Student Information Systems & Technology
Accomplishments Report 2015-16
SIS&T Executive Director

Director of Student Systems IT Infrastructure, Security & User Support
Client Systems Architecture
Data Center & IT Operations
Development Support & Systems
Help Desk & User Support
Network Architecture

Director of Strategic Architecture & Platform Integration Svcs.
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Business Intelligence & Data Services
Vendor Systems Management & Support

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Admissions Information Systems
Financial Aid Information Systems
Graduate Division Information Systems
Registrar Information Systems

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Student Information Systems & Technology (SIS&T) provides information systems, communication solutions and services to Student Affairs Division that include Enrollment Management Services, Student Academic Programs and Wellness Services, Student Life, and Student Academic Support Services, as well as the Graduate Division and academic departments that support undergraduate and graduate education. Services provided include information systems planning, architecture, project management, application and database development, implementation of vendor solutions, business intelligence and data analysis services, marketing and communication, and the production operations of mission-critical information systems and applications. SIS&T provides ongoing support for business productivity tools, conference room maintenance, customer and technical support, network, security, and Student Affairs server and storage infrastructure. SIS&T’s strategic direction and activities are driven by the dynamic business and communication needs of the units we serve, which include compliance to UC and campus mandates as well as federal and state regulatory changes and the demands of supported units’ end-users. In addition, SIS&T provides support and enhancements to 160-plus information systems and applications, while maintaining secure and dependable technology operations and infrastructure.
Student Information Systems & Software Development Overview

The Student Affairs Student Information Systems & Software Development team supports the Information System (IS) needs for the Office of Admissions, the Office of Financial Aid and Scholarships, the Graduate Division, the Office of the Registrar, Student Health Service and Counseling & Psychological Services departments, and the Division of Student Affairs at large, relating to IS support, communication, videography, photography, and marketing services.

In 2015-16, the team made strides on — and delivered — numerous major projects. For example, the Admissions IS unit performed major mandatory changes to the admissions and decisions release processes that allow staff to review and admit new students. The Office of Financial Aid and Scholarships (OFAS) IS unit released a new Student Financial System (SFS) that staff use to review and provide financial aid to students. The Graduate Division IS unit also worked on the SFS project to build a portal that will be used by staff who process financial aid for graduate students.

A major project that affected all teams was the Preferred Name project, which now allows students to provide a preferred first name that is used to refer to the student in all non-legal capacities (e.g., course rosters, student systems, academic and departmental staff-facing systems).

Operationally, a number of key services were provided, such as an update to the Point ‘n’ Click (PnC) Electronic Health Record (EHR) system by the Student Health Service (SHS) and Counseling & Psychological Services (CAPS) IS unit which now features the latest International Classification of Diseases (ICD)-10 codes. Also, the Student Services IS unit modernized numerous applications that were written in older, unsupportable languages, and the CommCollab marketing and communication unit provided support during UCSB’s first-ever 24-hour online fundraising campaign (“UCSB Give Day”) as well as videography and photography support to departments across the Student Affairs and Graduate divisions.

Please read through each unit’s report (pages 9-16) for more information about services provided by these units.
The Strategic Architecture & Platform Integration Services (SAPIS) team provides enterprise-level solutions for both users and developers of SIS&T's technology stack of applications, services and information systems. In 2015-16, the SAPIS team completed several major initiatives and embarked on new ones. The team’s most prominent accomplishment was a release of the Next-Generation web farm, which provides hosting for the majority of SIS&T’s custom-developed information systems. The team also released a PowerShell management framework, which enables scripted automation of tasks for the web farm. Since those initial releases, the SAPIS team continues to patch and enhance the web farm and management framework to provide an expanding capability set. New architectural components also were added to the web farm, such as a state-caching component that enables applications to be updated without negatively impacting active users (resulting in zero-downtime deployments). Building on the management framework, the team has begun to implement Octopus Deploy, which will enable a workflow-driven model for automated deployments, making software delivery more agile and reducing dependency on the Development Support team.

The Identity Management team within SAPIS gained a second full-time developer in 2015-16, and team members provided key engineering work to support multiple high-visibility projects, including the Preferred Name project and the Recreation department’s Fusion management system project. For the Preferred Name project, the team provided synchronization of Preferred Name information received from campus to identity data stores within Student Affairs. For the Fusion project, the team provided an authentication endpoint for the application and also provided an image web service for use within the Fusion desktop application. The team also provided consultation for the setup and maintenance of Fusion user accounts.

Student Affairs’ identity infrastructure was significantly augmented during 2015-16. The team added to the functionality of the core web application interface, made improvements to the synchronization system and provided automated archiving and deprovisioning of application security data and identity records to dramatically enhance the maintainability of the identity data store and provide for enhanced security within Single Sign-On (SSO)-enabled applications. The team significantly improved the identity synchronization processes and systems through refactoring and added capabilities, such as creating a link between the development and test environments to the production synchronization process in order to keep the environments in lock-step with identity changes made to the production environment. In addition, the synchronization process was refactored, separating the synchronization of student and employee data coming from campus.

The team also made significant enhancements to developer and end-user web tools. These enhancements included an interface on top of the identity service (MasterPerson), bulk import/export capability for the application security data stored for SSO-enabled applications, an interface into the Active Directory Federation Services instance to allow developers to add SSO capability to their applications on a self-service basis, and an interface on top of the core identity data synchronization service to allow users to request on-demand synchronization of identity records from campus and to search and filter on identity events that are coming through to Student Affairs. Lastly, the Architecture team continued to build and enhance components and tools used by all developers to improve their productivity.
Data Services & Business Systems Support Overview

The Data Services team provides MS SQL Server database support to a wide range of SA and UCSB departments in support of new projects and application development. The team is involved in database design and development, performance optimization, security design and implementation, and developer support. The team is also responsible for the development and support of the divisional data warehouse. The team uses SQL Server’s Reporting Services, Analysis Services, Integration Services and SharePoint Business Intelligence to provide access to canned reports and self-service reporting.

The Business Systems Support team provides application and customer support to SA departments. They work in close proximity with the customer to analyze requirements and propose solutions for improving and streamlining business processes. The team is also responsible for managing information systems projects, including the coordination of requirements gathering, product selection and purchasing, project planning, system installation, system integration, data conversions, quality assurance, training, implementation, delivery, and transition to production support.

In 2015-16, the Data Services team released a Financial BI website, featuring standard financial reports and the capability for users to extract permanent budget and general ledger data. The team trained 25 departments and more than 50 users on how to use the BI tools and data. The team also released a new version of the student reporting data site. In addition, the team worked with the Office of Financial Aid and Scholarships (OFAS) to provide initial ProSam reporting of Institutional Student Information Record (ISIR) and verification tracking.

ProSAM is a vendor product from Sigma Systems that replaces legacy financial aid and scholarship systems for OFAS and the Graduate Division. Lastly, the team also began developing reporting solutions for the Disabled Students Program (DSP) and the Graduate Division.

The Data Services team also provided data integration support for various projects, including the new ProSam implementation and a new management system, called Fusion, for the Recreation department. These interfaces provide continual updates of student data to the applications. The team also worked with the Office of International Students and Scholars (OISS) to integrate newly collected TIPP (Training/Internship Placement Plan) data into the department’s management system (International Student & Scholar Management), which allows OISS to be more precise in reporting student Classification of Instructional Programs (CIP) codes to the Department of Homeland Security. The team also released a new integrated Student Information System (iSIS) data dictionary, making definitions of iSIS database tables and fields available to developers. Lastly, the team provided database support for projects including the Preferred Name project, the 2016 Admission cycle, Target X’s Schools App (Facebook app), PaperCut Printing service, GauchoLink, iSIS, Student Health Service (SHS) data interfaces, and others.
The **Student Systems IT Infrastructure, Security & User Support** (aka Systems and Help Desk) team balances the requirement of supporting operational duties with the need to work on projects that will enhance SIS&T’s infrastructure and services, to the benefit of SIS&T’s partners and those they serve.

In 2015-16, the **Systems team** received and resolved more than 1,900 formal requests for assistance through SIS&T’s ticketing system. This represents a fraction of the work the Systems team performed because there is no way of determining how many additional requests were received and resolved through other channels (e.g., phone, instant messaging). The vast majority of what the team accomplished is operational in nature. For example, when the team was involved in supporting projects (whether internal to the team or led by other members of SIS&T), it often revealed the need for additional effort beyond what was originally planned. For example, while preparing to implement a pilot of Microsoft’s Operations Management Suite, the Systems team discovered that the System Center Operations Manager (SCOM) environment was significantly under-resourced and that new servers would first need to be added and incorporated into the environment.

The **Help Desk** received and resolved more than 2,400 formal requests for assistance through SIS&T’s ticketing system and handled more than 4,500 additional requests received by phone and instant messaging. This value to SIS&T’s partners was reflected in a user survey conducted in February. Users’ comments about Help Desk staff were overwhelmingly appreciative. Many of the requests required collaboration between the IT teams; for example, Help Desk staff assisted Systems in interacting with users to troubleshoot and configure endpoint systems. This collaboration is crucial and appreciated by everyone involved.

The **Administrative Services** unit managed an operational budget of $7.6 million, including a $4.5 million permanent budget. The unit managed payroll and timekeeping for 66 full-time employees and six student employees. In addition, the unit provided administrative support and managed the procurement, contracts, and payment processes for the following initiatives during the 2015-16 fiscal year:

- iSIS Modernization/Phase 4
- Student Financial System
- Business Intelligence
- IT and IS support to all departments in Student Affairs
- IT and IS support to the Graduate Division
- Identity management, in collaboration with other divisions and departments across campus
- IS support to Collaborate, in the College of Letters and Science
- Divisional network infrastructure, wiring and server rooms
- Licensing for databases, software development tools, software engineering and architecture tools, and Divisional PC computers
Detailed Achievement Reports

Grouped by SIS&T organizational structure units/teams and areas of responsibilities

Student Information Systems & Software Development Team

Admissions Information Systems Team

The Admissions Information Systems team prepared and maintained the Admissions systems for 95,000 applicants and 120 Admissions staff. It also implemented 200 requested system changes, fixed 93 bugs, and completed 750 sub-tasks across 25 different systems. Major projects included the perm number assignment process, campus tour and regional reception registrations, and the Salesforce data import processes. The team had a nearly flawless Admissions decisions release day, with 54,000 applicants logging in throughout the day to view their admission decision, with 7,000 concurrent users logged in at the time of release.

MAJOR ACCOMPLISHMENTS

- **Fall 2016 Admissions cycle changes:** The Admissions IS team implemented ApplyUC data changes across the department's data load pipeline (ApplyUCStaging, Inside Admissions, iSIS, DeltaSys, App Status, and the data warehouse). Integration testing was performed with the University of California Office of the President (UCOP), and system changes were deployed on time to production for the Admissions staff to begin evaluations.

- **Fall 2016 decision release:** The Admissions IS team updated and tested the online Statement of Intent to Register (SIR) and Steps to Enrollment processes with integrated departments (e.g., Housing & Residential Services, Orientation, Enterprise Technology Services, Student Health Service, Registrar, Financial Aid and Scholarships). The team ran performance testing on systems for Admissions' decisions release and added more servers to better handle the load. The team monitored all servers and social media outlets to get live feedback during the decisions release event.

- **CollegeBoard redesigned SAT changes:** In October 2015, CollegeBoard went live with a complete overhaul of the Scholastic Aptitude Test (SAT) record layout format for about 100 fields and values. CollegeBoard also replaced the Secure File Transfer Protocol (SFTP) file download process with a new Representational State Transfer (REST) Application Programing Interface (API) and Higher Ed portal. To ensure business continuity for these changes, the Admissions IS team updated the DeltaSys SAT load process and reports, developed a new SAT download service that integrates with Exchange Server and CollegeBoard's REST service, and updated the ApplyUC Extensible Markup Language (XML) data load system. The team also added support for loading many of the new redesigned SAT fields in both iSIS and Inside Admissions application.

- **Campus tours event registration for the Visitor Center:** After going live with Admissions' new TargetX Salesforce Customer Relationship Management (CRM) solution in July 2015, the Admissions IS team continued to develop new features within the TargetX platform to improve efficiencies in Admissions. One major project rolled out in October 2015 was a replacement of the old campus visits event registration system with the TargetX events module. This improved workflow by allowing the team to directly add prospective students visiting the campus into the CRM for future email campaigns, and it allowed the team to manage all of Admissions events (e.g., webinars, tours, virtual appointments, presentations) in one location. Additionally, the new campus tour event registration pages were designed to be mobile friendly.

- **Chancellor’s Regional Receptions event registration:** In February 2016, the Admissions IS team a new Chancellor’s Regional Receptions event registration system in the new Salesforce CRM platform. Improvements included the ability to check for duplicate registrations and to verify perm numbers with invited registrants. Participants also had to bring a confirmation email containing a QR code to the event to speed up check in. Admissions staff noted these improvements saved them many hours of manual work.

- **Gender identity, sexual orientation, and Preferred Name:** For the fall 2016 Admissions cycle, the IS team added support to systems loading and displaying new Sex at Birth, Gender Identity, and Sexual Orientation data being collected in the new ApplyUC application. The Admissions IS team also supported the new Preferred First Name field. Before working on this project, the Admissions IS team attended LGBTQ+ courses to better understand the context for this data, how to keep it secure, and how to be sensitive to not display it in places that an applicant may not want it to appear.

- **Perm matching and assignment algorithm:** In the fall 2015 admissions cycle, three Admissions staff spent a month manually assigning perm numbers to 18,000 applicants. This number grew from 12,000, during the fall 2014 cycle, and the increase caused a ripple effect of delayed evaluations and decisions. To fix this problem for fall 2016, the Admissions
IS team re-evaluated perm matching criteria and introduced other factors, such as email address, into the algorithm. Manual perm assignments were down to 4,000 for fall 2016, saving the Admissions staff valuable time.

Agile and Scrum project management: In September 2015, the Admissions IS team adopted an Agile project management practice called Scrum. By doing so, the team started holding sprint planning and sprint review meetings with the Admissions staff in order to improve communication about shared priorities and tasks. The Admissions IS team also was able to automate the creation of weekly status reports.

CRM file manager: Each week, the Admissions staff used to manually edit and stage data files to load into Salesforce from more than 10 sources (e.g., American Colleges & Universities, Chegg, YouVisit, Cappex, College Week Live, Hobsons, NACAC, ApplyUC Early Release). Because the edits were manual, many load errors had to be corrected in the files. To reduce this amount of manual work, the Admissions IS team developed a CRM file manager system that read original raw data files, added additionally needed fields, validated all the data, and staged the files for load by Informatica. In addition, this system sent out daily email reports with a list of successful files, files with errors, and details of the fields with errors.

Counseling & Psychological Services (CAPS)/Student Health Service (SHS) Information Systems Team

The Student Health Service and Counseling & Psychological Services clinics encounter more than 130,000 student visits annually and provide services essential to maintaining a healthy student population at UCSB. CAPS/SHS IS facilitates the strategic use of data, content and systems functionality, enhances service delivery capabilities through effective employment of best practices and leverages internal and external partnerships to advance the mission of these campus-critical departments.

Major Accomplishments

Conversion to ICD-10: SHS and CAPS converted to ICD-10 from a 30-year-old ICD-9 diagnosis coding system.

ADDITIONAL SERVICES & SUPPORT

- Orientation New Student Profiles: Rewrote the New Student Profile data sheet batch job as an SSRS report and included new fields.
- Where is UCSB?: Updated the regional event map search system for Admissions staff's school visits across the United States.
- UADM online: Fixed a major flaw in where an error would cause only a partial transaction rollback and leave data in a corrupt state.
- Grade conversion: Added support to automatically convert grades from Canada, Mexico, Pakistan, Philippines, Saudi Arabia, Germany, and France.

ADDITIONAL SERVICES & SUPPORT

- CAPS conference room upgrades: CAPS has new conference room technology that facilitates all clinic and team processes.
- EMR upgrades: Several major upgrades to SHS/CAPS Electronic Medical Record (EMR) systems were completed.
- University Immersion Program (UIP) integration: International extension students were integrated into SHS and were seen for all medical needs.
- Policy and Procedure Management (PPM): A policy management system that started in SHS was rolled out to the Student Affairs division.
- College Health Surveillance Network: SHS/CAPS developed an interface to this national college reporting consortium.

Integral to quality practice management and billing, ICD-10 updates medical terminology and specificity, improves public health tracking, and allows for more detailed documenting of sickness, injury, and patient compliance.

CAPS remote clinic offices: CAPS opened the Gaucho Support Center, a new off-campus location where students can access counseling services and assistance. This new space is one of seven remote clinics across Isla Vista and campus that is supported by the CAPS/SHS IS team.

Quest labs direct bill: The majority of SHS labs are performed by Quest Diagnostics, and a direct billing interface implemented by the team takes advantage of national discounts that save more than $200,000 annually.
Financial Aid Information Systems Team

Financial aid systems were majorly modernized in 2015-16. For example, a new Student Financial Aid System (SFS) was adopted and integrated into existing applications and legacy systems were upgraded to meet new technical and usability standards. This means the team no longer has to support legacy systems and can, instead, focus on fine-tuning applications to provide users an optimal experience.

MAJOR ACCOMPLISHMENTS

■ Student Financial System (SFS): Early phases of the implementation of the ProSAM financial aid suite became operational for the 2016-17 year. This includes functionality to process the financial aid application, provide the Unofficial Award Letter (UAL) data to applicants for UCSB Admissions, provide Cost of Attendance figures, determine the need for verification documents and provide the Official Award Letter. Partial functionality for managing federal and state is in use and will be fully functional by the end of Fall 2016.

■ My Aid Status Modernization: A complete overhaul of the student self-service financial aid web application, My Aid Status, including modernizing the underlying technological infrastructure (from Classic ASP to ASP.NET MVC), enhancing the application’s overall usability, and integrating single sign-on (SSO) for future synthesis with other Student Affairs applications. Ultimately, this modernization effort allows us to treat My Aid Status as a continuously evolving system, with a steady stream of incremental enhancements to constantly improve the student’s experience.

■ My Aid Status ProSAM Integration: Direct integration of data from the ProSAM Student Financial Aid System (SFS) in the student self-service financial aid web application, My Aid Status, through the ProSAM services. By retrieving data directly from the source of truth, there is no longer a need for cumbersome data export processes.

■ SFS/SIS Integration: Import of data from our integrated Student Information Systems (SISIS), specifically our Operational Data Store (ODS), into the ProSAM Student Financial Aid System (SFS). This link between the two data sources is critical to ensuring the ProSAM system has accurate information for the complex, multi-faceted process of awarding financial aid to students.

■ Financial Aid Mass E-mail System: A web application that allows staff to send their own e-mail campaigns to students, ranging from a small selection of recipients to thousands of students. E-mail messages are sent through our E-mail Gateway service, which sends e-mails using the cloud-based Amazon Web Services (AWS) Simple E-mail Service (SES). The introduction of this system gave staff the ability to send their own e-mail messages without relying on our Operations staff.

■ Financial Aid Website Redesign: A complete redesign of both the public-facing Financial Aid website and the student self-service financial aid web site.
application, My Aid Status, creating a more cohesive, modern, responsive aesthetic experience that mirrors the overall look-and-feel of newer Student Affairs websites. By taking a style guide-driven approach to the redesign, an independent library of modular, reusable user interface components was created, reducing the effort required when building out new user interfaces.

- **2015-16 Summer Financial Aid Estimator and Application:** Annual updates to the Summer Financial Aid Estimator and Application. The most major of these updates was the migration of the application inside My Aid Status, providing a more integrated experience for students who, in the past, were forced to log into a completely separate application.

### Graduate Division Information Systems Team

In 2015-16, the primary focus of Graduate Division IS (GDIS) team was the Student Financial System project. Much of the time was consumed by extensive exploration of undiscovered project requirements. In addition, the GDIS team handled a number of small-to-medium-sized projects including the redesign/redevelopment of the GradPost site, a set of enhancements for the Admissions platform, and several critical infrastructure updates that ensured the future stability of Graduate Division systems. Finally, the team underwent a major staffing change when the team’s Technical Lead accepted a new position in a different area of SIS&T.

### MAJOR ACCOMPLISHMENTS

- **Student Financial System:** Institutional Awards Module Progress Requirements Analysis of the ProSAM system was completed, and major iterations of the application were delivered by Sigma Systems. The GDIS team has implemented an "empty box" SSO-based web portal environment to support the needs of the project, and has begun to fill the “box” with features as prioritized by the project group.
- **GradPost Migration to Sitefinity:** In March 2016, the Graduate Division launched a new version of their student-oriented blog platform, the GradPost. Formerly hosted in SquareSpace, GDIS worked with the Graduate Division over the course of the year to design a new look and feel for the site, create a new Sitefinity instance, and migrate appropriate content to the new site.
- **Admissions Systems Enhancements**
  - **2015-16 General Updates + Degree Change:** Each year between June and September, GDIS performs a set of accumulated mandatory updates to the Graduate Admissions Systems, frequently based on third-party mandates. This year, in addition to these changes, GDIS performed a major enhancement to allow current UCSB graduate students to use eApp to petition for a new/changed degree objective. In addition to replacing a previous paper-based process, this feature supports a new campus initiative focused on easing the financial burden of international graduate student enrollment.
  - **Windows Server 2003 Deprecation:** Due to significant security risk exposure, SIS&T received a directive in July to prioritize the decommissioning of all existing Windows Server 2003 machines. GDIS had six of these servers remaining, 2 web servers, 2 file servers, and 2 domain controllers. GDIS completed migration off the web servers, and assisted the SIS&T Systems group in migrating the remaining servers.
  - **ColdFusion Version Migration:** In support of the effort to eliminate all Windows Server 2003 machines, GDIS undertook a project from July-October to migrate the Graduate Division’s legacy ColdFusion applications to the newest version of ColdFusion. This involved the establishment of a new set of ColdFusion server environments, purchase, installation, and configuration of the new ColdFusion software, and extensive migration testing and bug-fixing to upconvert the ColdFusion application code.

### ADDITIONAL SERVICES & SUPPORT

- **Access database maintenance:** Frequent bug fixing, minor enhancement, and configuration rollover for the Graduate Division Financial Unit’s Access databases.
- **SSIS package support:** Troubleshooted and regularly scheduled updates of Graduate Division data loading and processing.
- **Wiki and ticketing:** The GDIS team acquired a new wiki solution and a software issue/feature ticketing system for the Graduate Division.
- **Admissions data services:** The GDIS team maintained a set of web services to serve Admissions data to other campus departments, such as Housing, Gevirtz Graduate School of Education, and Computer Science.

MIKE NESBIT PHOTO / SIS&T
Registrar Information Systems

The Registrar IS (RGIS) team spent a great deal of time over the past year working on major projects, while also performing incremental improvements to existing systems, and supporting the Registrar Production systems. Our major projects (details of each may be found below) included laying the groundwork for Waitlist Switching (Release Date: 10/2016); Phase I of the Preferred Name project; delivery of the first four Interfaces for the UC Online Education Hub; providing students the ability to cancel their registration for future quarters in GOLD; and iSIS Performance Enhancements to support the first day of classes system load. The RGIS team returned to its previous staffing levels in hiring Seth Northrop, who replaced Jivka Bojilova as the team’s technical lead. The team also worked on improving its formal project management skills, with nearly everyone on the team creating and keeping up-to-date various project-related documentation. The team also began shifting more toward an Agile development approach, which will continue to improve in the coming year.

MAJOR ACCOMPLISHMENTS

- **Preferred Name (Phase I):** The Preferred Name Project is a UC-wide project aimed at providing Trans* students with the ability to provide a Preferred Name to the campus, and have this name be used in all dealings with the student where their legal name is not required. This functionality is also used heavily by international students. The first phase of the project included updating all Registrar Applications, Databases, and Servers that are name-related to allow for the storage and display of a student’s preferred name. This first phase was completed in June, 2016, and students are already supplying preferred names, which are moving throughout the Registrar systems, and numerous extracts provided by the Office of the Registrar.

The next phase will include updates to all applications SA-, GradDiv-, and campus-wide to utilize a student’s Preferred Name as their default name in those systems.

- **UC Online Education (UCOE) Hub Development:** The UCOE system allows students from any UC campus to take online courses offered from any other UC campus. The Hub project was embarked upon in 2015 to automate a number of the currently-manual processes involved in registering students for such courses. This project involves the development of a number of interfaces, which will communicate with a set of centralized, UCOE services. In the past year, the Registrar IS team developed and released four of the six UCOE Interfaces. The other two will be completed in the coming months.

- **Waitlist Switching:** Since the inception of the Course Waitlist, an oft-requested feature has been to provide students the ability to link a waitlisted course to a course they are already registered for, so that if they are added to the waitlisted course, they will be dropped from the linked, registered course. This feature will allow students to waitlist for courses without having it count against their unit totals, and allow for a more accurate sense of course demand. The RGIS team spent the past year setting up all the groundwork for this feature — database, library, and application development — and are excited to begin offering this functionality for the Winter 2016 registration period.

- **Online GOLD Quarter Cancellation Petition:** In order to aid the Registrar Front-Unit, the RGIS team worked to move Quarter Cancellation Petitions online, placing them in the GOLD system. This allows students to cancel their registration for an upcoming quarter online, which immediately cancels the registration, and does not require additional work from Registrar staff. This feature is appreciated by the front unit, who has noticed a reduction in effort surrounding quarter cancellations, thanks to the automation of this feature.

- **First Day of Classes Performance Improvements:** On the first day of classes in Fall 2015 and Winter 2016,
the Registrar Systems experienced severe performance challenges and downtime. The RGIS team spent time load/performance testing the various iSIS applications and systems, and made updates based on the outcomes of this testing to improve performance. In Spring, 2016, the downtime was almost completely mitigated, save for some load on the ODS server, which was mitigated with an increase to the specifications of the server.

**Student Services Information Systems (SSIS)**

SSIS has created, updated, and maintained dozens of web sites and web applications throughout the Division of Student Affairs. The modernization of many systems throughout Student Affairs has been a massive process for SSIS over the past year. The transition of numerous sites to the Sitefinity content management system and mobile-friendly, responsive layouts has modernized many of the Student Affairs web sites. In addition to these transitions, SSIS performed numerous major upgrades to web applications which it oversees. Arts and Lectures upgrades included the Tessitura backend version update, the transition to an isolated server for PCI compliance, the Select Your Own Seats expansion project, and the implementation of Create Your Own Series functionality. Also, SSIS completed the creation of the Office of International Students and Scholars Trainee application, a transition to DSM-5 diagnostic criteria for the Disabled Students Programs’ Services application, and the development of a new mass mailing option for Student Affairs this past year.

**MAJOR ACCOMPLISHMENTS**

- **Arts and Lectures (A&L) upgrades and improvements**: During the past year SSIS and A&L took significant steps forward in regards to modernization and security improvements. As part of this process, SSIS, working with the Systems team upgraded our Tessitura instance to the latest release, version 12.5. Also, the A&L website has been moved to a secure, isolated server environment. Additionally, there has been a successful conversion from direct student data access to a RESTful web service approach which removes database dependency and improves overall security of the application. Finally, SSIS implemented two major technological improvements to the A&L website over the past year: Select Your Own Seats for Arlington Theatre and The Granada Theatre and the Create Your Own Series functionality.
- **Significant modernizations of Student Affairs applications**: SSIS created and deployed two applications that were quite ground-breaking for SSIS and SIS&T on the whole: Student Affairs System Information (SysInfo) Sitefinity site and the Office of International Students & Scholars (OISS) Trainee/Internship Placement Plan (TIPP) application. The SysInfo website is the first completely cloud-hosted web application which by-design functions entirely independently from campus IT infrastructure. This site allows SIS&T and Student Affairs to transmit information to users regardless of campus conditions. The OISS TIPP application was a significant technological step forward for the SSIS team. This is the first application to leverage exclusively modern tools and technologies including Model-View-

**ADDITIONAL SERVICES & SUPPORT**

- **Alcohol and Drug Program**: CASE Application maintenance and upgrades, 21st Birthday preferred name transition, and AWS SES conversion.
- **Career Services**: Aynchronous upload tool for event attendance tracker.
- **Disabled Student Program**: Department website transition to Sitefinity CMS.
- **Early Academic Outreach Program**: Transition to responsive Standard Template.
- **Economics**: Department website transition to Sitefinity CMS.
- **Office of Student Life**: First-Year & Graduate Initiatives website transition to Sitefinity CMS.
- **Office of International Students and Scholars**: Transition to Bluefin platform for credit card processing. Updated Document Management System improving business logic, efficiency, and reliability.
- **Recreation Center**: Transition to Innosoft Fusion for management of all department business.
- **Women, Gender, and Sexual Equity**: Creation of custom social media widgets.
logic theory, was completed by SSIS, in conjunction with SIS&T’s Data Services & Business Systems Support (DSBSS), Career Services, Symplicity, and the Office of the Registrar. After working through numerous unique requirements including file format, Not-For-Release (NFR) student data, and student graduation information, SSIS and DSBSS were able to replace the quarterly, manual process of updating hundreds of students’ information with an automated weekly data export.

- **Merger of the Women, Gender, and Sexual Equity (WGSE) suite of websites into a single unified web application:** Historically, WGSE consisted of five independent websites: Campus Advocacy Resources & Education (CARE), Resource Center for Sexual & Gender Diversity (RCSGD), Non-Traditional Student Resource Center (Non-Trad), the Women’s Center, and the parent WGSE site. These five websites were managed independently and had completely unique layouts and styles. SSIS worked with all five of these entities to unify their style in order to help students understand that these five entities are a single group working together. SSIS was also able to combine all five independent sites into a single website managed from a single administration panel which all users can access.

- **Development and implementation of Amazon Simple Email Service:** Student Affairs has always had a significant need to send mass emails to various groups based on a number of different needs and requirements. Based on this wide array of needs SSIS proposed, acquired, and implemented a two-part solution: purchase of an Amazon Web Services Simple Email Service (AWS SES) account and creation of a simple web-based custom mass mailing tool. The SES account allows for extremely low-priced mailings of 1,000 emails for ten cents. The mass mailing tool is extremely flexible allowing any number of recipients, any sender (within Student Affairs), and a custom HTML email body. Over the past year, this tool has allowed Student Affairs departments to send hundreds of thousands of emails for an unmatched cost which previously was not possible.

User Experience and Communication (CommCollab)

The User Experience and Communication team (aka CommCollab) began the 2015-16 academic year — its third year — in growth mode. With three full-time staff, two part-time paid student staff and an additional 20 interns, plus a limited portion (20%) of graphic design support from a member of SIS&T’s Administration Unit, the CommCollab and SAMI teams were able to provide more multimedia marketing and communication service to the Student Affairs division and its partners. For the size of this one-stop-shop, the CommCollab and SAMI teams had a remarkably productive year, however, staffing levels recently changed with the loss of our Video Communications Coordinator Brandon James, and it will be a challenge to continue the pace without additional support.

Services offered by CommCollab and SAMI include: video, audio, photo, design, social/mobile media, writing/editing, UI/UX, accessibility, web content analysis/strategy, information architecture, browser usability/compatibility, browser/mobile testing, analytics, email marketing, Studio and equipment management, large-format banner printing, and more. Our team also maintains vendor tools widely used across campus, including Emma (email marketing tool) and Target X’s Schools App (Facebook app), and we also provide functional support for Adobe Creative Cloud users.

MAJOR ACCOMPLISHMENTS

- **Provided communication support to first-ever UCSB Give Day (4-8-16):** Keri Bradford served as the division’s communication lead during UCSB’s first-ever Give Day, a 24-hour online fundraising campaign that netted the division 163 gifts, totaling more
than $45,000. Keri and Brandon James, former Video Communications Coordinator, produced a promotional video, and Keri managed the division’s social media channels during the campaign. She also wrote and edited promotional copy and provided graphic design services for the campaign.

- Developed a service disruption communication plan for SIS&T: Keri Bradford and James Kinneavey created a draft communication and workflow plan to communicate service disruptions to SIS&T’s customers, utilizing a variety of platforms that included social media sites and the newly created info.sa.ucsb.edu website, a Sitefinity site that lives in Azure and that was spun up specifically for this task. During an incident, Keri serves as a communication lead and is responsible for posting updates about estimated service restoration times.

- Provided editing, photography, and design support for division’s annual report: Keri Bradford coordinated the production of the division’s third annual report, and members of the CommCollab and SAMI teams helped write, edit, photograph, and design the 42-page publication.

- SAMI team experienced remarkable growth, provided expanded coverage: Brandon James, former Video Communications Coordinator and SAMI supervisor, recruited, hired, trained, and mentored 22 interns in the Student Affairs Media Internship (SAMI) program. The team more than doubled in size, and the additional resources allowed the program to provide more media coverage to the division and its partners, which include the Graduate Division, Economics, and Public Affairs.

- Negotiated MOU with Economics department, leveraged Azure environment: Keri Bradford worked with Peter Rupert (former department chair) to formalize a partnership between SIS&T/CommCollab and the Economics department by collaborating on a project that allowed both teams to leverage Azure, a relatively new cloud environment supported by SIS&T. Eric Mayes redesigned the Economics website, CommCollab and SAMI shot photography for it, and SIS&T set up a new Azure subscription and coordinated the department’s move to the cloud, plus provided training and consultation to the Economics team.

- Created 99 videos and numerous photography projects: Brandon James, former Video Communications Coordinator and SAMI supervisor, and his team created dozens of videography and photography projects this past year. Some highlights include: a UCPD/Student Relations video created in partnership with the Dean of Students office and Police department, a video introducing Vice Chancellor Margaret Klawunn, a new and popular Student Spotlight series, a short film about the Resource Center for Sexual and Gender Diversity, and a new “Mondays with Maka” Health & Wellness series.

- Redesigned the Graduate Post website, added new functionality: Eric Mayes worked closely with the Graduate Division’s administrative and information systems teams to move the Graduate Post website off of a third-party hosted solution and into SIS&T’s environment, plus he completely redesigned the website, aligning it more closely with UCSB’s brand identity.

- Redesigned the Business Intelligence website, making it more user-friendly: Eric Mayes worked closely with SIS&T’s Data Services team to enhance the UI/UX of the division’s Business Intelligence website, not only making it work responsively with various device types, but also making the site presentation more friendly to users.

- CommCollab representing division in new Campus Story initiative: Keri Bradford is representing the division in Public Affairs’ new Campus Story initiative, a major rebranding effort intended to be widely adopted across campus. CommCollab will work closely with the Vice Chancellor’s office, SIS&T, and its partners to coordinate the implementation of UCSB’s new graphic identity across all websites, applications, multimedia productions, and in print publications.

### ADDITIONAL SERVICES & SUPPORT

- **Strategic marketing analysis, plan development:** CommCollab provides needs assessment analyses and produces data-driven, multi-platform marketing-communication plans to departments across the division.

- **Multimedia production:** CommCollab and SAMI provide videography, photography, motion graphics animation, and audio recording.

- **Social media marketing:** CommCollab manages UCSB’s Facebook app and several social media accounts, plus provides training and consultation across campus.

- **Mobile/web design:** CommCollab provides front-end design with UI/UX, accessibility, browser/device compatibility, web content analysis, and information architecture in mind.

- **Email marketing:** CommCollab manages Emma, a media-rich email marketing tool in use across campus.

- **Graphic design and printing:** CommCollab created and maintains the division’s graphic identity and provides design and large-format banner printing service to campus.

- **Writing/editing support:** CommCollab maintains the division’s writing style guide and offers writing/editing support.

- **Studio and equipment management:** CommCollab and SAMI manage the division’s production studio and maintains equipment available for check out.

- **Diversity training:** CommCollab schedules, hosts, and provides recordings of diversity training topics for SIS&T.
MAJOR ACCOMPLISHMENTS

■ Standardized and Enhanced the Student Affairs Business Intelligence Environment: Standardized the SharePoint BI environment, including new site templates and security standards. Worked with a SharePoint consultant to stabilize the environment and to implement each Microsoft BI technology compatible with SharePoint (PowerPivot, Power View, SSRS, Excel Services, and My Sites/OneDrive).
■ Reporting Services Migration to the SharePoint BI Environment: Created departmental sub-sites in the new BI environment and migrated the SSRS reports for Admission, CLAS, EOP, Graduate Division, OISS, WGSE, and SIST.
■ Financial BI Release and Adoption: Released the General Ledger and Permanent Budget reporting environment, which includes standard divisional and department reports, and ad-hoc data analysis access for business officers and managers in the division. Trained all department business officers and managers on the new tools and reporting environment. This includes 50 users from 25 SA departments.
■ Student Reporting and Adoption: Released a new version of the student data models for statistical analysis with non-identifying student data. Adoption effort and divisional training on the data and the models are in progress.
■ Other BI Initiatives: Working on providing comprehensive DSP Reporting and ad-hoc data access to DSP services data. Working on improving the Graduate Division reporting by providing access to accurate student data and modern tools. Released eApp reporting to production.
■ iSIS Data Dictionary Release: Released a new iSIS data dictionary utilizing the RedGate SQL Docs tool. Released a set of reports to expose the data definitions to developers and end users.
■ ProSam Reporting: Released an ISIR data model that tracks applications and applicant counts over dates, match status, processing status, and UAL indicator. Released a Verification Tracking data model that shows average wait days, and student counts over various application attributes.
■ ProSam Data Integration: Created data objects to provide ProSam with Admissions and Registrar data from our Operational Data Store and Student Information System.
■ Recreation Fusion Data Integration: Created data objects to provide Fusion with student data from our Operational Data Store for student membership purposes.

The Data Services team accomplished several BI initiatives this year. We released the Financial BI site with standard reports and ad-hoc capability for permanent budget and general ledger data. Since then we have trained 25 departments and over 50 users on this tool. We have released a new version of the student reporting data that can be used for statistical analysis of our student population, and are working on its adoption in the division by training users on the data and the tool. We worked with OFAS to provide initial ProSam reporting and are in the process of developing a DSP and Graduate Division reporting solutions.

The team provided data integration support to various projects. We developed data integrations for the new ProSam implementation and for the new Recreation management system Fusion. These interfaces provide continual update of student data to the applications to be able to function correctly. We provided OISS support to provide newly collected TIPP (Training/Internship Placement Plan) data to the OISS management system ISSM, and to be more precise in reporting student major CIP codes to the Department of Homeland Security by reporting at the objective-major-emphasis level.

The team released a new iSIS data dictionary to make the definitions of the iSIS database tables and fields available to the developers. In addition, the team provided database support for the Preferred Name project, the Admission 2016 cycle, Uversity Facebook App, PaperCut Printing service, Gaucho Link, iSIS database support, SHS data interfaces, and other.
**OISS TIPP Data Processing and Major/Emphasis CIP Reporting:** Implemented new data transfers from ISSD to Staging and ISSM for the new TIPP (Training/Internship Placement Plan) data that is collected for international student interns. Implemented a new way of reporting student major CIP codes to the department of homeland security, based on the student objective, major and emphasis.

**Economics Department Technology Assessment:** Performed an assessment of the current technology state and technical support for the Economics department with the purpose to transition the support for their website to SIS&T.

**Cloud BI Technology exploration:** Prototyped Power BI reports and researched the Azure Machine Learning technology in support for new BI Initiatives.

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**Business Systems Support**

During the last year the business systems support team focused their effort mainly on support for the Recreation department, OISS and Arts and Lectures. We implemented a new Recreation management system Fusion, which includes new accounting and credit card compliance components. We performed 10 upgrades to OISS’s management system ISSM and implemented new processes to collect TIPP data and to report more precisely student majors to the Department of Homeland Security. We hired a new business systems analyst for OISS and are in the process of reviewing the business processes and improving and streamlining their data interfaces.

For Arts and Lectures we implemented a new mobile application for ticket sales. The mobile apps were published to iTunes and Google Play store. We installed new P2PE (Point-to-point-encrypted) credit card readers in the Cashiers office.

**Recreation Fusion Implementation:** Implemented Innosoft’s Fusion software for the Recreation department to replace Active’s Class software. The effort included implementing new credit card solutions for both web and in-person sales under new PCI compliance rules/guidelines, and installation of new P2PE (Point-2-Point-Encrypted) credit card readers in the Cashiers office.

**Recreation PCI Compliance Validation for Cashier’s Office and Online Sales:** Completed the certification for credit card compliance for the Shift4 implementation for in-person sales, and for the Authorize.net implementation for online sales, utilizing the Coalfire’s Fusion PCI portal.

**OISS ISSM Upgrades:** Coordinated 10 upgrades of Ellucian’s International Student and Scholar Management (ISSM) application to remain in compliance with the federal government’s Student and Exchange Visitor Program ICE (SEVIS). The Department of Homeland Security’s system SEVIS had two major releases over the last year.

**OISS Business Process Review and Improvements:** Implemented a new method to report student majors by objective, major and emphasis, and a new TIPP (Training/Internship Placement Plan) collection and reporting methodology. We are in the process of reviewing and improving the ISSM data interfaces.

**A&L Mobile App Release:** A&L mobile apps were published to iTunes and Google Play store. The apps have been well received and are being actively used by patrons. The added functionality of the apps allows A&L to use direct messaging with mobile subscribers, stronger integration with social media and on-demand live streaming.

**A&L Tessitura Upgrade to Version 12.5:** Upgraded the Tessitura application and corresponding services to version 12.5. This required upgrading existing processes, end-to-end testing, and user training.

**A&L New Vouchers Process in Tessitura:** Created a new process to issue and redeem vouchers in Tessitura. When subscribers renew early a voucher is created, a record of it is put on the patron account, and a redeemable ticket voucher is printed. Created the ability to also track and report on vouchers.

**A&L Transition from Intrix Payment Services to Vantiv:** Transitioned payment gateway provider from Intrix Payment Services to Vantiv Integrated Payments. Vantiv will allow A&L to leverage tokenization as well as process EMV (“Chip and PIN”) transactions.
Strategic Architecture & Platform Integration Services

The 2015-16 was another busy year for the SAPIS Team. During the year, we completed several major initiatives, embarked on new ones, and added to the overall capability of the team to support SIS&T and the Division. The most prominent accomplishment was the release of the next generation web farm in August 2015, which provides hosting for the majority of SIS&T’s custom developed information systems. Along with that, a PowerShell management framework for the web farm was also released, which enables the scripted automation of tasks. Since initial release, the web farm and management framework have continued to be patched and enhanced to provide an expanding capability set. New architectural components were also added to the web farm, including a state caching component that enables applications to be updated without negatively impacting active users (zero-downtime deployments).

Building on the management framework, the first half of 2016 saw the initial implementation of Octopus Deploy which leverages the management framework enabling a workflow driven model of automated deployments. Once finished, this will represent a massive paradigm shift toward a true DevOps culture, improving our software delivery agility and generating a significant resource savings for the Development Support Team by eliminating most manual deployment activities. The identity management team provided key engineering work to support multiple high visibility projects, most notably the Preferred Name and Recreation Center Fusion projects. The identity infrastructure was significantly augmented during the 2015-16 year as well. The capability of the team was enhanced through development and technical growth of the team, including recruiting a second full-time developer. The team vastly improved the identity synchronization processes and systems through a series of refactoring and added capabilities. The supporting development and test environments were linked into the production synchronization process to keep them in lock-step with production identity changes, improving support for functional development teams. Developer and end-user web tools were also significantly enhanced. The architecture team continued to build and enhance components and tools used by all developer teams to improve the productivity and quality of the efforts.

**Identity and Access Management**

**MAJOR ACCOMPLISHMENTS**

- **Development of Identity Management Team:** Continued to develop and improve the identity management team capability by promoting and transitioning full management responsibilities to the lead developer and adding both a permanent software developer as well as recruiting a half-time operations position (starts September 2016). The enhancement of this team has greatly improved the ability of SAPIS to support identity and access management needs of SIS&T.
- **Preferred Name Synchronization:** To support the Preferred Name project, worked closely with other SIS&T teams and the Registrar’s office to implement preferred name synchronization and supporting logic using our FIM infrastructure.
- **Re-engineering ForeFront Identity Management (FIM) Synchronization:** Significantly re-engineered the synchronization logic for employees and students, greatly improving the data quality of identity data into the iSIS Person Index, but also reducing workload for correcting/deconflicting identity records.
- **Automatic Synchronization of Development and Test Identity Environments:** Added additional synchronization infrastructure to ensure that identity and password changes from campus to the SA production environment propagate in near real-time to the development and test environments. Prior to this, development and test datasets were static which, at times, impeded workflow for the functional development units and required manual synchronization intervention.
- **Identity Management Website**
Information Systems
Architecture and Platform Integration

MAJOR ACCOMPLISHMENTS

- **Web Farm Infrastructure:** The Next Generation Web Farm was a complete re-architecture of the old system and now provides significantly improved fault tolerance, recoverability, management, and automation capabilities. The new architecture includes restructuring of proxy configuration and rulesets that control redirection to backend load-balanced servers, a powerful PowerShell management framework that enables most any installation, configuration, or administrative task to be executed by automation tools, and new architectural components that provide more capabilities for applications and the ability to deploy application updates with no disruption to active users.

- **Web API Security:** To support a future services-based architectural approach, developed underlying components and mechanisms to ensure web services using can be securely exposed and consumed.

- **Student Financial System (SFS) Batch Job Automation Infrastructure:** Completed setup of infrastructure (Microsoft Orchestrator) and developed a PowerShell framework to support automation of batch jobs.

- **Email Gateway:** Re-engineered the Email Gateway service which provides a common email service for business applications to utilize Amazon Web Services integration and significantly improved sending throughput and tracking capabilities.

DevOps and Application Lifecycle Management

MAJOR ACCOMPLISHMENTS

- **Deployment Automation:** Build progressively on the web farm management framework to provide automated deployment capabilities. Implemented a deployment workflow automation tool (Octopus Deploy) that executes application deployments across development, test, and production environments. Add deployment modules for iSIS web/broker, Windows services, and iSIS batch jobs. In conjunction with this, worked with development teams to improve source code branching and build strategies that improve and streamline application deployments.

- **Developer Desktop Image:** Re-engineered the manner in which standard developer images are created and maintained from a periodically updated static image which becomes increasingly outdated over time to automated build using a modular package-based approach that can continuously evolve to accommodate tool and technology changes.

- **Team Foundation Services (TFS) and Build Tools:** Coordinated upgrades to the TFS and build environment, tools, and templates current, relevant, and well-positioned for future (cloud).

Additional Unit Accomplishments

- **Unplanned Service Disruption Communication:** Coordinated initial efforts to improve communication to the Division and Campus communities in the event of unplanned service disruptions. This included the development the info.sa.ucsb.edu website hosted in Microsoft Azure.

- **SiteFinity Performance Improvements:** Worked collaboratively with SiteFinity development team to devise creative methods to dramatically reduce system resource consumption of growing inventory of SiteFinity sites.

- **Cloud Adoption and Exploration:** Led a variety of efforts and initiatives to research, plan, and begin cloud adoption efforts including establishment of Azure environment, development of standards and methods for Azure usage, planning for integrating SA identity environment into Azure, support for PowerBI training, and development of Azure technical expertise within the team.
Computer Help Desk

The Computer Help Desk provides training and support to facilitate the use of technology by UCSB staff to meet Department and Division goals. With a staff of four dedicated FTE, workstation support is provided to more than 800 workstations and 1,000 users who provide service to UCSB’s entire student population. Workstations are centrally managed and applications centrally deployed, and solutions center around the Microsoft Windows and Office suites. This allows the Computer Help Desk staff to focus its knowledge around a core set of tools and more quickly and easily troubleshoot and resolve problems. This is vitally important to the team as it reduces the impact on and helps users to more quickly return to providing services to students.

The Computer Help Desk also provides support for about 70 workstations and three printers in open-access computer labs, and 15 net stations in various departments for students to use for class registration, work study job searches, veteran services, and more. They also support about 250 external users including doctors at Cottage hospital treating UCSB students after hours, vendors supporting and updating applications, and various UCSB staff in departments outside the Division of Student Affairs and the Graduate Division.

MAJOR ACCOMPLISHMENTS

■ High level of user satisfaction: SIS&T has embarked on a path of greater assessment and an initial effort in this direction has been annual surveys of user satisfaction. All users who provided feedback during the latest survey expressed satisfaction (most with a very high level of satisfaction) with the Computer Help Desk staff’s assistance.

■ Resolved 7,000 service requests: The Computer Help Desk received and resolved more than 2,400 formal service requests and more than 4,500 requests by phone and instant messaging. The scope for these requests was varied and often required extensive time commitments. Equipment moves involve consultation with users and usually comprise four person/hours or more per incident. New user orientation training was also provided for 396 new users.

■ Provisioned over 400 computers for Orientation programs: In addition to handling desktop support for users, the Computer Help Desk is also responsible for imaging, setting up, supporting, and removing systems to support incoming student programs. During the 2015-16 year, the Computer Help Desk purchased and configured 160 new computers and reimaged 350 existing computers to serve the needs of incoming freshman and transfer students as they enrolled in classes during Summer orientation sessions.

■ Set up temporary computer labs and offices for the Educational Opportunity Program: The Computer Help Desk provisioned a temporary computer lab with 18 computers and three printers to support EOP’s Summer Transition Enrichment Program. This program helps first generation college students make the transition from high school to the university setting. The Computer Help Desk also set up computers and printers for EOP Staff as they assisted hundreds of students in the Summer Transitional Enrichment and Freshman Summer Start Programs ease into college life.

■ Provisioned the Gaucho Support Center in Isla Vista: Supporting the provisioning of computers, a conference room, and digital signage in the Gaucho Support Center in Isla Vista was a major project. This required setting up new computers, printers, and ancillary systems to support operations in a new location. With more than 300 hours of involvement, the Computer Help Desk staff were integral to this effort and the provision of support for students closer to where they live.

ADDITIONAL SERVICES & SUPPORT

Below are user comments regarding the Help Desk, from a survey distributed to partners and customers in February 2016:

How does the Help Desk enable you to perform your job?

■ “They are there when we need them and fix the problems quickly.”
■ “Fast support, straight to the point, responsive.”
■ “Help Desk is always very helpful and patient.”
■ “Quick response times.”
■ “Assistance with ordering or providing equipment.”
■ “Almost instant problem solving with help desk remoting onto my machine to make a fix.”

How does the Help Desk excel?

■ “Friendliness and quick fixes.”
■ “Personal connection, quick services.”
■ “Quick response. Everyone in SIS&T is nice to work with.”
■ “Customer service, especially at x7962 is some of the best I have ever experience in any field in terms of communication, follow through, and site visits to fix problems.”
**Desktop Support**

This work has been a constant flow of upgrading, patching, troubleshooting, and developing an enterprise approach to maximizing all solutions. Work has been done to lay the foundation for Windows 10 in our environment, including server upgrades to support Windows 10 deployment and patching. Operational support has consumed most of the past year with the notable exception of the migration of the Recreation Center to Innosoft Fusion as an information systems solution. The goal is, as always, to keep all users as technologically productive as budgetary constraints allow.

**MAJOR ACCOMPLISHMENTS**

- Maintaining, growing, and securing the workstation, application, and general computing environment for all users: The migration of the Recreation Center to Innosoft Fusion as its information systems solution has provided them with new services. This migration was also an opportunity to leverage third-party services to handle PCI transactions, allowing UCSB to avoid being involved in the process and transferring this risk from the university. All of this and more were possible through close collaboration with other IT staff, business analysts, and department business staff.

**ADDITIONAL UNIT ACCOMPLISHMENTS**

- Support for Arts & Lectures’ PCI compliant information systems
- Updates for centrally managed applications
- Updates for device drivers for managed workstations
- Maintenance and updates for SRB open-access student computing workstations
- Support for the Financial Aid information systems, including FinAid EDExpress, Wave, and ProSam
- Migration of file shares for the Graduate Division, facilitating the retirement of Windows Server 2003 systems
- Updates to Java to support the use of Kronos
- Upgrades to the NEC phone system client
- Support for the Student Health information systems, including PnC server, PnC Connect server, PnC iPad waiver and photo apps, ProPharm, Orchard Harvest, and Dentrix (hardware and software)
- Updates for UCC’s NoHo Care system
- Tier-3 resource for Help Desk staff
- File system security permissions and migrations
- Hardware support for SIS&T’s Storage Area Network
- Assistance with firewall configuration efforts
- Support and maintenance of Active Directory servers
- Support for the Identity domain and deployment of new servers as part of the Next Gen Identity infrastructure
- Upgrade and maintenance of the Windows KMS licensing server
- Maintenance of the WSUS server used for patching Windows 7 desktops

**Data Center & Infrastructure**

While previous years have focused on growth required to support operations, the 2015-2016 year has largely been about infrastructure modernization. Critical hardware was replaced, operations examined, and efforts to secure and improve the way we do business was begun.

A greenfield approach to business continuity and disaster recovery was begun, allowing dramatically improved quality of service and ability to support recovery of systems in a variety of scenarios. An on-campus business continuity location was established, providing primary and secondary server rooms in different buildings on parts of the campus. Work continues in this area as backup plans and recovery plans are redesigned to take advantage of newly introduced capabilities.

The team also began focusing on the data associated with monitoring. Partnering with UCSB Enterprise Technology Services and Microsoft Premier Services, work was done to solve lingering problems and improve the infrastructure monitoring system. This effort was completed in order to facilitate the introduction of Microsoft Operations Management Suite into the environment and a significant project to expand and leverage monitoring and automation tools will be undertaking in the coming year.

**MAJOR ACCOMPLISHMENTS**

- Replaced the Storage Area Network (SAN): The Dell Compellent SAN that provided for the Student Affairs and Graduate Division storage needs for many years reached end-of-support for some of its major components.
- Updated the SAN to HP 3PAR solution. The new 3PAR solution was purchased and all virtual machines were migrated without incident, allowing improved performance and access to better management tools as well as a solid platform on which to build for the future.
- Decoupled email distribution lists and file system security groups: This
long and involved project involving cross-team effort and coordination with users in 18 departments. Completion of this effort allowed us to discontinue the use of email distribution lists for controlling file system security.

- **Implemented an on-campus business continuity solution:** In order to provide fast on-campus recovery to localized failures, a small server room was provisioned in a building in another area of campus from the primary server room. High speed networking connections were established between the buildings, and a smaller blade chassis and SAN were installed. Backups are now sent to this remote, on-site server room and virtual machine replication will allow for the quick resumption of operations if needed.

- **Replaced Symantec Backup Exec with Veeam Backup & Replication:** As part of modernization efforts, Veeam Backup & Replication was selected as the new solution for virtual machine backup and recovery. This offers many new opportunities including the possibility of securely backing up to a cloud storage provider. Backup and recovery plans are being completely rewritten to take advantage of the new options and a much more robust system will be in place to safeguard systems and data.

- **Migrated to Veeam management pack for System Center Operations Manager:** Faced with skyrocketing licensing costs for existing tools for monitoring and maintaining the virtual environment, an evaluation of competing tools was performed and Veeam management pack for SCOM was selected. Moving away from established tools incurred a transitional cost but the new tools are already providing valuable visibility into operations.

- **Implemented Operations Management Suite (OMS):** In an effort to provide increased visibility into our environment and inform decision making processes, Microsoft OMS was implemented as a pilot program and is being expanded to monitor and report on all important systems. This was the beginning of an exciting effort to build a data-informed infrastructure and many follow-on projects will be coming as we expand its use and leverage new capabilities that are introduced.

- **Retired Windows Server 2003:** Microsoft stopped releasing security patches for Windows Server 2003 during the summer of 2015. They also stopped providing technical support for Windows Server 2003 except through expensive contracts. Most servers running this older operating system had already been retired but several were still in operation. During the year we collaborated with other teams to move services to new servers, allowing us to retire the old systems, eliminate security and stability risks, and reclaim virtual hardware resources.

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**Developer Support**

The primary focus of the Developer Support team for the past year has been on supporting operations. More than 1,000 tickets were submitted through the Help Desk ticketing system for the Developer Support team alone, and almost all of them have been resolved. There has been more effort the second half of the year to develop plans for improving the reliability, availability, serviceability, and security of our systems and efforts will continue in the coming year to act on these ideas.

Support for Student Health Service was, as always, a central theme in the team’s work. In addition to maintaining and performing minor updates to the electronic medical records system, there was a significant version upgrade. This upgrade was less smooth than previous upgrades and considerable effort was devoted to troubleshooting and resolving the resulting issues.

**MAJOR ACCOMPLISHMENTS**

- **Custom application deployments:** The Developer Support team performed 804 deployments during the 2015-2016 fiscal year. These were often bug fixes but many times the deployments supported the release of new or improved features and provided greater value to students and the staff who support them. Of note is the fact that 112 of these deployments were emergencies and required the Developer Support team to immediately stop all other work in order to support the deployment. Emergency deployments were releases that were critical to the continuation of business and without which there was a severe negative impact on business operations. Most of these emergency deployments were performed during working hours but many were performed in the evenings or on weekends.

- **Vendor product administration, maintenance, upgrades, and patching:** Whether for internal use in monitoring and maintaining the environment or for external use by faculty, staff, and students, every application has to be maintained. In addition to deploying updates to over 150 custom developed applications, the Developer Support team managed and maintained 25 commercial applications. Support for these included administration and configuration, patching and upgrading, and troubleshooting and resolving server and client problems. Some of these are smaller systems while others are core to the mission of life safety at UCSB, such as the electronic medical records system and all of the other applications that integrate with it.

- **System Center Configuration Manager (SCCM):** Improving our operational capability and providing new opportunities moving forward, Microsoft System Center Configuration Manager was deployed in our environment. All patching for Windows servers was transitioned from WSUS to SCCM and the system is now also used to deploy...
These fitness centers required special main gym in fitness centers 1 and 2. To campus wireless were installed in the wireless access points providing access were wired for exercise equipment and construction, fitness centers 1 and 2 provide computer controlled exercise the main recreation with the ability to. This communications needed network and infrastructure feed the surrounding areas with much obtaining space that would adequately provide great benefit to lowering the campus’ carbon footprint. By nature, is primarily physical and therefore involves any and all construction projects, remodel projects, power projects, and more. Sooner or later, all of these projects require access to the network. The same is true for software and business development projects: They, too, require network connections, firewall changes, and applications enabled or blocked at the network level. In addition to these pieces, network services are also where security starts and where is much of our security controls are processed. Combining these pieces means that everything eventually requires support or structure from the Network Services section.

MAJOR ACCOMPLISHMENTS: Design, Construction, and Wiring Projects

- Network upgrades in the Rec Cen Main Gym: Designed, and oversaw the construction and wiring of a new communications closet for the Recreation Center. This involved obtaining space that would adequately feed the surrounding areas with much needed network and infrastructure components. This communications closet was fundamental to providing the main recreation with the ability to provide computer controlled exercise equipment, with wireless, and video feeds to students. As a follow-on to this construction, fitness centers 1 and 2 were wired for exercise equipment and wireless access points providing access to campus wireless were installed in the main gym in fitness centers 1 and 2. These fitness centers required special network configurations via special gateways, addressing, and routing in order to keep the exercise equipment connected to isolated and managed networks. This was a security measure to ensure that the exercise equipment would not be act as an access point for hostile intrusion and compromise network security. The Recreation Center was one of the locations selected for testing energy efficient LED lighting. This required building out the physical infrastructure to connect wireless access points to control the lights and the provisioning of network equipment to support them. Work to support this effort spanned multiple buildings in the Recreation Center complex and has provided great benefit to lowering the campus’ carbon footprint.

- Network upgrade planning for the Counseling and Career Services building: The Counseling and Career Services building layout is hostile to the provision of networks and networked technology. It is a long building with many turns, and the distances in some parts of the building from communications closets in others are too far to reliably provision networked equipment. Significant time and energy was spent designing a communications closet to provide the necessary network connections to meet the needs of Counseling and Career Services departments. Due to the nature of the building and required roof and wall penetrations, the cost of the communications closet was deemed to be too great and plans were placed on hold. Additional efforts were undertaken to try to provide network services to a subset of offices but vendor technology did not support requirements. This project has been placed on hold but the efforts taken to design a solution remain sound and will hopefully be undertaken as part of future renovation in the building.

- Establishment of a business continuity server room in the Student Health building: A communications closet in the Student Health building has been repurposed as a communications closet and business continuity server room. As part of the project, the room was upgraded to support 10 GB connections between equipment in the SAASB and SHS server rooms and an UPS installed that will power the business continuity equipment in SHS. The installation of high end router and switch equipment in SHS and the fiber upgrades to support full 10 GB connectivity has provided SIS&T users the advantage of additional 10 GB pathways through critical parts of our infrastructure. This additional capability increases the reliability of an already stable and comprehensive network topology.

- Establishment of the Gauc̈o Support Center in Isla Vista: Several departments providing mental health and related services to students required space in Isla Vista to provide services to students closer to where they live. The Counselling & Psychological Services department and Student Affairs division, working with the County of Santa Barbara, leased space in the Isla Vista Medical Clinic building. This space required major renovation and, working with Shana Moran-Lanier as the project manager, several design and engineering drawings were made. A communications closet had to be built, wiring for the internal network had to be provisioned, wireless access points for student wireless access had to be installed, wireless repeaters and rooftop antennae had to be placed to provide connectivity between this building and
the campus. This was a major project involving many parties across the campus and county and its success is a testament to the commitment to collaboration by those involved.

**MAJOR ACCOMPLISHMENTS: Network Design Projects**

- **Student Health:** Designed and implemented isolated electronic medical records (EMR) network for the Student Health and the Counselling and Psychological Services departments. Upon implementation, all servers hosting EMR data were migrated into the new security zone and all clients interacting with EMR data segregated from other client systems. The Student Health department has a complex web of interconnected applications and services. These applications and services consume a significant portion of Systems team time. One recurring theme was the requirement to build new VPN paths from SHS systems to CC Pathology and Pueblo Radiology to support changes to their networks and resolution of problems with their interconnected systems.

- **Recreation:** Designed, configured, and implemented specialized networks and connections for the Recreation Center’s migration to Innosoft Fusion. This included researching, analyzing, and establishing network connections and protocols, and creating documentation to connect and support credit card processing and PCI compliance to Authorize.net and Shift 4.

- **Arts and Lectures:** Designed and implemented PCI compliant network for A&L client workstations involved in processing credit card transactions. Also designed and implemented isolated server network for total PCI compliance for the SIS&T network, eventually designing and implementing a single isolated PCI compliant server network.

### Additional Unit Accomplishments

- Built new network analysis server and e-discovery process server
- Assisted with the consolidation of URLs for SIS&T hosted College of Letters and Sciences applications
- Assisted with the migration of Identity TEST Database environment to new servers
- Configured networking to support Business Intelligence environment
- Established and implemented Sitefinity application networking
- Designed and provisioned SIS&T networking in Girvetz Hall
- Upgraded blade chassis network interfaces and VLANs
- Repaired troublesome network equipment and fiber issues for C&CS building
- Participated in the implementation of the Next Gen Web Farm
- Engineered and implemented CName structure for Next Gen Web Farm
- Migrated developers onto their own public IP address space
- Upgraded routing paths and connections for the Exchange email server
- Set up private routing and networking to support campus vulnerability scanning of SIS&T’s internal network
- Set up specialized vendor connections for BI consultant, ProSam, and PnC
- Facilitated Executive Palo Alto Briefing for campus
- Presented informational meetings to CIO and others on SIS&T’s network security
- Set up special connections and networks for Amazon email services gateway
- Set up special Informatica agent connections
- Set up network and application environment for the Economics department’s website and associated file server
- Deprovisioned Graduate Division servers
- Redesigned and rerouted network paths to Kronos time clocks
- Processed more than 730 firewall changes
- Handled forensics and reports related to security incidents
- Analyzed and remediated server, desktop, and network vulnerabilities and application failures
- Replaced failing network and security equipment
- Upgraded firewall, switch, and router firmware
# Student Affairs IT Standards 2016

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

<table>
<thead>
<tr>
<th>IT Service Layer</th>
<th>Architectural Component</th>
<th>Divisional Standard</th>
<th>Metrics</th>
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</thead>
<tbody>
<tr>
<td><strong>Network &amp; Security</strong></td>
<td>Switching and Routing</td>
<td>Enterasys</td>
<td>86 Devices 70 VLANs</td>
</tr>
<tr>
<td></td>
<td>Firewalls</td>
<td>Enterasys &amp; Palo Alto</td>
<td>500,000 sessions/sec</td>
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<tr>
<td></td>
<td>Identity</td>
<td>■ Microsoft ForeFront Identity Manager (FIM)</td>
<td>■ ADFS provides single sign-on capabilities for approximately 50,000 users.</td>
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<tr>
<td></td>
<td></td>
<td>■ Microsoft Active Directory Federation Services (ADFS)</td>
<td>■ FIM provides identity synchronization for approximately 50,000 identities in three environments.</td>
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<td></td>
<td>Remote Access</td>
<td>Palo Alto, Enterasys</td>
<td></td>
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<tr>
<td></td>
<td>Spam and Virus Firewall</td>
<td>Barracuda</td>
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<tr>
<td><strong>Servers &amp; Hosting</strong></td>
<td>Power supply</td>
<td>APC</td>
<td></td>
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<tr>
<td></td>
<td>Server Hardware (Rack Mount and Blade Servers)</td>
<td>Hewlett Packard</td>
<td>205 Servers</td>
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<tr>
<td></td>
<td>Server Operating System</td>
<td>Microsoft Windows</td>
<td>165 servers (in four domains)</td>
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<tr>
<td></td>
<td>Virtualization Infrastructure</td>
<td>VMware</td>
<td>17 hosts</td>
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<tr>
<td></td>
<td>Web &amp; App Hosting</td>
<td>Microsoft IIS 8.5 (Webfarm w/ ARR)</td>
<td>10 Production Web Servers, 951 Websites</td>
</tr>
<tr>
<td><strong>Storage &amp; Data</strong></td>
<td>Storage Area Network (SAN)</td>
<td>Dell Compellent &amp; Hewlett Packard</td>
<td>225 TB</td>
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<tr>
<td></td>
<td>Backup</td>
<td>Veeam</td>
<td></td>
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<tr>
<td></td>
<td>Databases</td>
<td>Microsoft SQL Server</td>
<td>78 Production Servers, 292 Production Databases</td>
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<tr>
<td></td>
<td>Extracting, Transformation &amp; Loading (ETL)</td>
<td>Microsoft SQL Server Integration Services</td>
<td></td>
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<td></td>
<td>Reporting &amp; BI</td>
<td>Microsoft SharePoint &amp; SQL Server Reporting Services</td>
<td></td>
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<tr>
<td></td>
<td>Directory</td>
<td>Microsoft Active Directory &amp; webLDAP</td>
<td>2,825 Groups 1,347 Users 123 Print Queues</td>
</tr>
<tr>
<td>IT Service Layer</td>
<td>Architectural Component</td>
<td>Divisional Standard</td>
<td>Metrics</td>
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<tr>
<td><strong>Monitoring &amp; Escalation</strong></td>
<td>Database Monitoring</td>
<td>Idera SQL Diagnostic Manager</td>
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<td></td>
<td>Server Monitoring</td>
<td>Hewlett Packard Insight Manager</td>
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<td>Operating System Monitoring</td>
<td>Microsoft System Center Operations Manager (SCOM)</td>
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<td></td>
<td>Network Monitoring</td>
<td>Enterasys Atlas Network Mgr</td>
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<td>OPNet ACE Live/Palo Alto</td>
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<tr>
<td><strong>Desktops &amp; Customer Support</strong></td>
<td>Desktop Operating System</td>
<td>Microsoft Windows 7 Enterprise SP1 64-bit</td>
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<td>Desktop Tools</td>
<td>Microsoft Office 2013 SP1 Professional Plus 64-bit</td>
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<td></td>
<td>Help Desk</td>
<td>HelpStar Helpdesk System</td>
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<td></td>
<td>Desktop Hardware</td>
<td>Dell Optiplex Business Line</td>
<td>950 Computers</td>
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<tr>
<td><strong>Communications &amp; Productivity Tools</strong></td>
<td>Content Management</td>
<td>Sitefinity CMS</td>
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<td></td>
<td>Email &amp; Scheduling Server</td>
<td>Microsoft Exchange</td>
<td>1,706 Mailboxes</td>
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<td>Collaboration &amp; Communication</td>
<td>Microsoft Office Communications Server</td>
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<td>Microsoft SharePoint Server</td>
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<tr>
<td><strong>Software Engineering &amp; Development</strong></td>
<td>Application Integration</td>
<td>Microsoft Windows Communication Foundation (WCF)</td>
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<td></td>
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<td>Microsoft ASP.NET Web API</td>
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<td>Microsoft Message Queue (MSMQ)</td>
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<td>RabbitMQ Message Queue</td>
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<td>Software Configuration Management</td>
<td>Microsoft Team Foundation Server (TFS)</td>
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<td>Software Build &amp; Deployment</td>
<td>Microsoft Build / TFS</td>
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<td>Microsoft PowerShell</td>
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<td>Octopus Deploy</td>
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<td>Redgate SQL Developer Tools</td>
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<td>Architecture Modeling Tool</td>
<td>Sparx Enterprise Architect</td>
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<td>Microsoft Visio</td>
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<td>BizAgi Process Modeler</td>
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<td>Software Issue Management Tool</td>
<td>Microsoft Team Foundation Server (TFS)</td>
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<td>Microsoft Team Companion</td>
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<td>Development Platform</td>
<td>Microsoft .NET Framework &amp;</td>
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<td>Microsoft Visual Studio .NET</td>
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<td>Performance Analysis &amp; Optimization</td>
<td>Microsoft Analysis Tools for Visual Studio .NET</td>
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<td><strong>Cloud</strong></td>
<td>Infrastructure-As-A-Service</td>
<td>Microsoft Azure</td>
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<td>Platform-As-A-Service</td>
<td>Microsoft Azure</td>
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<tr>
<td></td>
<td></td>
<td>Amazon Web services</td>
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