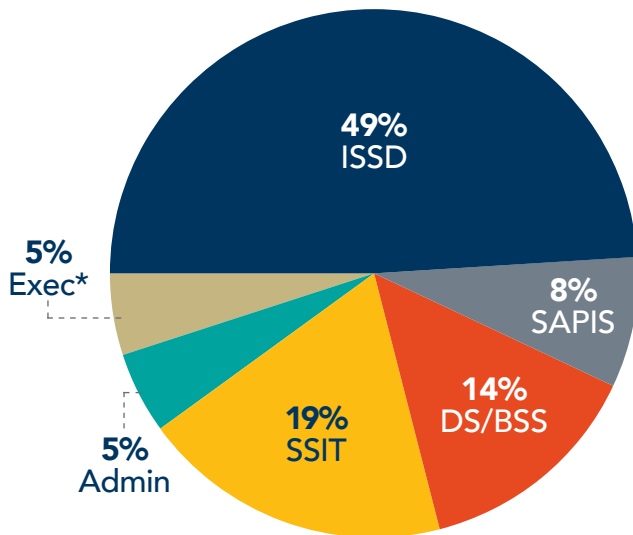
Exec unit includes a Project Manager and Communications Coordinator, who report to the Executive Director

In 2017-18, SIS&T attempted to recruit for nine FTE positions, although not all nine were successful.

Trainings & Certifications

In 2017-18, SIS&T staff participated in these professional development opportunities:

Securing the Human Certification: Josh Andersen, Stephen Barnhouse, Steve Bishop, Logan Franken, Lisa Goto, Tom Hoinacki, Julie Inami, Joseph Marshall, Michael Kerner, Guillermo Leon, Lap Leung, Aurelian Marian, Eric Mayes, Justin Mead, Mark Norstedt, Liudmil Petrov, Jeff Pignataro, Adriana Roman, Joe Sabado, Nikhil Singh, Jarrod Sprague, Ventzi Tzvektov, Richard Wilson

Security+ Certification: Josh Andersen

UCSB Supervisory Certificate Program (SCP): Josh Andersen

UCSB Management Development Program (MDP): Brian Frazier and Tedi Tehrani

UC Management Skills Assessment Program (MSAP): Seth Northrop

UC CORO Leadership Program: Joe Sabado

Johns Hopkins' Data Science certificate: Ann Crawford

Major Projects in 2017-18

SIS&T staff coordinated or collaborated on 177 projects in 2017-18, but some projects were considered major for their realized impact to the campus community. These projects increased effectiveness and productivity for users, provided improvements to features/functions, and introduced innovative ways to use data.

Statement of Legal Residence (SLR) application rewrite for Admissions

The Statement of Legal Residence (SLR) application confirms if incoming students are eligible for in-state tuition. For this project, the SLR application was rewritten to feature a more modern interface, introduce business logic to simplify the process for students, and improve the review and reporting process for staff. The project started in October 2017 and ended in March 2018.

Mobile development of the GOLD application for students

GOLD, which stands for Gaucho On-Line Data, is a custom-developed application that students use to register for classes, view grades, order transcripts, and more. This modernization project introduced a mobile-friendly user interface with updated campus branding. This project began in July 2016 and ended in December 2017.

Google Connect migration for Student Affairs, the Graduate Division, and Arts & Lectures

The Google Connect migration project involved migrating more than 1,200 employees' email, calendars (i.e., appointments, rooms resources), distribution groups, and shared mailboxes from an on-premise Microsoft Exchange server to Google's G-Suite communication and collaboration tools. The migration was part of a phased, campus-wide move to consolidate systems, streamline costs, increase collaboration, and enhance security. The project began in October 2017 and the main migration activities ended in May 2018. The project will officially close in summer 2018.

In June, members of the Web API portal team received the Larry L. Sautter Silver Award for Innovation in IT, from the UC IT Leadership Council, and a SIS&T Spirit Award certificate of nomination.

Web API development for campus

Application Program Interfaces (API) are used by developers to easily send and receive data that can be used with various applications. For this project, members of IT organizations across campus collaborated to implement a Web API portal so that developers can create and manage custom-developed APIs using campus-specific data. This project began in September 2016 and is scheduled to end in December 2019.

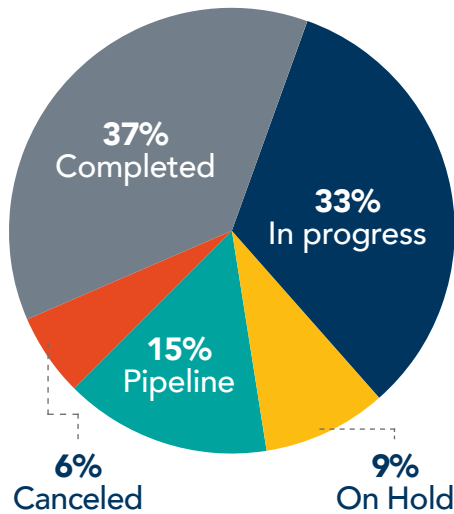### Student Financial System (SFS) development for the Graduate Division

The SFS project introduces a comprehensive system that will allow the Graduate Division to better meet the financial needs of students. This stage of the SFS project involved the development of a custom web portal and an Institutional Awards Module (IAM) that staff can use to access and manage specific aspects of the financial process. The SFS interfaces with other campus systems to more effectively disburse funding to graduate students. The project began in September 2013 and will launch in early September 2018.
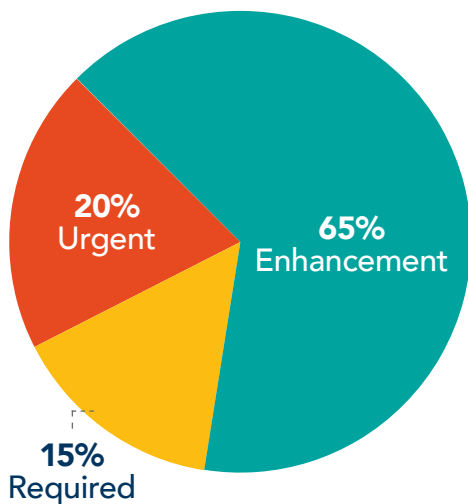
Project Numbers

Summary of Project by Status & Priority

In 2017-18, SIS&T staff coordinated or collaborated on 177 projects. These projects are categorized by *status* and *priority*. *Status* is a project's place in our workflow and is influenced by *priority*, which is determined in part by campus or by the project requester.

BY STATUS:

- 37% Completed
- 33% In progress
- 15% Pipeline
- 6% Canceled
- 9% On Hold

BY PRIORITY:

- 65% Enhancement
- 20% Urgent
- 15% Required

Projects' Sponsoring Units

Of the 177 projects, 47 were internal to SIS&T. Below are the campus sponsors for the other 130 projects.

Department/College/Unit Sponsoring Project	# of Projects
Academic Initiatives	1
Admissions	9
Alcohol & Drug Program	1
Arts & Lectures	8
Campus Advocacy, Resources & Ed.	2
Campus Learning Assistance Svcs.	1
Career Services	4
Counseling & Psychological Svcs.	2
Disabled Student Program	2
Educational Outreach Program	1
Exercise and Sports Studies	1
Financial Aid & Scholarships	5
Graduate Division	7
Health & Wellness	1
Intl. Students & Scholars	2
Letters & Science, College of	1
Library	1
Public Affairs	1
Registrar	18
Recreation	7
Student Affairs, Division of	4
Student Fee Advisory Comm.	1
Student Health	23
Student Life	11
UCSB Chief Info. Officer	10
Undocumented Student Svcs.	2
Veteran & Military Svcs.	1
Vice Chancellor for Student Affairs	1
Women, Gender & Sexual Equity	2

Winds spread ash from the Thomas Fire over a large part of the Santa Barbara area in December 2017. Although UCSB was never under any threat, ongoing power surges and outages affected normal operations on campus.

MIKE ELIASON PHOTO, FOR SANTA BARBARA COUNTY FIRE

Demonstrating Resiliency in a Year of Big Challenges

Back-to-back wildfires and flooding

On the heels of the **Whittier Fire** that burned 18,430 acres in the Santa Ynez Mountains from July-December 2017, the **Thomas Fire** took hold in early December and became the largest fire in California's modern recorded history. Although campus was never under any threat of fire, campus operations were greatly affected. Students, staff, and faculty commuters had difficulty traveling to and from campus, the air quality reached "hazardous" levels, and rolling power surges and outages toasted hardware across campus.

Thomas Fire impact to SIS&T

From December 4-22, 14 SIS&T staff members spent a total of 328 hours responding to the Thomas Fire by triaging server rooms, performing system modifications, and making contingency plans while the fire escalated. Together, Data Center & IT Operations engineer Cliff Chabot and Network Architect Thomas Lawton put in 208 hours of the total 328 hours worked, even spending weekends, in order to gracefully power down systems affected by the frequent

Members of the Fire/Emergency Response Team received the SIS&T Spirit Award for Teams plaque during the department retreat in June.

power surges and outages. In the end, six pieces of hardware were damaged, resulting in a $11,178 loss.

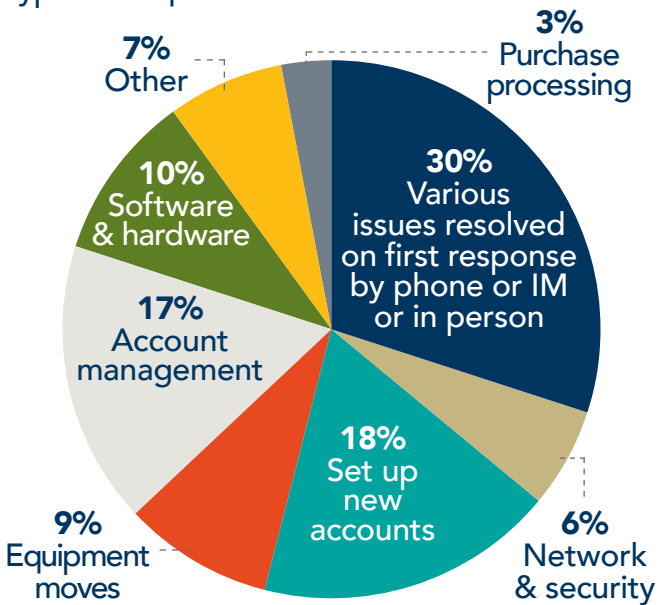### Other 2017-18 threats and risks

New vulnerabilities, **Meltdown** and **Spectre**, which can allow attackers to steal data as it is being processed on a computer, affected virtually all operating systems. To mitigate these vulnerabilities, SIS&T engineers frequently delivered patches to all production servers and computers, even during holidays, weekends, and late nights.

Support Services & Stats

Members of the Help Desk are some of the highly visible in the organization, as they meet every new employee and continue supporting them throughout their tenure in Student Affairs.

Types of Support Requests

In 2017-18, the Help Desk responded to 2,009 requests for support from 23 Student Affairs departments. Below is the break down of types of requests:

Pie chart:
- 3% Purchase processing
- 30% Various issues resolved on first response by phone or IM or in person
- 18% Set up new accounts
- 6% Network & security
- 9% Equipment moves
- 17% Account management
- 10% Software & hardware
- 7% Other

SIS&T Executive Director Joe Sabado, left, awarded Mark Weinsoff a pin for his 20 years of service, during the department retreat in June. Weinsoff has long served as the Help Desk & User Support Manager.

By the Numbers

2,009
Number of support requests received via ServicePro's ticketing system

1,000+
Number of support requests made by phone or instant message (IM) or in person

484
Number of new Student Affairs staff who received New-User Orientation training at one of 57 workshops available

33
Number of exam room computers and monitors installed on wall mounts for Student Health

250+
Number of computer or equipment moves managed by the Help Desk

84
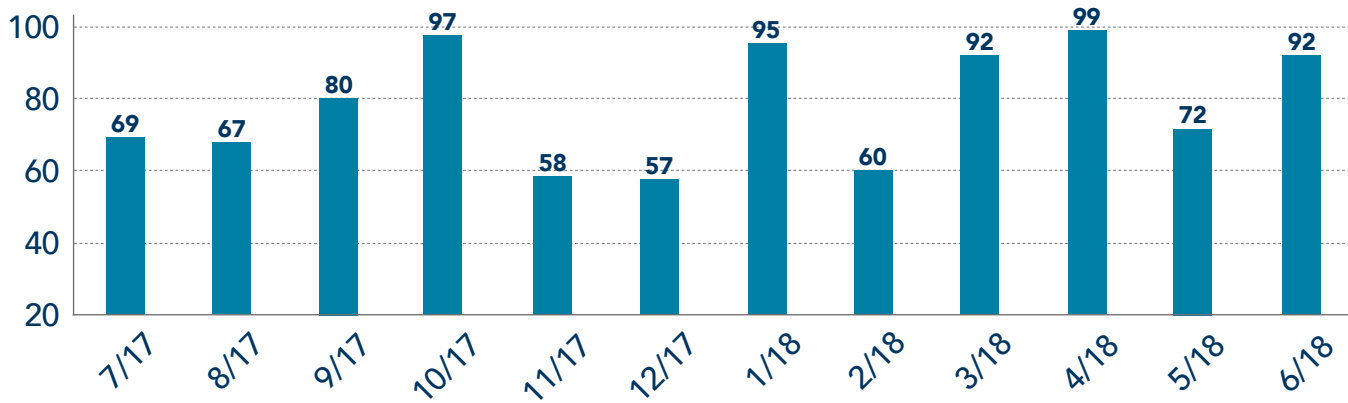Number of hardware/software purchases researched and processed users

41
Number of computers set up as mobile stations for various departments' events

Support Services & Stats

When changes need to be made to a system, they are done so through a process called deployment. For example, deployments can deliver updates and security patches or fixes to systems. This used to be a time-consuming, manual process, but with new tools such as Octopus Deploy, deployments have increasingly become automated, allowing SIS&T to deliver more timely service to its partners and customers.

## Number of Deployments Made, July 2017 to June 2018

From July 2017 to June 2018, more than 900 software changes were released by the Developer Support team. The slowest months were November and December 2017, and the busiest months were October 2017 and April 2018.

Month	Deployments
7/17	69
8/17	67
9/17	80
10/17	97
11/17	58
12/17	57
1/18	95
2/18	60
3/18	92
4/18	99
5/18	72
6/18	92

Financials

In 2017-18, SIS&T had an operational budget of $9 million and $8.6 million in expenditures.

Breakdown of Expenses

- 1% Supplies
- 11% Equipment*
- 85% Payroll & Benefits
- 3% Training & professional development
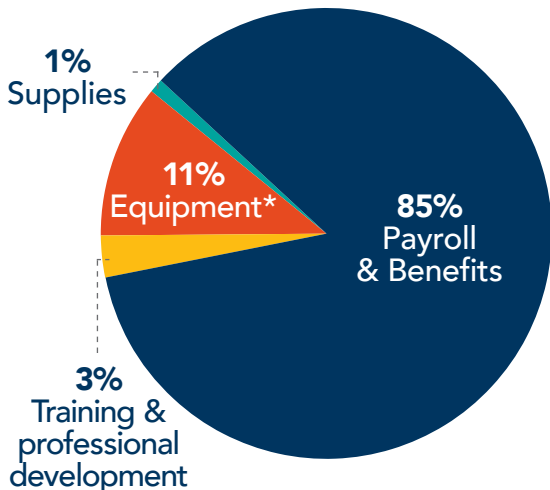
*Equipment includes new purchases, plus the maintenance of existing equipment and license renewals

Members of the Google Connect Team received a certificate of nomination for the SIS&T Spirit Award for Teams during the department retreat in June. With help from partners across campus, the team migrated data for more than 1,200 employees from Microsoft Exchange to Google.

Acronyms & Initialisms

The Information Technology (IT) world is full of abbreviations. Below are some of the most commonly used by SIS&T, its partners, and its customers:

Planning and Procedures
BCP: Business Continuity Planning
DR: Disaster Recovery

Information Systems
AAA: Academic Advising Assistant
GOLD: Gaucho On-Line Data
PnC: Point 'n' Click

Technologies and Approaches
API: Application Program Interface
ASCII: American Standard Code for Information Interchange
CPU: Central Processing Unit
CM: Configuration Management
DBMS: Database Management System
EAPS: Electronic Applications
EDE: Electronic Data Exchange
FIPS: Federal Information Processing Standards
GUI: Graphical User Interface
IS: Information Systems
ISIR: Institutional Student Information Record
MIS: Management Information System
Octo or **OctoDeploy:** Octopus Deploy
PDF: Portable Document Format
QA: Quality Assurance

QC: Quality Control
SAR: Student Aid Report
SFAP: Student Financial Assistance Programs
SQL: Structure Query Language
VDC: Virtual Data Center
VM: Virtual Machine
WAN: Wide Area Network

SIS&T Units
Admin: Administrative Services
BSS: Business Systems Support
DS: Data Services
ISSD: Student Information Systems & Software Development Services
ISUS: Infrastructure, Security, and User Support
SAPIS: Strategic Architecture & Platform Intergration Services

Student Services IS Units
ADIS: Admissions Information Systems
FAIS: Financial Aid Information Systems
GDIS: Graduate Division Information Systems
RGIS: Registrar Information Systems
SHS/CAPS IS: Student Health and Counseling & Psychological Services Information Systems

SIS&T staff break into small groups to work on a cybersecurity awareness assessment activity called Stop-Start-Continue at the department's June retreat.

Student Affairs IT Standards

SIS&T supports the following IT standards for high interoperability and because each offers high-quality security, functionality and reliability. SIS&T has these standards is because they are tightly integrated and easier to maintain and support.

| IT Service Layer	Architectural Component	Divisional Standard	Metrics
Network & Security	Switching and routing	Extreme	• 65 devices • 70 VLANs
	Firewalls	Extreme & Palo Alto	• 500,000 sessions/sec.
	Identity	• Microsoft Active Directory Domain Services • Microsoft ForeFront Identity Manager (FIM) • Microsoft Active Directory Federation Services (ADFS) • Microsoft Windows Identity Foundation (WIF)	• 5 domains supported • ADFS provides single sign-on capabilities for approximately 50,000 users • FIM provides identity synchronization for approximately 50,000 identities in three environments
	Remote access	Palo Alto, Extreme	
	Antivirus	Sophos	
Servers & Hosting	Power supply	APC	
	Server hardware (rack mount and blade servers)	Hewlett Packard Enterprise	• 5 physical servers • 202 virtual servers • 66 replicas
	Server operating system	Microsoft Windows	• 202 servers (in four domains)
	Virtualization infrastructure	VMware	17 hosts
	Web & app hosting	Microsoft IIS 8.5 (Webfarm w/ ARR)	• 9 production IIS 7 servers • 57 production IIS 8 servers • 332 web applications/sites

IT Service Layer	Architectural Component	Divisional Standard	Metrics
Storage & Data	Storage Area Network (SAN)	HPE 3PAR HPE MSA 2404	• 214,400 GiB Raw Capacity • 139,812 GiB Allocated • 129,220 GiB Presented • 102,371 GiB User Files • 25,168 GiB Snapshot (daily snapshots) • 10,050 GiB Hot-Spare disk • 74,581 GiB Free • VMFS 41.17 TB Allocated • 14 TB Free • Windows: 38.16 TB
	Backup	Veeam Iron Mountain HPE MSL 2024 Tape Library — LTO6	• 39,038 GB Disk Capacity • 25,600 GB Cloud Capacity • 2 Production restore points • 2 Weeks of backups stored off site
	Databases	Microsoft SQL Server	• 64 production servers, • 392 production databases • 4,520,628 MB
	Extracting, Transformation & Loading (ETL)	Microsoft SQL Server Integration Services	• 4 integration servers • 1 reporting service (SRS 2014)
	Reporting & BI	Microsoft SharePoint & SQL Server Reporting Services	• 10 enterprise SharePoint servers • 5 farms
	Directory	Microsoft Active Directory & webLDAP	• 3,189 groups • 1,409 users (SA Domain) • 165,568 users across domains • 121 print queues

IT Standards continue on next page ▶

IT Service Layer	Architectural Component	Divisional Standard	Metrics
Monitoring & Escalation	Database monitoring	Idera SQL Diagnostic Manager	
	Server monitoring	Hewlett Packard Enterprise OneView	
	Operating system monitoring	Microsoft System Center Operations Manager (SCOM)	
	Network monitoring	• Extreme Atlas Network Mgr. • Riverbed ACE Live/ Palo Alto • AVtech environmental monitoring	
Desktops & Customer Support	Desktop operating system	• Microsoft Windows 7 Enterprise SP1 64-bit • Microsoft Windows 10, 64-bit	• 985 desktops
	Desktop tools	Microsoft Office 2013 SP1 Professional Plus 64-bit	
	Help Desk Desktop hardware	HelpStar Help Desk System Dell Optiplex Business Line	• 1,023 computers (includes laptops)
Communications & Productivity Tools	Content management	Sitefinity CMS	
	Collaboration & communication	Microsoft SharePoint Server	
Cloud	Infrastructure-As-A-Service	Microsoft Azure	
	Platform-As-A-Service	• Microsoft Azure • Amazon Web services	

IT Service Layer	Architectural Component	Divisional Standard	Metrics
Software Engineering & Development	Application integration	• Microsoft Windows Communication Foundation (WCF) • Microsoft ASP.NET Web API • Microsoft Message Queue (MSMQ) • RabbitMQ Message Queue	
	Software build & deployment	• Microsoft PowerShell • Octopus Deploy • Redgate SQL Developer Tools	
	Architecture modeling tool	• Sparx Enterprise Architect • Microsoft Visio • BizAgi Process Modeler • WebSequence-Diagrams	
	Development platform	Microsoft .NET Framework & Microsoft Visual Studio .NET	
	Performance analysis & optimization	Microsoft Analysis Tools for Visual Studio .NET	
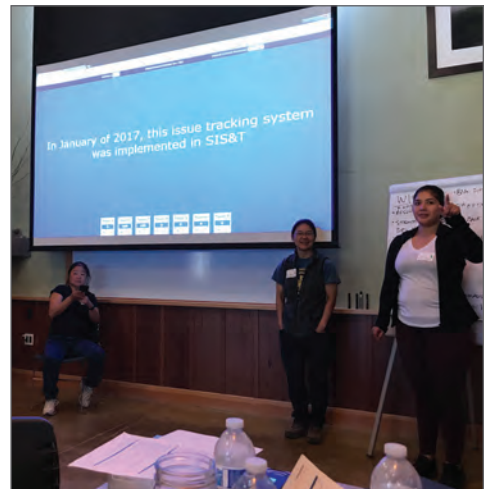
At the department retreat in June, a friendly but competitive game of SIS&T-themed Jeopardy had the judges (pictured above) making some tough calls.

Student Information Systems & Technology **Guiding Principles**

People

We seek diverse and inclusive perspectives.
We perform as a team.
We are committed to helping others.

Process

We pursue value and effectiveness in our work.
We are disciplined in measuring and reporting our progress.
We are flexible and adaptable.

Philosophy

We are an innovative, learning organization.
We are committed to excellence.
We do not define individual worth by organizational hierarchy.